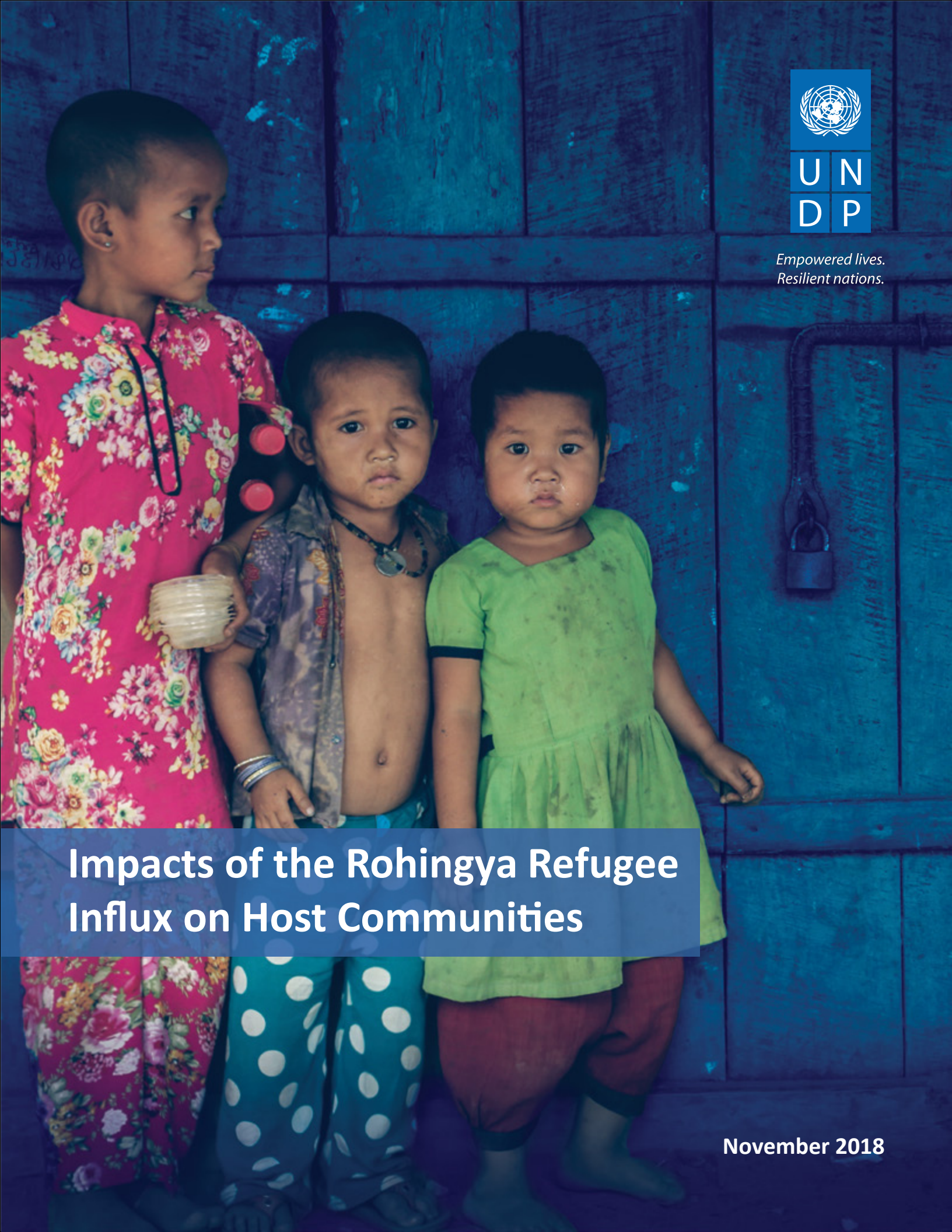

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Impacts of the Rohingya Refugee Influx on Host Communities

November 2018

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Acknowledgement

This is an integrated report of three thematic studies on the ***Impact of the Rohingya refugee Influx on Host Communities,*** which UNDP commissioned to Policy Research Institute (PRI). UNDP duly acknowledges the contribution made by PRI research team. which includes:

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The entire research project was led by Shamsur Rahman, National Economic Advisor, UNDP Bangladesh. Muhammad Moshiur Rahman, Reseach Associate, provided substantial inputs and acted as the Assistant Task Manger.

Acronyms

ACAPS	Assessment Capacities Project
ADB	Asian Development Bank
ADC	Additional Deputy Commissioner
AIDS	Acquired Immune Deficiency Syndrome
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
BEZA	Bangladesh Economic Zones Authority
CBN	Cost of Basic Needs
CCNF	Cox's Bazar CSO NGO Forum
CCT	Conditional Cash Transfer
CFW	Cash for Work
CiC	Camp-in-Charge
COAST	Coastal Association for Social Transformation Trust
CoxDA	Cox's Bazar Development Authority
CPD	Centre for Policy Dialogue
DC	Deputy Commissioner
DGHS	Director General Health Services
DID	Difference-in-Difference
DoAE	Department of Agriculture Extension
DPHE	Department of Public Health Engineering
DS	Deputy Secretary
DSS	Department of Social Services
EC	European Commission
EETWG	Energy and Environment Technical Working Group
FAO	Food and Agriculture Organization of the United Nations
FDMN	Forcibly Displaced Myanmar Nationals
FFS	Farmer Field School
FGD	Focus Group Discussion
FY	Fiscal Year
GBV	Gender-Based Violence
GDP	Gross Domestic Product

GFDRR	Global Facility for Disaster Reduction and Recovery
GOB	Government of Bangladesh
GOM	Government of Myanmar
HCR	Headcount Rate
HIES	Household Income and Expenditure Survey
HIV	Human Immunodeficiency Virus
IEDCR	Institute of Epidemiology Disease Control and Research
IFRC	International Federation of Red Cross and Red Crescent Societies
IGVGD	Income Generation for Vulnerable Group Development
INGO	International Non-Governmental Organization
IOM	International Organization for Migration
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
JRP	Joint Response Plan
LEWIE	Local Economy-Wide Impact Evaluation
LFPR	Labour Force Participation Rate
LFS	Labour Force Survey
LGED	Local Government Engineering Department
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
M&E	Monitoring and Evaluation
MICS	Multiple Indicator Cluster Survey
MODMR	Ministry of Disaster Management and Relief
MOFA	Ministry of Foreign Affairs
MOHFW	Ministry of Health and Family Welfare
MOPME	Ministry of Primary and Mass Education
MOWCA	Ministry of Women and Children Affairs
NGO	Non-Governmental Organization
NPM	Needs and Population Monitoring
NSSS	National Social Security Strategy
O&M	Operations and Maintenance
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-operation and Development
PMT	Proxy Means Test

PPS	Probability Proportional to Size
PRI	Policy Research Institute
RBM	Results-Based Management
RIVNA	Rapid Impact, Vulnerability and Needs Assessment
RMP	Rural Maintenance Programme
ROSC	Rotating Savings and Credit Association
RRRC	Refugee Relief and Repatriation Commission
SAFE	Safe Access to Fuel and Energy
SAM	Severe Acute Malnutrition
SAM	Social Accounting Matrix
SEZ	Special Economic Zone
SIDA	Swedish Agency for International Development Cooperation
SP	Superintendent of Police
SWAPNO	Strengthening Women's Ability for Productive New Opportunities
TCB	Trading Corporation of Bangladesh
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNHCR	United Nations Refugee Agency
UNICEF	United Nations Children's Fund
UNM	Undocumented Nationals of Myanmar
UNO	Upazila Nirbahi Officer
UPL	Upper Poverty Line
VDO	Village Development Organization
VGD	Vulnerable Group Development
VGF	Vulnerable Group Feeding
WASH	Water, Sanitation and Hygiene
WEF	World Economic Forum
WFP	World Food Programme
WHO	World Health Organization
YPSA	Young Power in Social Action
ZOI	Zone of Interest

Executive summary

The massive influx of Rohingya refugees into Bangladesh, fleeing a campaign of terror by the Myanmar military, has had a profound impact on the communities of Cox's Bazar and Bandarban districts in Chattogram division, where an overwhelming majority of the refugees have settled.

With less than 0.31 per cent of the world's population, Bangladesh now hosts 4.7 per cent of its refugees. The two southern Cox's Bazar sub-districts (*upazilas*)—Teknaf and Ukhiya—have borne the brunt of this crisis. At present, refugees constitute more than a third of the local population (IOM, 2018). The total refugee population is estimated at 882,676. Children make up more than half; adults and the elderly constitute 42 per cent and 3 per cent, respectively.

The needs of the refugees are of course great, but it is no longer sufficient simply to address these. Rising prices, alongside falling wages of low-skilled workers, are adversely affecting host populations. There are also huge concerns about environmental degradation, excessive pressure on already weak infrastructure and public services and growing tensions among refugee and host communities.

This broad assessment of the impacts of the refugee influx on the host community adds to current impact assessments and the related policy discourse using systematic evidence drawn from a household survey undertaken during April–May 2018 in Cox's Bazar district. It uses the results of this to assess the impacts in socio-economic, public service delivery and social safety net terms.

The aim is to enable the local government, sector departments, humanitarian agencies and non-governmental organizations (NGOs) to identify areas of support and strengthen existing service provision for both refugees and the local population.

Methodology

We used both quantitative and qualitative tools to gather data and information on community perceptions, as well as secondary sources, in order to be able to assess these impacts.

The chief **quantitative** instrument was a micro survey of sampled households from Cox's Bazar district. We used a stratified multi-stage sampling framework to select households. Since the refugees are disproportionately concentrated in Teknaf and Ukhiya, we concentrated on these two *upazilas*. The questionnaire was developed though a review of methodologies used in Bangladesh Bureau of Statistics (BBS) household surveys and other assessments carried out in similar contexts elsewhere. It was pre-tested in the field and finalized after incorporating changes based on feedback received.

We also conducted a brief survey of Rohingya households to understand their interactions with the host community. This covered some randomly selected Rohingya households in Kutupalong camp, in Palong Khali union of Ukhiya *upazila*, and enquired about refugee incomes in cash and kind from humanitarian sources, other income-earning activities and recent purchases from either the shops in the camps or outside.

We also conducted **qualitative** focus group discussions (FGDs) and consultations with development partners, NGOs and the Government of Bangladesh (GOB) in the affected areas. Ten FGDs were conducted in Bandarban and six in Cox's Bazar. We also conducted 16 key informant interviews in Cox's Bazar with GOB officials and representatives of various NGOs and development partners.

In terms of **secondary** sources, we used national surveys such as the 2013 and 2016 Labour Force Surveys (LFS) and the 2010 and 2016 Household Income and Expenditure Surveys (HIES). The review of social protection is based on administrative data published by the Ministry of Finance and the HIES 2010. We used data from the Cox's Bazar Department of Social Services (DSS) to analyse key features of the local system, and consequences on this post-influx. We used United Nations Refugee Agency (UNHCR) and International Organization for Migration (IOM) Needs and Population Monitoring (NPM) data to identify the resource requirement for generating employment for Rohingya adults.

In exploring **socio-economic impacts**, we used an approach comparable with the BBS methodology to assess poverty incidence. This is based on a poverty line income that takes into account established practices in the literature on poverty estimation and then identifies households that fall below this. We assessed changes in prices and wages to isolate impacts on host community household income and poverty status arising solely as a result of the refugee influx. Further, we explored links among Rohingya camp and host community economies, simulating various refugee influx-related consequences and thereby assessing their overall macro-economic impact.

In terms of impacts on **public service delivery,** we looked mainly at a mix of the primary data and secondary data from traditional institutional sources. This effort also identified and assessed key GoB agencies engaged in the combined provision of services to the Rohingya and the host population.

For impacts on social safety nets, we used our simulations to generate three potential schemes to compensate for the net negative impact on the host community of the refugee influx. We also identified the resource requirements for generating employment for Rohingya adults.

Limitations included issues related to the small sample size and the potential exclusion of small and vulnerable groups as a result of this; time and resource constraints; limited or weak administrative data; evolving conditions in the field; potential criticisms of the choice of poverty line income; lack of focus on the enterprise level; and reliance on the "recall method", which may result in faulty data.

The two districts pre-influx

Land and livelihoods: Cox's Bazar represents about 1.7 per cent of the total area of Bangladesh, which makes it among the country's smallest districts. More than 60 per cent is either forest or unavailable for cultivation, in comparison with 40 per cent for the country as a whole. Bandarban is a hilly district, with very little land area suitable for cultivation—only about 6 per cent of the total.

Demographics: Population growth in Cox's Bazar is 2.55 per cent against a national average of 1.47 per cent. Teknaf and Ukhiya have populations of about 0.31 million and 0.24 million, respectively. Both *upazilas* have a relatively large proportion of children and young adults. Bandarban has a total population of about half a million and one of the lowest population density rates in Bangladesh.

Labour market: Labour force participation rates in Teknaf and Ukhiya are a little higher than the district and national averages (BBS, 2018). The female rate in Teknaf is lower than both averages, but Ukhiya's is close to the national average. Lack of education and training, prevalence of early marriage and patriarchal social norms are factors contributing to limited female labour market participation.

Occupation and employment: Agriculture is the primary source of livelihoods in Cox's Bazar, and rice is the main agricultural crop. Teknaf's dependence on agriculture is at a staggering 81 per cent, while the

corresponding figure for Ukhiya is 63 per cent. With limited cultivable land, Bandarban produces few crops and fruits. Fishing is another critical source of livelihood, particularly in Teknaf *upazila* of Cox's Bazar. Compared with Bangladesh overall and Cox's Bazar district, both Teknaf and Ukhiya have much lower industrial employment (which includes manufacturing).

Income and consumption: Wages in Cox's Bazar are just below the national average. This probably reflects the lack of industrial jobs and possibly of rural non-farm employment opportunities. Per capita income and consumption in Cox's Bazar are comparable with the national average. Bandarban's figures are much lower than those of Cox's Bazar and the national average (BBS, 2017c).

Health, education, sanitation and infrastructure: Cox's Bazar and Bandarban are characterized by high prevalence of stunting and moderate and severe underweight prevalence among children (BBS, 2015c). This is caused by food shortages and food insecurity as well as unplanned pregnancy. The districts also lag behind most others on educational attainment.

Electricity connectivity is far below the national average. For Teknaf and Ukhiya, the figures are around 60 per cent and 40 per cent, respectively (BBS, 2018). As many as 92 per cent of households in Cox's Bazar and 84 per cent in Bandarban rely primarily on firewood for cooking. This compares with 44 per cent for Bangladesh overall (ibid.). Dirt roads dominate the transportation network.

While 98 per cent of the population as a whole has access to safe drinking water, the figure is only 45 per cent in Bandarban. Improved and unshared sanitary latrines are used by 52 per cent of the population in Cox's Bazar and only 18 per cent in Bandarban. While 39 per cent of Bangladeshi households practise safe disposal of child faeces, in Cox's Bazar the figure is 12 per cent and in Bandarban it is slightly less than 5 per cent (BBS, 2015c).

Headcount poverty

The 2016 HIES (BBS, 2017c) puts 24.3 per cent of the Bangladeshi population as living in poverty and the headcount poverty rate in Cox's Bazar at 16.6 per cent. Using this data, we can calculate headcount poverty for Teknaf and Ukhiya at 42 per cent and 4.8 per cent, respectively. It is striking that Ukhiya has such low incidence of poverty.[1] Headcount poverty in Bandarban is 63 per cent.

Social protection: Several GOB social protection schemes are being implemented in Cox's Bazar: an old age allowance, vulnerable group feeding, vulnerable group development, allowances for widows, stipends for transgender and other marginalized groups, allowances for lactating mothers, interest-free loans for the disabled and rural social services. There were 13,754 beneficiaries in Teknaf in 2017/18, costing Tk. 68 million. In Ukhiya, there were 10,981 beneficiaries at a cost of Tk. 46 million.[2]

The immediate response to the Rohingya influx

GoB, with the support of the international community, organized temporary settlement of the refugees. The Cox's Bazar District Administration bore most of the emergency operation. However, it quickly became clear Bangladesh alone could not meet the demands arising out of this huge influx. By late November 2017, after the emergency period was over, the Refugee Relief and Repatriation Commission

1 There is no discussion in the BBS report on local-level poverty incidence. Studies on the refugee-affected areas seem to suggest much higher levels of poverty and vulnerability.

2 Local government statistics. The costs include allowances and total disbursed loans.

(RRRC) was entrusted with overseeing all aspects related to the settlement and management of the refugees. Headquartered in Cox's Bazar, RRRC collaborates with the UN-led Inter Sector Coordination Group (ISCG) in the district and the Strategic Executive Group of UN agencies in Dhaka, including in the delivery of public services and overall welfare.

The humanitarian community worked closely with GOB to draw up its Joint Response Plan (JRP) for 2018 (March–December). This lays out a coordinated response to address the immediate needs of the refugees and mitigate the impacts on host communities. The focus is now on the medium to long term. The Rapid Impact, Vulnerability and Needs Assessment (RIVNA) encompasses interventions to build resilient communities, extending to two years beyond the early recovery period.

A Memorandum of Understanding has been signed between the governments of Bangladesh and Myanmar, dated 23 November 2017, on repatriation. However, whatever agreement has been worked out has not led to any meaningful action on the ground. There is a strong belief that repatriation may take a very long time, and many refugees may not be repatriated at all.

Socio-economic impacts on host communities

Socio-economic impacts on host communities are multi-dimensional, and encompass the micro-, meso- and macro-economic levels. This study incorporates all three within a holistic framework.

Microeconomic impacts

Impact of price changes on poverty: Refugees are selling large quantities of in-kind assistance received as relief items. Local shopkeepers reported depressed prices of products that were leaking out of the camps. Refugee purchases of other products, on the other hand, push prices up. The net effect suggests slightly decreased price pressures on the food products most relevant to the poor. The estimated poverty rate using the price-adjusted poverty line thus remains unchanged.

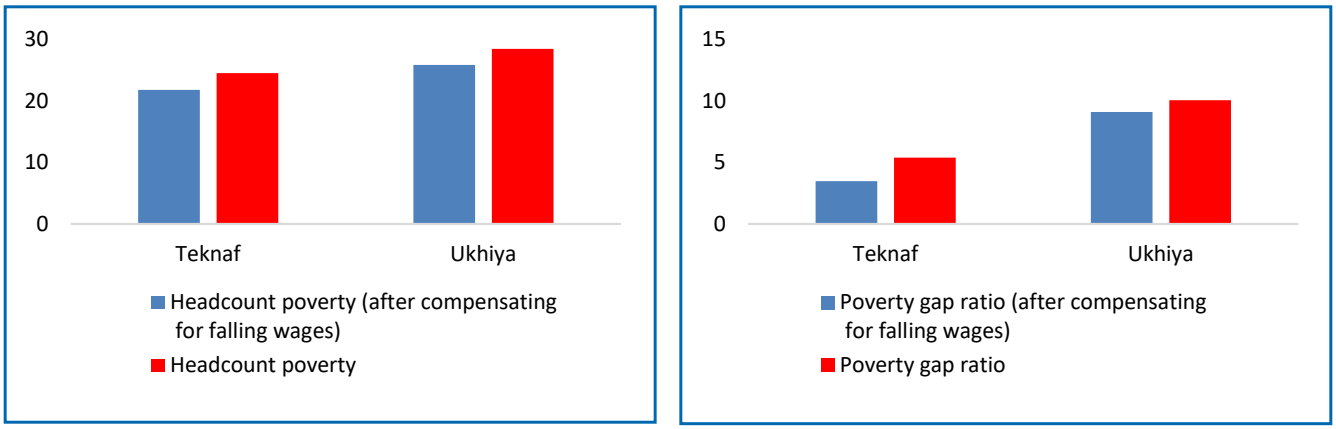
However, the unchanged census rate does not imply there has been no impact on poverty at all. One way of measuring impact is through the poverty gap ratio. The estimates show that, when we take only price effects into consideration, the poverty gap ratio as a result of the influx has declined slightly—by 0.48 percentage points in Teknaf and 0.45 percentage points in Ukhiya.

Impact of wage changes on poverty: Wages for agricultural and other unskilled work are depressed, both in Teknaf and Ukhiya of Cox's Bazar and in Naikhongchhari of Bandarban. This is because the Rohingya are working as day labourers at a lower wage rate than host community workers.

Our estimates show that, because of declining wages, headcount poverty in Teknaf and Ukhiya has increased by 2.73 and 2.63 percentage points, respectively. That is, with no impact on wages, headcount poverty in Teknaf would be 21.82 per cent instead of 24.5 per cent. In Ukhiya, poverty incidence would have fallen to 25.8 per cent from 28.5 per cent. Because of declining wages, poverty gaps have risen by 1.9 and 1.4 percentage points in Teknaf and Ukhiya, respectively (Figure ES.1).

More than 70 per cent of respondents in Teknaf and 50 per cent in Ukhiya reported falling wages as the principal way in which they had been affected by the influx.

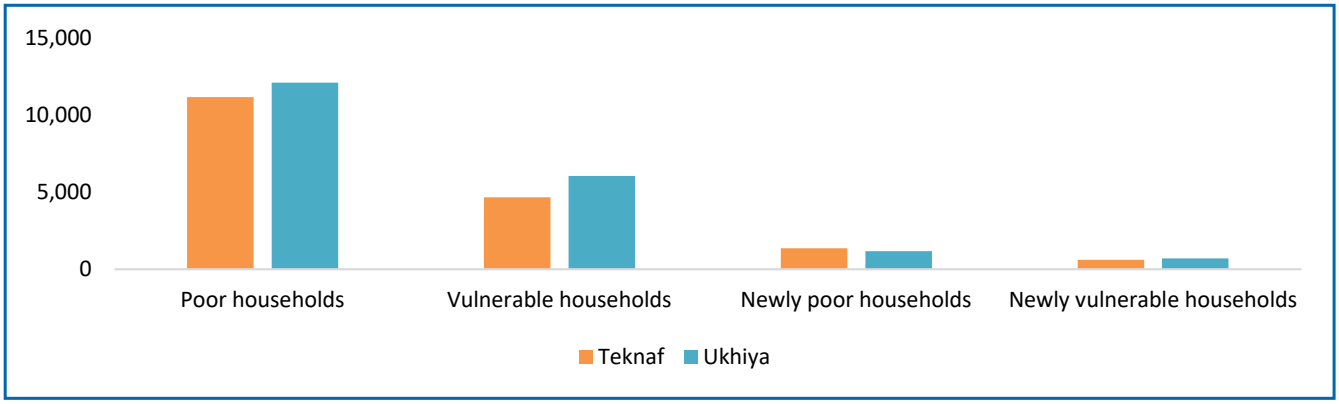
Figure ES.1. Effects of wage changes on headcount poverty (left) and poverty gap ratio (right) (%)



Source: Estimated using data from UNDP household survey 2018.

Impacts on vulnerability: Some households that are not currently impoverished may be regarded as "vulnerable" in that relatively minor shocks could push them below the poverty line. Using the standard definition of vulnerability in the National Social Security Strategy, 3,719 individuals and 567 households in Teknaf have become vulnerable. The figures for Ukhiya are 3,762 and 685, respectively. Under an extended definition, the estimated number of households is 893 in Teknaf only. However, the overall impact on vulnerability is reduced if measured using the population of the newly vulnerable. As Figure ES.2 shows, the degree of vulnerability has intensified because household incomes have declined among those vulnerable before the influx, but their vulnerability status is unchanged.

Figure ES.2. Number of poor and vulnerable households in Teknaf and Ukhiya



Source: Estimated using data from UNDP household survey 2018.

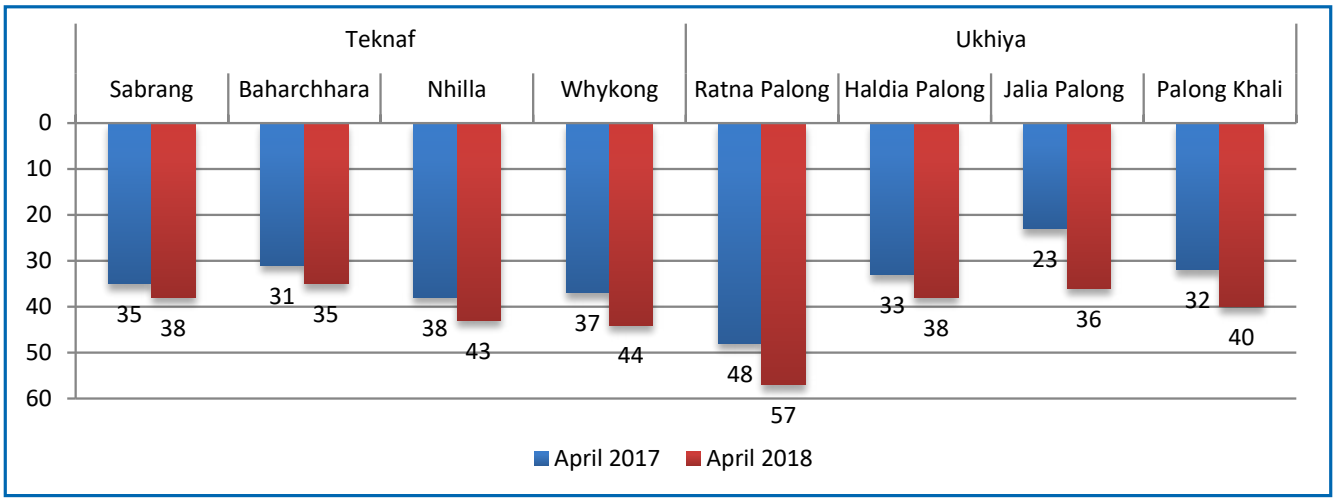
The household survey data enabled assessment of the impact according to the sex of the household head. Results from regression analysis suggest households headed by women earn, on average, almost 25 per cent less than those headed by men. However, our results did not find any significant difference in per capita income between male- and female-headed households because of the refugee influx. Other vulnerable groups are day labourers (see above, under effects of wage changes) and fishers (see below, under meso-economic impacts).

Meso-economic impacts (sectoral level)

Impacts on land and agricultural production: Between August 2017 and March 2018, at least 100 ha of crop land in Teknaf and Ukhiya was damaged by refugee activities, in addition to 76 ha of arable land that has been occupied by refugee settlements and humanitarian agencies. Around 5,000 acres of land have been rendered useless because of sandy soil flowing down from the mountain slopes, which are being used for refugee housing purposes. Grazing lands have been destroyed.

To supply water to the refugees, an estimated 5,731 tube wells were installed between August and December 2017 (of which about 21 per cent had become non-functional by the end of January 2018) (ISCG, 2018a). This excessive dependence on groundwater is lowering the water levels in the area (Figure ES.3). The water levels around the camp areas are reported to have fallen between 5 and 9 m. Freshwater options in the affected areas are extremely limited, particularly in Teknaf (Cox's Bazar) and Naikhongchhari (Bandarban), where the bedrock surface at 25–30 m below ground level makes deep tube wells a costly option for the locals. Irrigation wells are slowly drying up as the water table is falling as a result of watershed destruction and a significant reduction in the recharge of groundwater reserves. Continued pressure on the aquifer may result in salt water intrusion, rendering it unusable.

Figure ES.3. Falling water tables in Ukhiya and Teknaf (metres)



Source: Yearly updated data from Department of Public Health Engineering, Cox's Bazar.

Teknaf has always faced a lack of freshwater for agricultural production. Faecal contamination is now present in more than fourth fifths of sources, and 93 ha of arable land around camps cannot be cultivated. An additional 380 ha cannot be cultivated owing to lack of water for irrigation.

Impacts on fishing and related activities: In Teknaf, fishing employs nearly one in three (BBS, 2018). Since August 2017, a ban has been in place on fishing in the Naf River, for security reasons, putting significant pressure on an estimated 30,000–35,000 fishers and their families. Many fishers have been compelled to work as wage labourers, but the surge of refugee workers has led to lower job availability and lower daily wages. GOB officials and FGD participants in Teknaf suggested the fishing communities of the Naf River were likely to be among the groups most affected by the refugee crisis.

Impacts on the environment: Environmental damage is among the worst effects of the influx. According to the Cox's Bazar Forest Department, the influx has destroyed about 4,818 acres of forest reserves worth US$55 million. Those who earn a living from forest resources have in many cases been deprived of their livelihood. Meanwhile, every day, around 750,000 kg of timber, vegetation and roots are collected as cooking fuel. Many species of wildlife are also coming under threat.

Macroeconomic impacts of the refugee influx

From a macroeconomic perspective, we attempted to capture the links between the host and the refugee economies through various transmission channels and to obtain a measure of the overall impact on the economy. We captured these effects by using the Local Economy-Wide Impact Evaluation methodology (Taylor, 2013).

Generally, the starting point for capturing these local economy-wide effects is the construction of a Social Accounting Matrix (SAM) for a given geographic area and the wider economy. A SAM provides a comprehensive picture of the economic structure and comprises, among other factors, the distribution of value-added among sectors. A SAM can also capture the total impact of an exogenous demand shock (e.g. one associated with any particular sector/output) through its direct and indirect effects. Indirect effects result from production link effects (both backward and forward) and consumption links (i.e. increased income that generates demand for products of other sectors).

We constructed a local-level data SAM for 2017 using the data of three economies: Rohingya, immediate host (Teknaf/Ukhiya) and remote host (Cox's Bazar), to assess the spill-over effects triggered by the refugees. The data SAM was converted into SAM models for policy simulation.

We simulated impacts on host communities based on 1) aid inflow to refugees; 2) aid inflow plus cost of deforestation; and 3) aid inflow plus the cost of both deforestation and depletion of groundwater specific to the host community. Note that these simulations come with a number of caveats, related mainly to obtaining data and over-estimating of aid/under-estimating forest losses.

When just aid inflows are considered, the economy-wide impact of US$1 of aid is US$2.70. When we consider the costs associated with loss of forest and water resources, this reduces to US$2.[3] The simulations suggest the deleterious impacts are more localized than the aid impact. Cox's Bazar and Bangladesh may be generating static gains in the short run. The losers are the host community.

Impacts on public service and public goods delivery

Public service delivery in Teknaf and Ukhiya, designed for a quarter of million people, now has to cope with an extra million people. Services are all being stretched far beyond their capacity, leading to tensions between the refugee and host communities, most of whom are also poor and vulnerable.

Impacts on governance: In the face of this massive crisis, governance institutions are becoming even more limited in their effectiveness. Some local administration and sector officials spend 50 per cent or more of their time on Rohingya matters, resulting in delayed if not scaled down public service delivery. They also work on weekends without remuneration. Overlapping roles add to the confusion.

3 It should be emphasized that cost estimates owing to loss of forest and water resources are very conservative.

Impacts on solid waste management and water, sanitation and hygiene: There is severe strain on public health engineering services, including solid waste management. With about 10,000 tons of additional solid waste being produced a month, its management is now a priority. Many water resources have been contaminated by human waste, as have 86 per cent of drinking water wells.

The situation is particularly worrisome near the Balukhali–Kutupalong mega-camp: reportedly over 30 per cent of latrines were located less than 10 m from water sources in the camp area as of January 2018 (ISCG, 2018a). Faecal contaminants are washed down by rainwater to then spread waterborne diseases to both refugees and host communities. Local people use water from ponds, canals and wells for washing clothes, cooking and bathing.

About 20 per cent of host community households reported experiencing problems arising from declining underground water levels, as their wells, tube wells and shallow pumps dried out. About 6 per cent reported having to walk more than 30 minutes to get fresh drinking water.

Impacts on housing: Land scarcity has worsened with the arrival of the refugees, with some refugee camps also built on cultivable lands. Any poor households that own land have just enough to build a house, and rarely enough to grow some seasonal vegetables. Most people live in one-room houses with polythene roofing. In general, the local people live in housing that is in very poor condition and is vulnerable to natural factors such as strong winds, heavy monsoon downpours and flooding.

Impacts on roads: Increased traffic is seriously degrading existing roads. Roads, dams and bridges have sustained substantial damage. Transit camps and the subsequent abandonment of these have left behind a huge trail of infrastructural damage and environmental degradation. These sites include damaged schools and schoolyards and landslide-prone hills.

About 45 per cent of households in Teknaf and 62 per cent in Ukhiya reported that road congestion in their locality had increased, while more than two thirds felt road conditions were deteriorating. According to the survey, 66.7 per cent of respondent households in Teknaf and 70.41 per cent in Ukhiya attributed damages caused to roads to the Rohingya influx.

Impacts on business infrastructure: Power cuts have become more frequent, disrupting daily life and adding further to the cost of running a business. Transport difficulties have also caused disruptions in the supply chain to local markets. Tourism has shown a declining trend because of the various security and other restrictions now imposed along the Bangladesh–Myanmar border.

Impacts on health services: Health complexes and district hospitals have become increasingly geared towards attending to the emergency needs of the refugees. Local health care service is massively overstretched—and as a result local communities are not receiving the same level of health care service as the refugees. In interview, the Civil Surgeon of Cox's Bazar claimed that, during the emergency period, health centres were overwhelmed. Now, roughly half of his time and that of doctors in health complexes is spent on refugees. Host community members now have to wait longer for services: the survey found that the average waiting time had increased by 50 per cent. The issue has become more complicated as refugees receive medication free but locals have to pay.

Impacts on education services: Since the influx, students from the local community are dropping out of school or skipping classes to help their families with income-generating activities, such as selling goods at refugee settlements. Parents are restricting girls from going to school because they have concerns

related to protection. During FGDs, many participants reported security concerns arising from the refugee influx, especially with regard to the mobility of women and girls. Meanwhile, even after the relocation of refugees, repairs have not taken place promptly.

Impacts on public services under various repatriation scenarios

Three alternative repatriation scenarios are under consideration: 1) a pessimistic scenario that would repatriate only 100 refugees per day for 20 days each month (24,000 a year); 2) a realistic scenario to repatriate 300 refugees per day for 25 days a month (90,000 a year); and 3) an optimistic repatriation scenario, with 600 Rohingya repatriated each day for 30 days a month (216,000 per year).

Assuming an unchanged refugee population, even under the optimistic scenario full repatriation would require five years. Under a pessimistic scenario, it would take as long as 13 years. With further analysis, if a 3 per cent yearly population growth rate is added, complete repatriation increases by an additional two to five years.

Many other medium- to long-term sector-specific requirements and consequences are also sensitive to the repatriation rate. For example, if the refugees are not provided with alternative cooking fuels, about 400,000 tonnes of timber will be required for next year alone (July 2018–June 2019). It can therefore be estimated that, between the optimistic and the realistic repatriation scenarios, forest depletion will be in the range of 1.2–2.8 million tonnes of timber by the end of 2023 (Figure ES.4). The deforestation problem could be addressed by providing liquid petroleum gas (LPG) to the Rohingya refugees during their stay. The cost of such an intervention is estimated at US$75.3–270 million under alternative assumptions (Figure ES.5). Increased demand for water is another important issue. Around 5.6 billion litres of water will be required just for the next year alone. Between the optimistic and the realistic repatriation scenarios, the water requirement is estimated to range between 16 and 26 billion litres by the end of 2023 (Figure ES.6).

Figure ES.4. Firewood requirements under different scenarios (thousand tonnes)

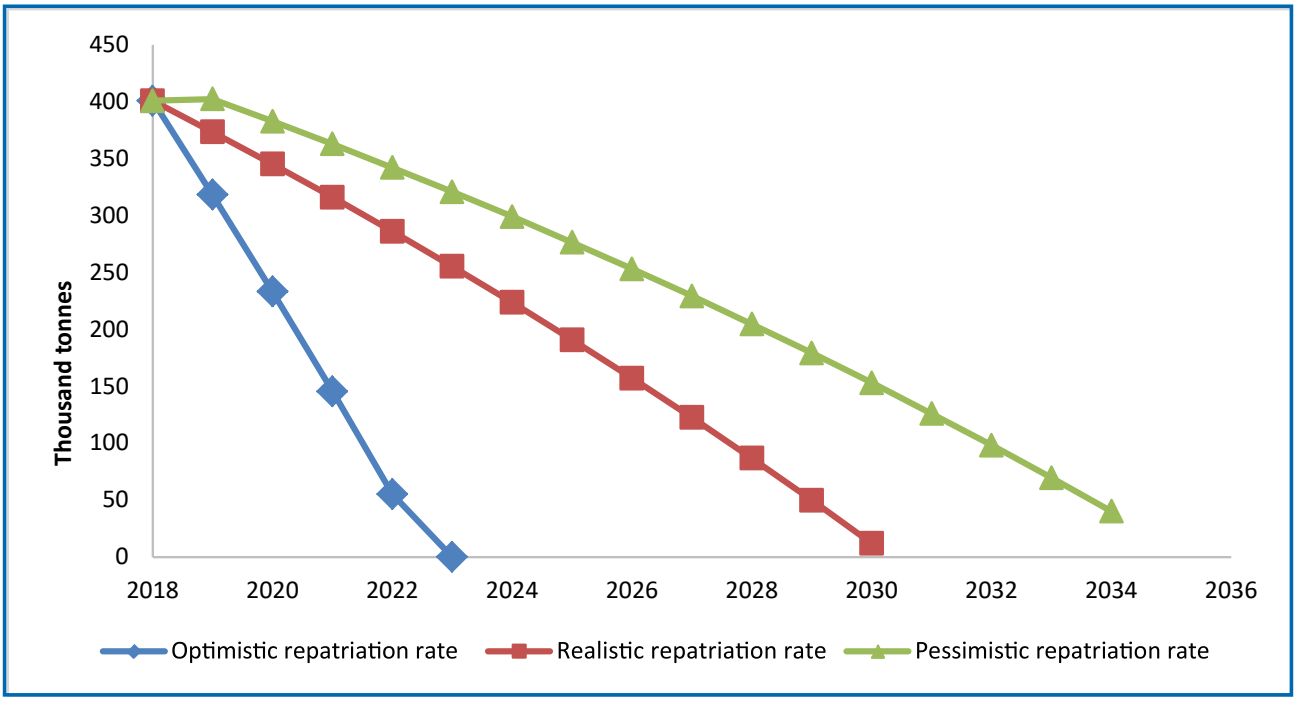


Figure ES.5. Costs of LPG cooking fuel under different scenarios (US$ million)

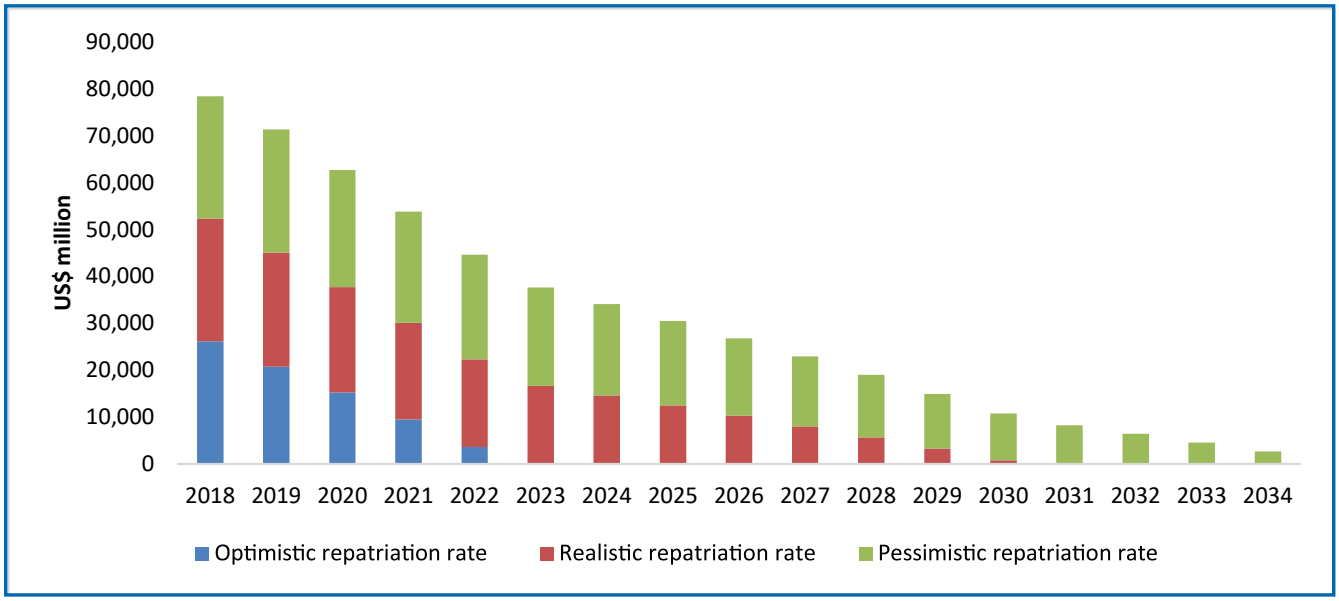
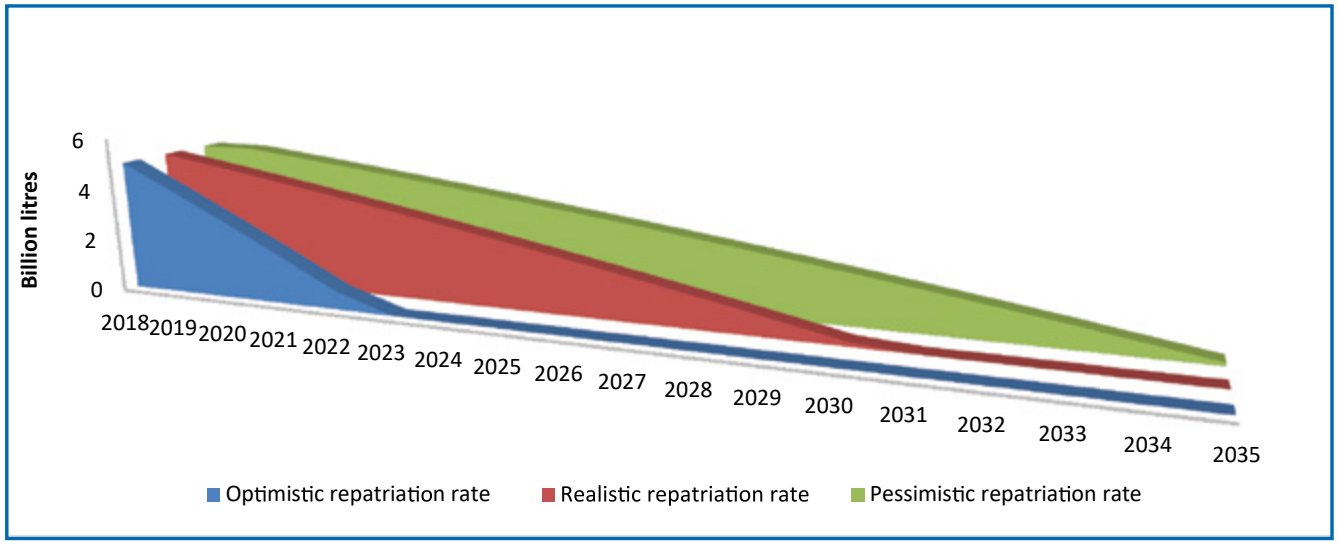


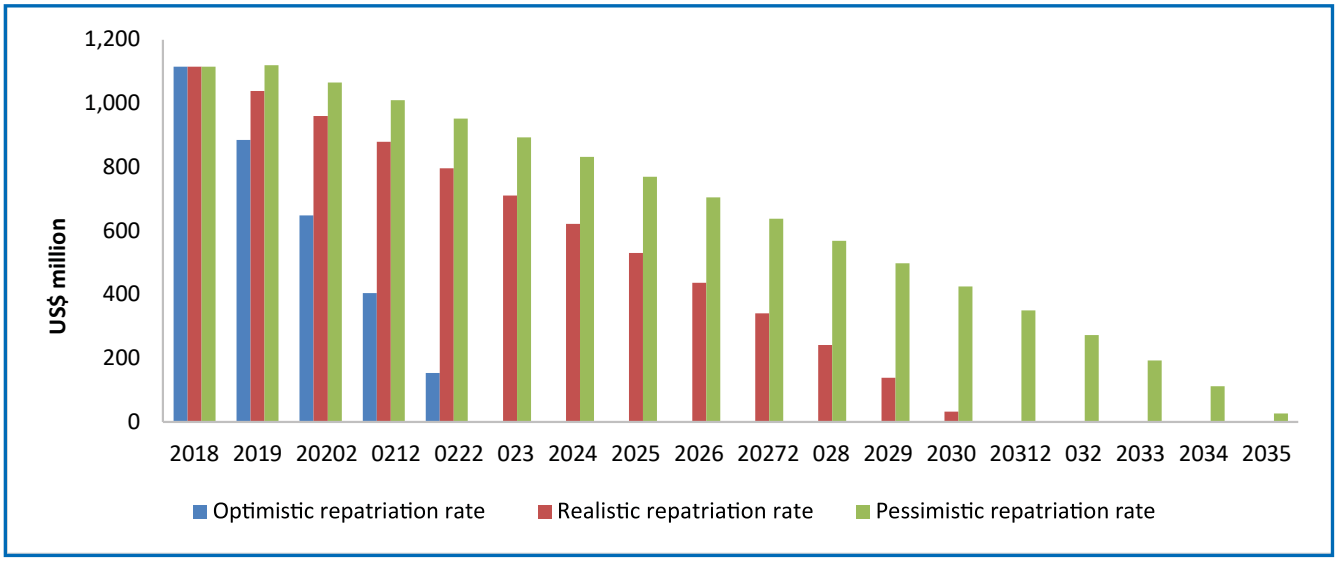
Figure ES.6. Annual water requirements for refugees under different scenarios (litres)



Source: UNDP estimates.
Note: The estimates assume a 3 per cent population growth rate.

When the length of repatriation is extended, the cost of supporting the refugees and the host community will increase. Considering only the refugee population, the cost of food, shelter, education and other basic needs would be a minimum of US$1,219 per refugee per year. This translates to a total requirement of US$3.2 billion (in the most optimistic scenario) to US$11.6 billion (for the pessimistic scenario) over the period of the Rohingya stay (Figure ES.7). With a protracted refugee crisis, the challenge of sustaining donors' interest will become more difficult. In fact, even within the first year of the crisis, the donor response in terms of financial assistance has been slow.

Figure ES.7. Duration of stay and cost for the refugee crisis (US$ million)



Source: UNDP estimates.

Impacts on social safety nets in host communities

Coverage of the poor population in the district as a whole is low. In Ukhiya, only 20.3 per cent of the poor are covered, and the figure is even lower for the Teknaf poor, at only 14.6 per cent. Coverage of social protection schemes should have been expanded in Teknaf and Ukhiya even under a normal situation. In principle, beneficiary coverage should be around 30–35 per cent of the total population.

More beneficiaries have been included in the Cox's Bazar social protection system post-Rohingya influx, with growth of 12.6 per cent between FY2018 and FY2017. Similar positive growth is seen in the disbursed amount. Growth rates in beneficiary coverage and fund disbursement in Ukhiya during the post-influx period are, respectively, 15.7 per cent and 20.3 per cent. The corresponding rates in Teknaf are 15.9 per cent and 19.0 per cent

Social cohesion

As many as two thirds of respondents in Cox's Bazar thought they had been directly affected by the refugee influx. All of the Teknaf respondents surveyed and 80 per cent in Ukhiya said they had been directly affected by the crisis.

Apart from major issues related to falling wages, 70 per cent of Teknaf respondents and 50 per cent in Ukhiya mentioned security concerns. The host community almost universally has negative views of the Rohingya even though they are sympathetic to their plight. There is also rising anxiety among locals about being outnumbered, and a widespread perception that kidnappings, thefts and robberies have increased since the influx. Whether or not this is true, this perception has an impact on social cohesion.

There have been reports of clashes between host communities and refugees and between refugees and law enforcement authorities. Refugee outrage and violence at food distribution centres have exacerbated tensions. Meanwhile, many host community households believe that all assistance

is being provided to the refugees and because of this their own problems are not receiving priority. Locals in FGDs, particularly in Teknaf and Ukhiya, indicated a feeling of being ignored by humanitarian organizations and feeling concerned owing to rising labour competition, deforestation, price increases and damage to physical and natural resources (ACAPS and NPM, 2018).

Suggested programming for host communities

Overall, with problems for host communities escalating and sympathy fading fast, urgent action is needed to assist a mostly impoverished host community that is bearing an excessive burden as a result of the crisis. In FGDs, respondents claimed that the repatriation agreement would not work and thus said they felt the refugees would be there for a very long time.

The JRP aims to address the immediate needs of the refugees and mitigate the impacts on affected host communities. However, the need is to move from humanitarian interventions to development programming, particularly given the anticipated long-term nature of the refugees' presence and the lack of coherent public policy in this regard. GOB and ISCG are now focusing on a medium- to long-term response. The RIVNA encompasses interventions to build resilient communities, extending to two years beyond the early recovery period. Any vision here for the future could also usefully draw on our scenarios of repatriation above.

Looking at current interventions, some may need greater coverage; others may benefit from more efficient design. Targeting is also important, especially when universal coverage cannot be assured. Coordination and collaboration will be needed, among GOB, multilateral donors and UN agencies, to upgrade interventions and improve designs.

So far, much of the cost of dealing with the influx has been met out of the international humanitarian aid being funnelled in under the JRP. While international humanitarian assistance poured in at the initial stage of the crisis, and still continues to arrive, such inflows will slowly taper off. Over the next two to three years this assistance will decline to 30 per cent, reaching 15 per cent of total needs.

Table ES.1. Allocations by sector (US$)

Sector	Cost	Cost breakdown		
		Host	Rohingya	Both/non-separable
Education	280.5	113.5	159.0	8.0
Social protection	259.6	70.7	188.8	-
Health	185.4	84.6	85.1	15.7
Shelter	130.9	-	130.9	-
Environment	91.2	22.2	57.1	11.9
Transport	82.2	-	40.4	41.8
WASH	48.3	13.2	34.6	0.5
Disaster risk management	36.9	3.3	21.8	11.8
Urban development	26.8	1.6	24.2	6.0
Social development	12.5	1.4	3.6	7.5
Total	1,154.3	310.5	746.5	97.2

Source: Adapted from World Bank (2018).

The RIVNA quotes the JRP and provides an estimate for humanitarian agencies to fulfil all needs from March to December 2018 of US$950.8 million. While the RIVNA has added an estimate of US$1.15 billion for another two years of Rohingya presence beyond 2018, the stipulation of a most optimistic scenario of repatriation is five years. Therefore, conservatively, an additional US$1.15 billion should be required for Rohingya management till 2023.

Interventions such as food assistance, health, education and shelter improvement are assumed to transition gradually into a more sustainable model. The JRP does not cover capital investment for infrastructure, human resource capacity enhancement and technical assistance activities.

A closer look at current programmes overall also suggests a lack of support for affected communities in Bandarban district. Households in this district need to be brought within any support programmes.

We briefly propose some options here. Details on these and on the preliminary costing of individual interventions (where possible) are included in the main report.

- **Widening livelihood support programmes for the host community** (cash for work; cash compensation for loss of income; livelihood support to fishers)
- **Empowering women through improved livelihood opportunities** (enhancing current programmes to empower ultra-poor women)
- **Strengthening local agricultural production** (micro-gardening; One Home One Farm to eradicate poverty through family farming and employment generation; irrigation interventions; farmer field schools)
- **Informed analysis** (one focal point to collect specific information on a regular basis by using the same or comparable methodologies for groups with similar interests)
- **Civil administration** (covering the costs of logistics and special compensation for District Administration staff and employing more staff at this level)
- **Governance** (one-stop public service delivery; regular consultation with local government on community needs; factoring in issues related to suffering and trauma for both communities; setting up a refugee advocacy group; considering how best to use refugee human resources)
- **Infrastructure** (upgrading the current Cox's Bazar Development Plan to address the new and evolving scenario; construction of roads, bridges, culverts, schools, cyclone shelters and market sheds and expansion of market areas)
- **Environment** (urgent effort to find and use fuel alternatives; reforestation)
- **Safe drinking water** (rainwater harvesting)
- **Sanitation and waste management** (provision of sanitary latrines; establishment of joint solid waste management system and faecal sludge management; management and reuse of sludge)
- **Education** (comprehensive renovation and modernization of schools; enhanced school feeding)
- **Community cohesion** (use of audio and video media to build trust between host and refugee communities, perhaps using radios; community policing)
- **Risk management** (immediate preparedness for the forthcoming cyclone and current monsoon season; permanent establishment of local disaster management capacities in the district)

Suggested social safety net schemes: We also suggest various social protection schemes for host communities. These are as follows (the details are in the main report):

Scheme 1: UT natural resource depletion scheme. The estimated loss for the host community as a result of the destruction of forestry resources and depletion of ground water is Tk. 7,732 million. This translates into losses of Tk. 61,572 per household and Tk. 13,683 per capita for the immediate host community (Teknaf and Ukhiya). Thus, a transfer amount should be set at Tk. 82,910 per household and Tk. 14,097 per capita. Coverage should be universal, with all households in Teknaf and Ukhiya eligible.

Scheme 2: UT family income support scheme (variants for new poor, all poor and all households). We found few new poor households post-crisis in Teknaf and Ukhiya—respectively, 1,348 and 1,154. Selecting these households accurately from among the large number of similar vulnerable households is challenging. Moreover, selection will inevitably be erroneous, leading to serious discontent among local residents. The second-best approach would be to cover all poor households in Teknaf and Ukhiya—10,770 for Teknaf and 12,356 for Ukhiya. The best approach is to cover all households in Teknaf (49,360) and Ukhiya (43,896) following the universal approach.

Three variants may thus be considered, based on beneficiary coverage. In the first variant, coverage is lowest and includes only the identified new poor households. The main merit of this variant is the low resource need. However, beneficiary selection is very difficult. In the third variant, inclusion of all households is proposed. The main demerit of this variant is the large resource need, but beneficiary selection is almost perfect. The second variant can be viewed as a compromise.

Scheme 3: Teknaf fishers income support scheme. The average monthly income of a fisher before the Rohingya crisis has been estimated at Tk. 8,000 per month. Although the monthly transfer amount may be set at Tk. 8,000 per month, this may discourage them from finding alternative work or fishing in other water bodies. Thus, the monthly transfer amount may be set at Tk. 4,000 (i.e. 50 per cent below their pre-crisis income but above the amount of estimated poverty line of Tk. 1,928). A support package composed of a cash transfer and skills development may also be designed for these fishers.

Expansion of existing schemes. Our review of the social protection system of Cox's Bazar district suggests very low beneficiary coverage—at around 6 per cent of the district population. Thus, it may be logical to expand beneficiary coverage at least to the level of national coverage (i.e. 34 per cent of Cox's Bazar population). The average monthly transfer amount per person at the national level is Tk. 596. This level of transfer amount would be retained. The benefits of such schemes include:

- Wider coverage of the vulnerable population in Cox's Bazar district;
- Exclusion of genuine beneficiaries reduced;
- Inclusion of ineligible beneficiaries lowered;
- Increased effective demand, leading to further growth of the local economy;
- A reduction in poverty and inequality.

Proposed employment schemes for Rohingya refugees: Implementation of employment schemes for the Rohingya adult population is likely to enhance their welfare as well as lessen supply pressure on the local labour market by the unskilled daily labourers. We consider four scenarios based on coverage and number of employment days. Full details are in the main report.

Scenario 1: CFW covering all the adult Rohingya population providing 22 work days in a month with a Tk. 200 per day wage

Scenario 2: Covering 50 per cent of the adult Rohingya population (providing 22 work days in a month with a Tk. 200 per day wage

Scenario 3: Covering all the adult Rohingya population providing 12 work days in a month with a Tk. 200 per day wage

Scenario 4: Covering 50 per cent of the adult Rohingya population providing 12 work days in a month with a Tk. 200 per day wage

The estimated social protection beneficiary/staff ratios in Teknaf and Ukhiya are very high. This suggests low monitoring and inadequate client support. Moreover, with only one motorcycle available, support to remote areas seems impossible. It is proposed that **staff in Teknaf and Ukhiya need be increased.**

Conclusion

The Rohingya influx has placed on the host communities an extraordinary burden, compounded by the fact that these areas were already confronted with formidable challenges associated with relatively weak socio-economic development. Impacts have been particularly related to a fall in daily wages for labourers and extremely adverse impacts on public services and the environment.

While emergency support was quick to arrive, long-term continual support is essential, particularly in view of the uncertain length of stay of the Rohingya refugees. Given today's realities, it is now the wisest course to consider a medium-term framework, as repatriation is likely to take several years. More in-depth and sustained interventions will be needed, in particular in Bandarban district, which is also heavily affected by the influx but does not seem to be receiving as much support as Cox's Bazar district.

It is worthwhile to emphasize the following issues:

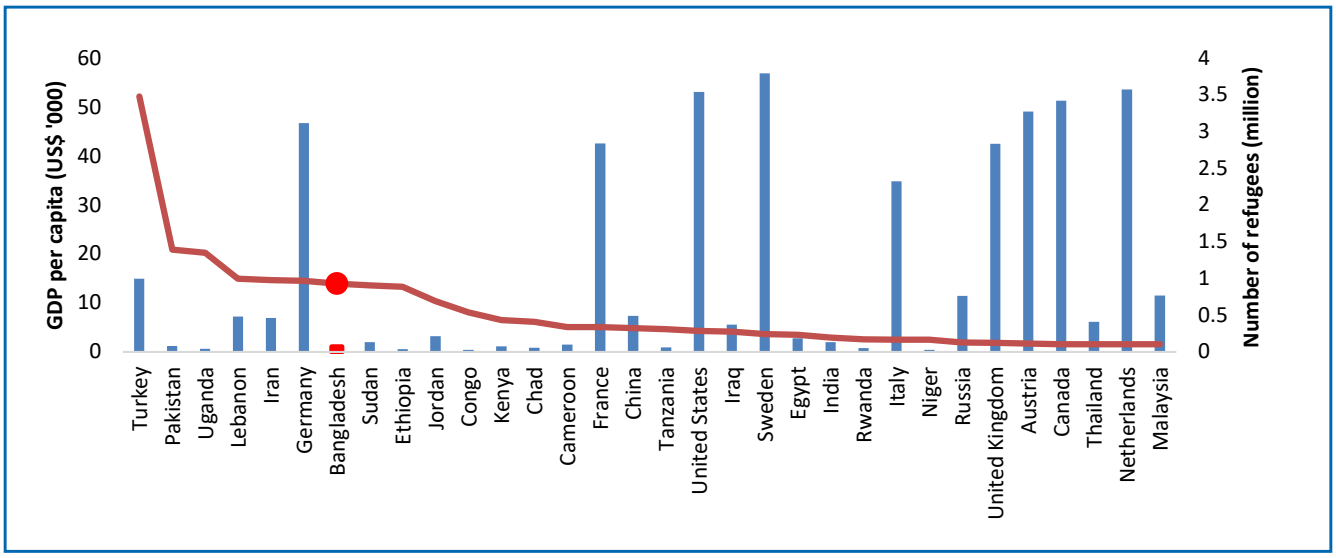
- The socio-economic situation is evolving, thus continual monitoring is essential. In particular, price movements and changes in wages and their impact are critical issues for future assessment.
- The impact on wages is likely to increase as refugee participation in the labour market rises.
- Studies undertaken in other countries show that cash assistance to refugees can create significantly greater positive income spill-overs to host communities. This could be considered in this case.
- The heaviest toll of refugee inflows is on the environment. In some cases, these impacts present potential hazardous risks to health. This will require more in-depth assessment in the future.
- Effective delivery of public services and expanded social protection schemes are absolutely vital, especially for the most affected areas in Cox's Bazar and Bandarban districts.

The refugee crisis could in fact represent an opportunity to address the issues that have hampered economic development in Cox's Bazar and Bandarban for many years. While confronting the adverse impacts noted in this study, concerted efforts can be undertaken to transform the two districts. In this way, it will be possible not only to address the negative impacts of the refugee influx but also to put the two districts on an upward development trajectory based on the situation pre-influx. This can only be positive—for both the host communities and the refugees.

Chapter 1
Introduction

The massive influx of Rohingya refugees into Bangladesh, fleeing a campaign of violence and terror by the Myanmar military, has had a profound impact on the local communities of Cox's Bazar and Bandarban districts. At one point, the exodus unfolded as one of the fastest-growing refugee crises in history. According to Huang et al. (2018), Bangladesh received more refugees in just the first three weeks of the influx (in August 2017) than all of Europe received in 2016 during the Syrian crisis. With less than 0.31 per cent of the earth's population, Bangladesh hosts 4.7 per cent of the world's total refugees.

Figure 1.1. Refugee numbers and host country GDP per capita



Source: UNDP estimates based on UNHCR (2018a) and World Development Indicators 2018.

Cox's Bazar, an administrative district within Chattogram division, has been the primary settlement location for an overwhelming majority of the fleeing Rohingya.[4] The two southern Cox's Bazar sub-districts (upazilas)—Teknaf and Ukhiya—have borne the brunt of this crisis. The refugee camps have become one of the densest places in the world, with a population reaching 8 m2 per person compared with the internationally accepted standard of 45 m2 (OCHA, 2018). At present, refugees constitute more than a third of the local population in Cox's Bazar; in Ukhiya upazila, the number of refugees (761,059) is more than three times the host population of 241,100 (IOM, 2018a).

4 This report uses the official spelling "Chattogram", rather than "Chittagong".

It has become clear to all engaged in the management of the crisis that it is no longer sufficient to address the needs of the Rohingya alone: host communities also are facing severe impacts. Several rapid assessments and studies suggest that rising prices of necessities and falling wages of low-skilled workers are the principal routes by which the influx is affecting host community populations. There are also huge concerns about environmental degradation, excessive pressure on already weak physical infrastructure and public services and mounting tensions among refugees and host communities.

On the positive side, increased demand for food and other products and services may stimulate local economic activities, with positive income spill-overs for businesses in the host community.[5]
Economic and social impact assessment is a challenging task, given limitations in both data and methodologies. High-quality before and after data are lacking (e.g. district-level production and consumption data are sometimes unavailable in Bangladesh and household-level income and consumption data are even more scarce). Even when such data are available (e.g. prices of various commodities), it may be difficult to isolate movements in the variables that are attributable solely to the refugees. Meanwhile, lack of non-subjective baseline information makes comparisons difficult. Moreover, impacts are not uniform, with different groups of people affected in different ways. Indeed, not many empirical studies exist that seek to provide evidence of the overall macro-economic impact of refugees on host country economies.[6]

Against this backdrop, the main objective of this study is to undertake a broad impact assessment of the Rohingya refugee influx for the host community, even considering the methodological challenges noted above. This study adds to current impact assessments and the related policy discourse by providing more systematic evidence drawn from a household survey undertaken by the United Nations Development Programme (UNDP) during April–May 2018 in Cox's Bazar district. It uses the results of this survey to assess the impacts of the refugee influx in socio-economic, public service delivery and social safety net terms. This will enable the local government, public sector departments, the UN and other humanitarian agencies and non-governmental organizations (NGOs) to identify areas of support for future programme development and to further streamline and strengthen existing public service provision for both refugees and the local population.

The study is organized as follows:

Chapter 2 presents the overall rationale and methodology for the study. Chapters 3 and 4, respectively, offer a baseline pre-influx and a brief situation analysis post-influx of the target districts. Chapters 5, 6 and 7 in turn look at the impacts of the refugee influx on the host communities in socio-economic, public service delivery and social safety net terms. Chapter 8 gives a brief overview of social cohesion issues in the area. Chapter 9 looks at current programming in the target area, which helps Chapter 10 identify gaps and potential areas for future programming to assist the host communities (and often also the refugees) in the future. Chapter 11 concludes.

Please note that most information available is on Cox's Bazar district. Information on Bandarban is less common; this represents a constraint that needs to be addressed.

5 Taylor et al. (2016) provide some evidence of refugees in Congolese camps receiving aid contributing to rising incomes of the local Rwandan economy.

6 One such example is the World Bank's assessment of the impact of the Syrian crisis on Lebanon (World Bank, 2013). This reports a reduction in the gross domestic product (GDP) growth rate by 2.85 per cent each year since the Syrian crisis began and documents impacts on employment, education and health care services.

Chapter 2
Rationale and methodology

2.1. Rationale

This study uses the results of a household survey undertaken by UNDP during April–May 2018 in Cox's Bazar to assess the impacts of the refugee influx in socio-economic, public service delivery and social safety net terms. It will enable the local government and public sector agencies to identify areas of support for future programme development. It will also help humanitarian aid agencies and NGOs strengthen existing public service provision for both refugees and the local population.

2.2. Approach

We first present a baseline of sorts. Since the influx of refugees can lead to various consequences, such a baseline, presenting socio-economic indicators in the pre-influx situation, can help in the future in assessing impacts. Data at the district and upazila levels are either non-existent or very difficult to obtain, which means we had to use a variety of sources to compile our baseline.

In looking into **socio-economic impacts**, unlike many other assessments, this study utilizes an analytical approach comparable with the methodology the Bangladesh Bureau of Statistics (BBS) uses to assess incidence of nationwide poverty. This is based on a poverty line income that takes into account established practices in the literature on poverty estimation and then identifies households that fall below this line.

Our study assesses changes in prices and wages in order to isolate impacts on host community household income and poverty status arising solely as a result of the refugee influx. We analyse the micro-economic impacts mainly at the household level. The meso-economic effects are captured through interactions between individuals and the affected institutions and sectors.

Further, for the first time in Bangladesh, this study explores links among Rohingya camp and host community economies, in order to provide simulations of various refugee influx-related consequences and thereby assess their overall macro-economic impact. There are suggestions that economic spill-overs may result as refugee households and businesses inside the camps purchase goods and services from outside the camps, thus stimulating economic activities in the host country (Taylor, 2016). We perform a poverty and vulnerability impact assessment on the host communities using the socio-economic survey

data. We use a Social Accounting Matrix (SAM) model looking at the three economies of Bangladesh—Cox's Bazar, Rohingya and the rest of Bangladesh—to assess the impact at the community level of destruction or depletion of natural resources.

In terms of **public service delivery,** this study assesses impacts based on a mix of the primary data from field-level surveys; secondary data from traditional institutional sources; and occasionally perceptions based on the researchers' understanding of the operation of public institutions and departments. There is always some scope for a margin of error in projecting impacts and computing the financial outlays of investment required to meet future requirements for augmented delivery of public services and public goods (e.g. reconstruction and maintenance of roads and highways).

We identify the key Government of Bangladesh (GOB) agencies and institutions engaged in the combined provision of services to the Rohingya as well as the host population, and assess their current personnel strength, in order to be able to gauge their capacities to address the additional challenge of coping with the refugee influx. All the GOB agencies involved in the delivery of public services, and now partially geared to the management of the Rohingya crisis, are mapped to the delivery of various activities directed towards the refugees. Assessing the impact of the crisis on the public service delivery system is important because the approach of the entire effort—humanitarian aid and public service delivery—is now to include the host communities around the camps, and even beyond, in the rehabilitation programme and any medium-term plan for developing the resilience of the communities in the wider district.

To assess impacts on **social safety nets**, we performed a poverty and vulnerability impact assessment on the host communities using the socio-economic survey data. We used our SAM model (see above) to generate three potential schemes to compensate for the net negative impact of the refugee influx on the host community. We also identified the resource requirements for generating employment for Rohingya adults.

2.3. Methodology

We used both quantitative and qualitative tools to gather data and information on community perceptions in order to be able to assess the impacts, as well as secondary sources.

Box 2.1. *Upazilas* in Cox's Bazar district, and unions in the most affected upazilas

The eight *upazila*s of Cox's Bazar district are Chakaria, Cox's Bazar Sadar, Kutubdia, Maheshkhali, Pekua, Ramu, Teknaf and Ukhiya.

The most affected *upazilas* are Teknaf and Ukhiya.

The unions in Teknaf *upazila* are Baharchhara, Nhilla, Sabrang, St Martin's Island, Teknaf and Whykong.

The unions in Ukhiya *upazila* are Haldia Palong, Jalia Palong, Palong Khali, Raja Palong and Ratna Palong.

2.3.1. Quantitative data collection

The chief quantitative instrument was a micro survey administered among sampled households in the influx-affected Cox's Bazar district. The sample size was subject to time and resource constraints. Given a total of 416,000 households in Cox's Bazar, and the widely accepted 5 per cent margin of error and 95 per cent confidence level in the sample drawn, the minimum number of households to be surveyed was estimated at 385. The UNDP survey covered 404 households.

A stratified multi-stage sampling framework was used to select the households from which information would be gathered. Administratively, Cox's Bazar district is divided into eight *upazilas* (see Box 2.1). A simple stratification based on the probability proportional to size (PPS) approach is inappropriate in this context since the refugees are disproportionately concentrated in Teknaf and Ukhiya *upazilas*. Initial investigation thus suggested that the greatest impact was likely to be contained within these two *upazilas*. Studies in other countries confirm that the immediate neighbourhoods of refugee camps tend to experience the most profound affects (Taylor et al., 2016).

It was thus decided to weigh the probability proportional to the number of households in each upazila at 60 per cent, while the remaining 40 per cent weight, which represented the PPS of the refugee population, was given to upazilas with refugee camps.[7] After determining the total number of households per stratum (i.e. per *upazila*), we identified the appropriate number of households at the second stage of sampling at the union level through systematic random sampling.

The questionnaire administered was developed though a review of earlier studies, evaluations used by BBS in its household surveys and other assessments carried out in similar contexts elsewhere. We also consulted the guidelines provided by the World Bank (2012a). The questionnaire was pre-tested in the field and was finalized after incorporating changes based on feedback received from the interviewers.

We also conducted a brief survey of Rohingya households to understand their interactions with the host community. This survey, which covered some randomly selected Rohingya households in Kutupalong camp, in Palong Khali union of Ukhiya *upazila*, enquired about refugee incomes both in cash and in kind from humanitarian sources; other income-earning activities; and recent purchases from either the shops in the camps or outside. Data from this survey and other secondary information were used to develop a camp-and-host community model to illuminate overall macro-economic implications.

2.3.2. Qualitative data collection

For all three impact areas, this study also makes use of qualitative information collected during focus group discussions (FGDs) and consultations with development partners, NGOs and GOB in the affected areas.

A total of 10 FGDs were conducted in Bandarban, with local traders, school teachers, union parishad representatives, health care providers and ordinary villagers. Six FGDs were conducted in Cox's Bazar with specified target groups, generally local people and residents of Teknaf and Ukhiya (see Annex Tables A1.2 and A1.3 in Annex 1).

7 Table A1.1 in Annex 1 provides the distribution of the overall sample by upazilas.

The study team also conducted 16 key informant interviews in Cox's Bazar with GoB officials, representatives of various local NGOs and international NGOs (INGOs) and development partners. In particular, we held interviews with the Deputy Commissioner (DC), the Additional Deputy Commissioner (ADC) (General), the Refugee Relief and Repatriation Commission (RRRC) Commissioner, Upazila Nirbahi Officers (UNOs), Camp-in-Charges (CiCs) and district-level representatives of health, water, sanitation and hygiene (WASH), engineering, forestry, agriculture, fisheries, roads and highways, etc.

The FGDs (as well as the survey) contained brief but specific questions related to social safety nets in the affected region.[8]

2.3.3. Secondary sources

For all parts of the study, we compared Cox's Bazar as a district with comparable districts in the country in terms of its demographics and related indicators, such as district gross domestic product (GDP), income per capita, incidence of poverty, structure of employment, public expenditure, etc., using the pre-crisis situation as a benchmark to assess post-crisis impact on public service delivery. For secondary data, we relied on national surveys such as the Labour Force Surveys (LFS) of 2013 and 2016–2017 and the Household Income and Expenditure Surveys (HIES) of 2010[9] and 2016.

The review of the social protection system in Bangladesh is based on secondary administrative data published by the Ministry of Finance and the HIES 2010. Data from the Cox's Bazar Department of Social Services (DSS) is used to analyse key features of the local system as well as to examine any deleterious consequences on the social protection system post-influx.

We used United Nations Refugee Agency (UNHCR) and International Organization for Migration (IOM) Needs and Population Monitoring (NPM) data to identify the resource requirement for generating employment for Rohingya adults. This survey provides information for Rohingya refugees on sources of income, age structure and movement restriction, among other things.

2.4. Limitations

It is important to take into account several caveats regarding the methodological approaches used in this study. First, although we used a statically appropriate sampling strategy, a sample size of only 400 households is quite low. Time and resource constraints meant this was a necessity.

Second, administrative data are not preserved in digital format. The datasets are prepared from hard copies on specific request. Administrative data may thus be erroneous and fall short of standards.

Third, like any survey on household living standards and poverty, the timing of the fieldwork may have affected the results. Aspects of the refugee crisis will evolve—for example, prices may vary depending upon both refugee arrivals and general inflationary trends in the economy. Also, supply factors may have amplified the magnitude of the impact of the influx on prices. Similarly, wages may be affected by refugee participation in the labour market, which itself can vary over time. These issues are far from being settled in the host communities affected by the influx of the Rohingya. Therefore, some of the results presented here may change as time passes.

8 Annex 3 contains the survey questions related to social protection.

9 Unavailability of unit record data in HIES 2010 meant we could not use this survey to assess features of the Bangladesh social protection system.

Fourth, relatively small samples may exclude certain small and vulnerable groups. While this exclusion may not affect the overall broad results, since their share of the overall population is not large, one objective of any impact assessment is to identify the most vulnerable groups to make it possible to support them with targeted interventions. To overcome this issue, we made use of qualitative assessments conducted by means of FGDs. For example, the special vulnerability of the fishing community was pinpointed mainly through FGDs and talks with strategic informants.

Fifth, when estimating poverty, the level of the poverty line income established could be challenged. The methodological framework used in this study is usually considered a better approach than subjective evaluations of poverty or people's own perceptions of their living standards.

Sixth, this survey was limited to households. No survey was made at the enterprise level to study the effect on livelihoods. Under ideal conditions, with more time and resources, a detailed household survey should be able to capture certain results in this way. For example, data gathered on household members as individuals could capture impacts on employment or income.

Seventh, most recipients of social safety net schemes in Bangladesh are not aware of the entailment and hence responses on such issues may be inadequate.

Finally, some information obtained from households relied on the so-called "recall method", in which household members were asked to report their income, expenditures and other items of interest from memory. Information recalled from a distant past may result in faulty data. Whenever such information was gathered, special care was taken to double-check the reported data by cross-checking with similar types of households or respondents, or by revisiting the households or respondents when apparent discrepancies emerged.

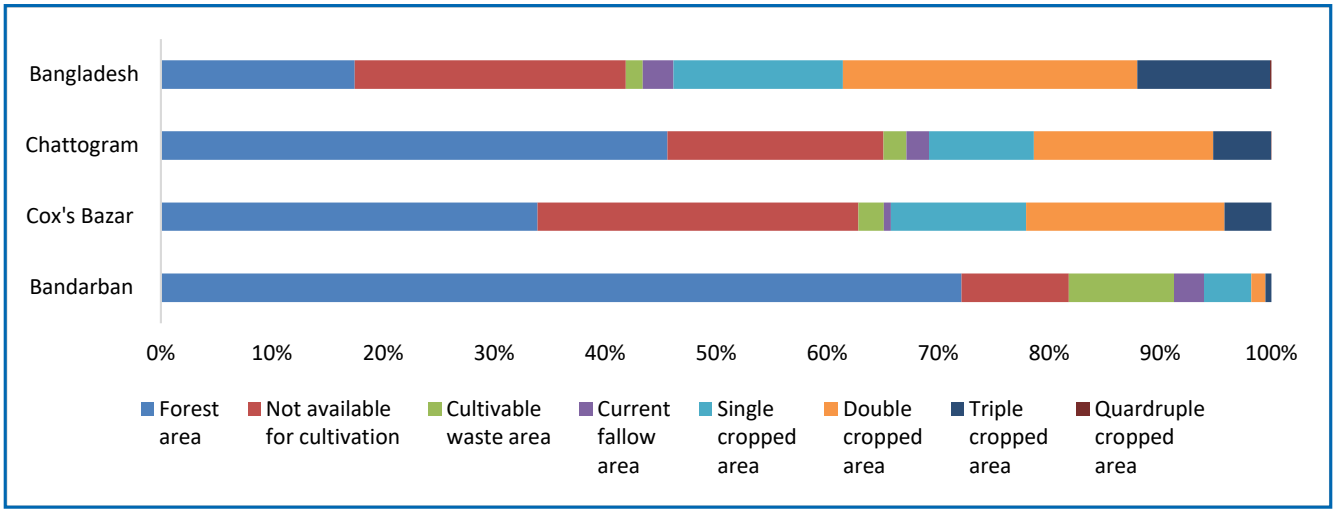
Chapter 3
A baseline survey of the two districts prior to the refugee influx

A scan of all credible sources of secondary data has enabled us to compile what may be considered a broad socio-economic baseline for Bandarban and Cox's Bazar districts, including, where possible, Teknaf and Ukhiya upazilas in Cox's Bazar district. Table A2.7 in Annex 2 presents a summary of baseline indicators

3.1. Geographic characteristics: resource endowments, land utilization and production

Cox's Bazar, at 2,491.9 km2, represents about 1.7 per cent of the total area of Bangladesh, which makes it among the country's smallest districts. More than 60 per cent of the land is either forest or unavailable for cultivation (Figure 3.1), in comparison with 40 per cent for the country as a whole (BBS, 2017b).

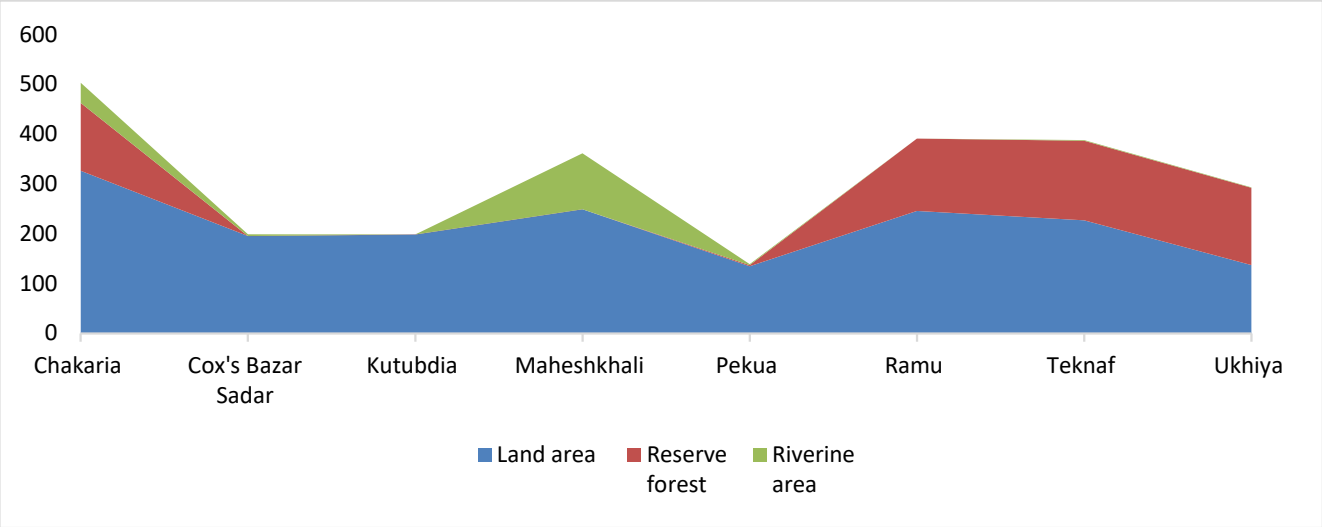
Figure 3.1. Uses of land, Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh 2015–2016 (%)



Source: Estimates from BBS data (2017a).

The district's biggest upazila, Chakaria, also has the largest share of cultivable land (Figure 3.2). Teknaf and Ukhiya, the two upazilas with the largest concentration of refugees, have a relatively smaller land area and a greater share of reserved forest (Teknaf 41 per cent; Ukhiya 59 per cent).[10]

Figure 3.2. Land area, reserve forest and riverine area in Cox's Bazar district (km2)



Source: Estimates from BBS data (2013a).

Bandarban, with an area of 4,479.01 km2, is a hilly district, with very little land area suitable for cultivation—only about 6 per cent of the total.

3.2. Demographic situation

The population growth rate in Cox's Bazar is almost double the national average, at 2.55 per cent as against 1.47 per cent. The sex ratio male to female stands at 104 against the national ratio of 100. Assuming the population growth rate remains the same, the estimated population of Cox's Bazar will be 2.8 million in 2018.

Teknaf and Ukhiya have populations of about 0.31 million and 0.24 million, respectively. Estimated population densities in these two upazilas are at the lower end of the range in the district, at, respectively, 791 and 921 persons per km^2.[11]

About a third of the total population in Bangladesh (34 per cent) is made up of children who fall in the 0–14 age group; for Cox's Bazar, this figure is about 7 percentage points higher, at about 40 per cent of the population (BBS, 2018). The share is considerably higher again (around 45 per cent) in Teknaf and Ukhiya (BBS, 2015b). This relatively large proportion of children and young adults may have important policy implications in terms of the need for increased investment in education and health and support for families with a higher number of non-working or dependent members.

10 A large proportion of this forest has been destroyed since the refugee influx.

11 Analysis using estimated population data for Cox's Bazar district 2017–2018, updated by the Inter Sector Coordination Group (ISCG) and Cox's Bazar District Administration.

The average household size is 5.45 persons against the national average of 4.44 persons, but rural households are larger than urban households, mirroring the situation in the country as a whole.

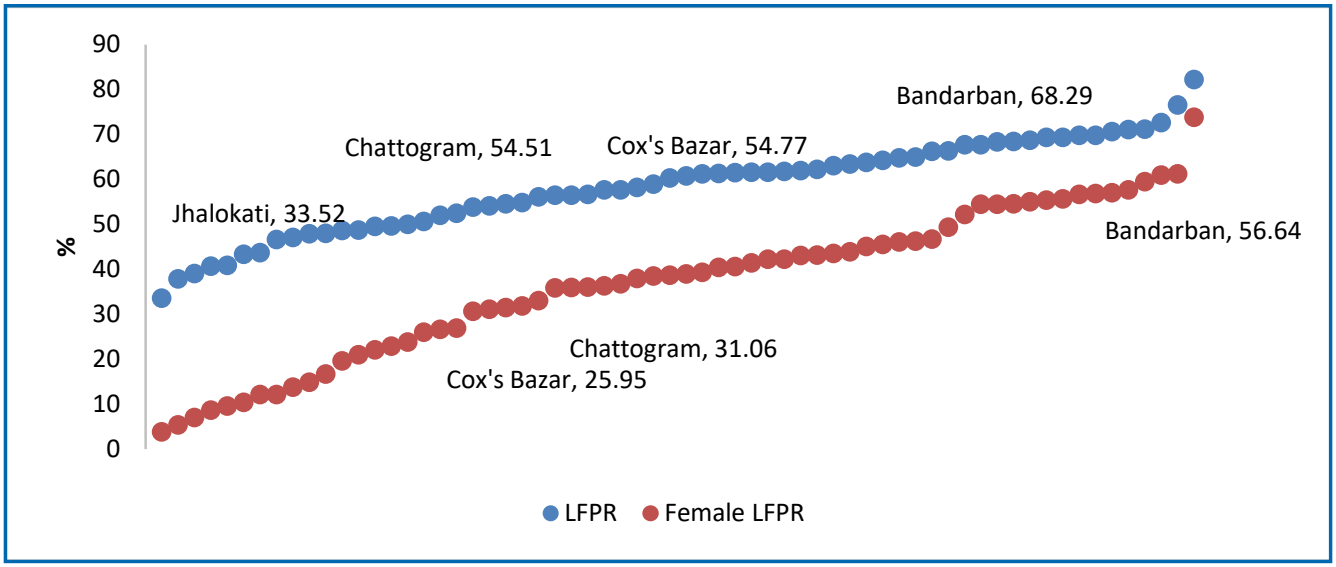
Bandarban has a total population of about half a million and is one of the least populated districts in Bangladesh in terms of population density.

3.3. Labour market

The labour force participation rate (LFPR) in Cox's Bazar as a whole is estimated to be 54.8 per cent, about 3.4 percentage points lower than the national average of 58.2 per cent. However, the LFPRs in Teknaf and Ukhiya upazilas are a little higher than the district and national averages (BBS, 2018).[12]

The female LFPR in Cox's Bazar is almost 10 percentage points lower than the national average of 36.3 per cent (BBS, 2018). Lack of education and training, prevalence of early marriage and patriarchal social norms are some of the factors contributing to women's limited labour market participation (Rahman and Islam, 2013; Mahmud and Bidisha, 2016). Inadequate workplace infrastructure (e.g. toilets, childcare facilities) and a poor, gender-insensitive, public transport system also act as hindrances to women's labour force participation (Khatun, 2018).

Figure 3.3. Labour force participation rates, Bandarban and Cox's Bazar districts (%)

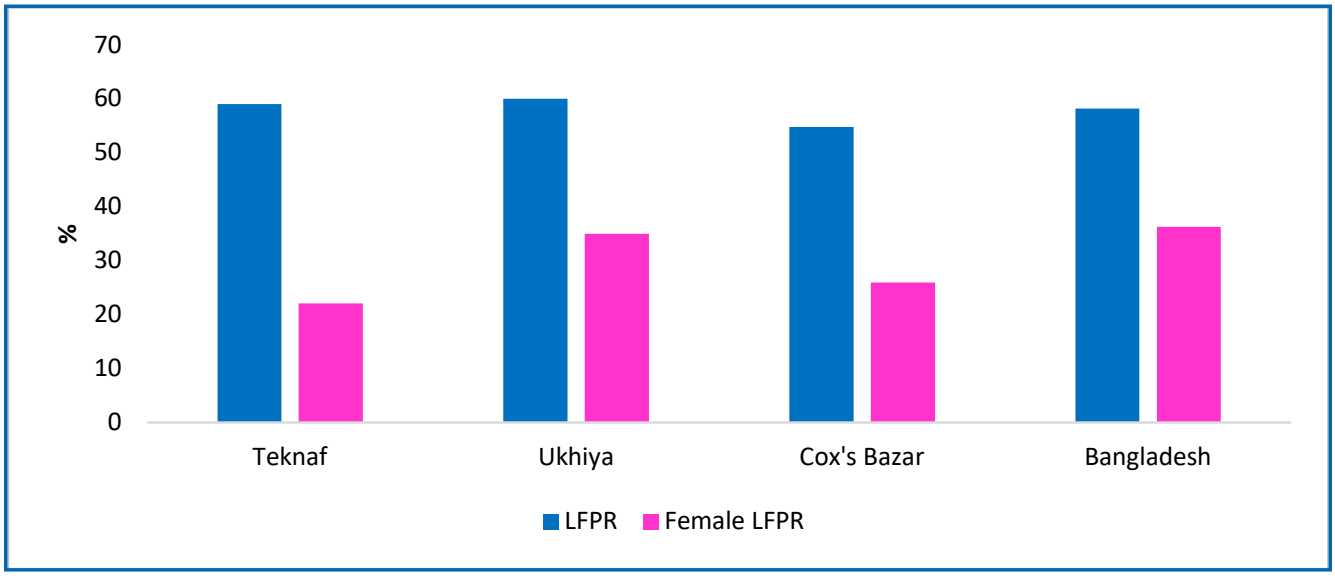


Source: Estimates from BBS data (2018).

The female LFPR in Teknaf is lower than both the national and the district average, but Ukhiya's is close to the national average (Figure 3.4).

12 The LFPR in the country as a whole is much lower than the world average of 48.5 per cent in 2018 and about half of the average female LFPR of 69.3 per cent in developing countries (ILO, 2018). However, it is higher than the South Asian average of 27.6 per cent (ibid.).

Figure 3.4. Labour force participation rate, Teknaf and Ukhiya upazilas, Cox's Bazar district and Bangladesh (%)



Source: Estimates from BBS data (2018).

Meanwhile, Bandarban has both overall and female LFPRs that are higher than the corresponding national averages (BBS, 2018).

About 10 per cent of households in Cox's Bazar are reported to have at least one family member working as a migrant worker. In Bandarban, the corresponding figure is 8.6 per cent (BBS, 2011).

3.4. Occupation and employment

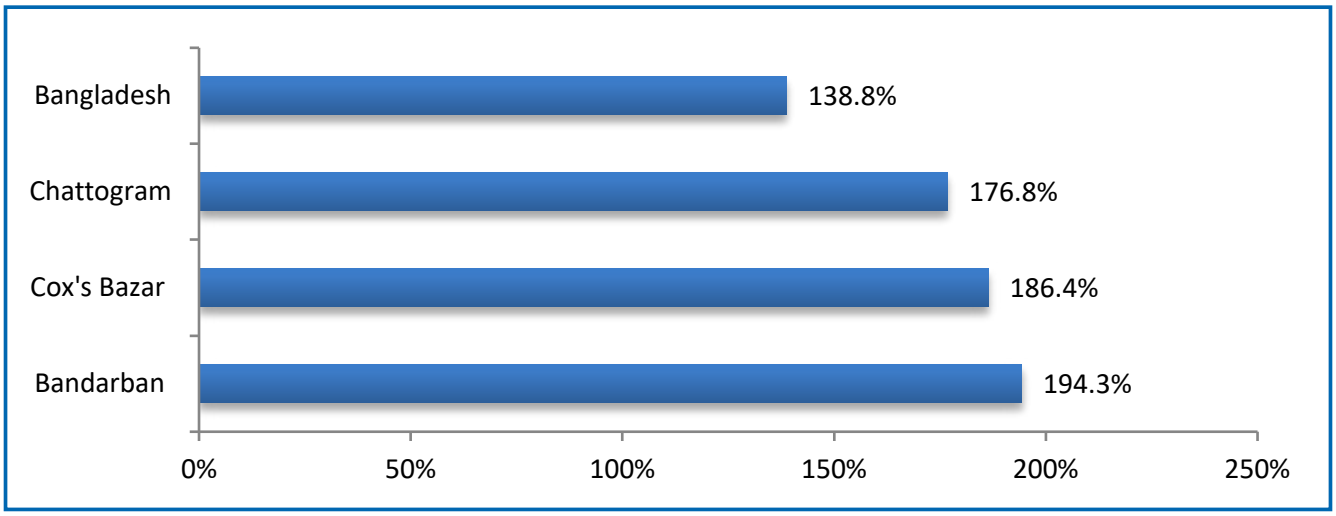
In Bangladesh overall, while the share of agriculture in GDP has fallen to a relative low of about 15 per cent, the sector still accounts for 40 per cent of employment. Its importance in Cox's Bazar and Bandarban is even more prominent, at 45 per cent and 65 per cent, respectively (BBS, 2018).

Industry and services activities are not well developed in the two districts; agriculture is the primary source of livelihoods. In the two most affected upazilas, Teknaf's dependence on agriculture is at a staggering 81 per cent; the corresponding figure for Ukhiya is 63 per cent (see Figure 3.6 below). Compared with Bangladesh overall and Cox's Bazar district, both Teknaf and Ukhiya have much lower industrial employment (which includes manufacturing) (see also Table A2.4 in Annex 2).

And yet, intensity of cropping is below the national average: Bandarban is at about 139 per cent while the national average is 194 per cent (Cox's Bazar is at 177 per cent).[13] In fact, Bandarban has the smallest net cropped area of all districts in Bangladesh (BBS, 2017a) (Figure 3.5). Reasons for this low cropping intensity include issues related to soil salinity and scarcity of surface and groundwater resources for irrigation.

13 Intensity of cropping is calculated as (gross cropped area/net cropped area)*100.

Figure 3.5. Intensity of cropping, Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh (%)

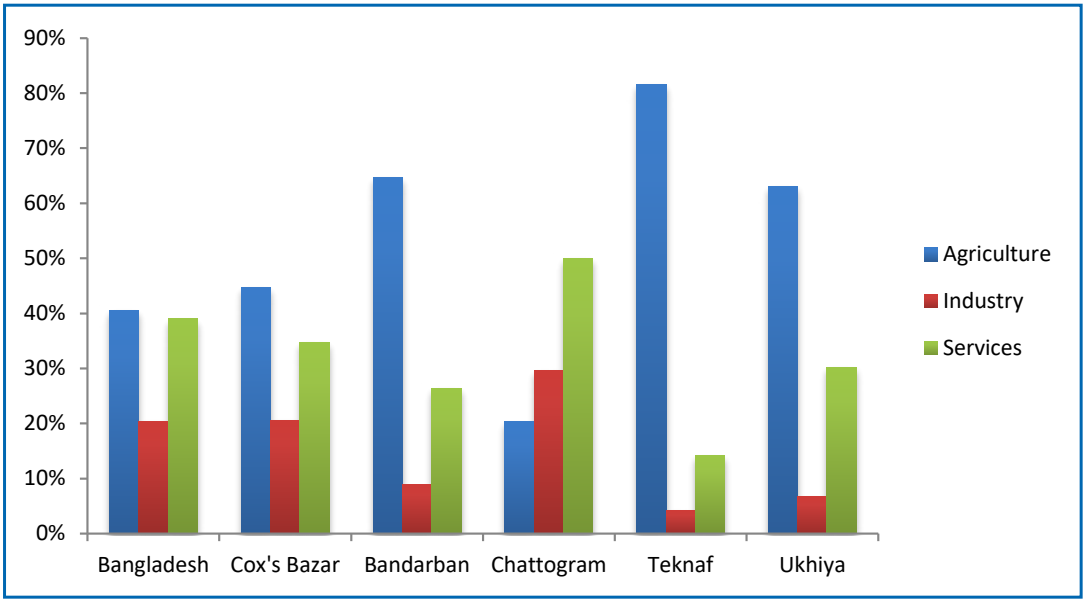


Source: Estimates from BBS data (2013a).

For Cox's Bazar district overall, as in all other districts in Bangladesh, rice is the main agricultural crop. Rice is cultivated mainly in the flat lands of Chakaria, Pekua and Cox's Bazar Sadar upazilas. Other major agricultural production activities in Cox's Bazar district involve betel nuts, betel leaf and coconut. With limited cultivable land, Bandarban produces few crops and fruits.[14]

Cox's Bazar district also accounts for about 95 per cent of total salt production in the country (Al Mamun et al., 2014). Some 55,000 farmers cultivate salt on 65,000 acres of land (Zinnat, 2016). Fishing is another critical source of livelihood, with the total number of registered fishers at 45,878.[15]

Figure 3.6. Employment by economic sector, Teknaf and Ukhiya upazilas, Cox's Bazar and Bandarban districts, Chattogram division and Bangladesh (%)



Source: Estimates from BBS data (2018).

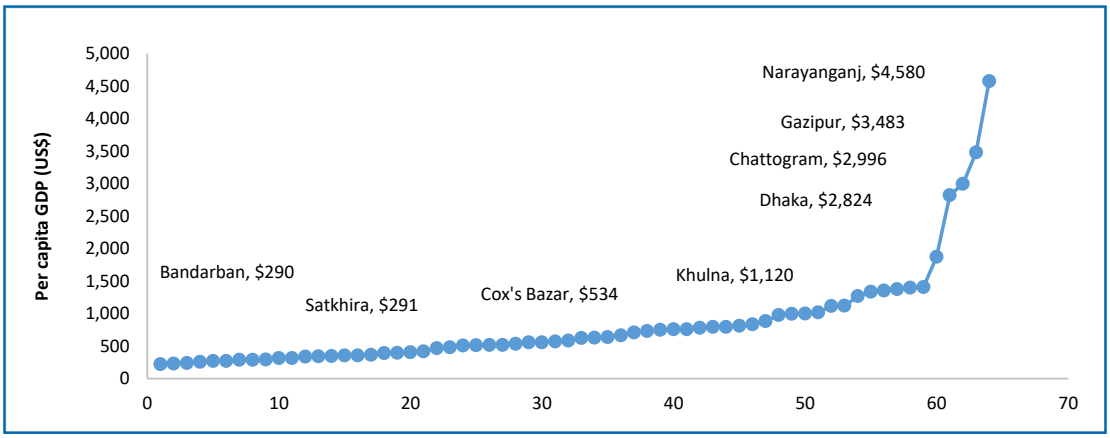
14 For more information on production in Cox's Bazar, see Annex 2 (Tables A2.1 and A2.2).
15 Figure based on statistics provided by Cox's Bazar Fisheries Office.

Table 3.1. Wages in Cox's Bazar, Dhaka and Bangladesh

	2017 average monthly wages (Tk.)	Wages relative to Dhaka (%)
National average	12,314.2	70.3
Dhaka district	17,506.5	100.0
Cox's Bazar	11,316.4	64.6
Rank of Cox's Bazar	49	49
Percentile rank	82.8	82.8

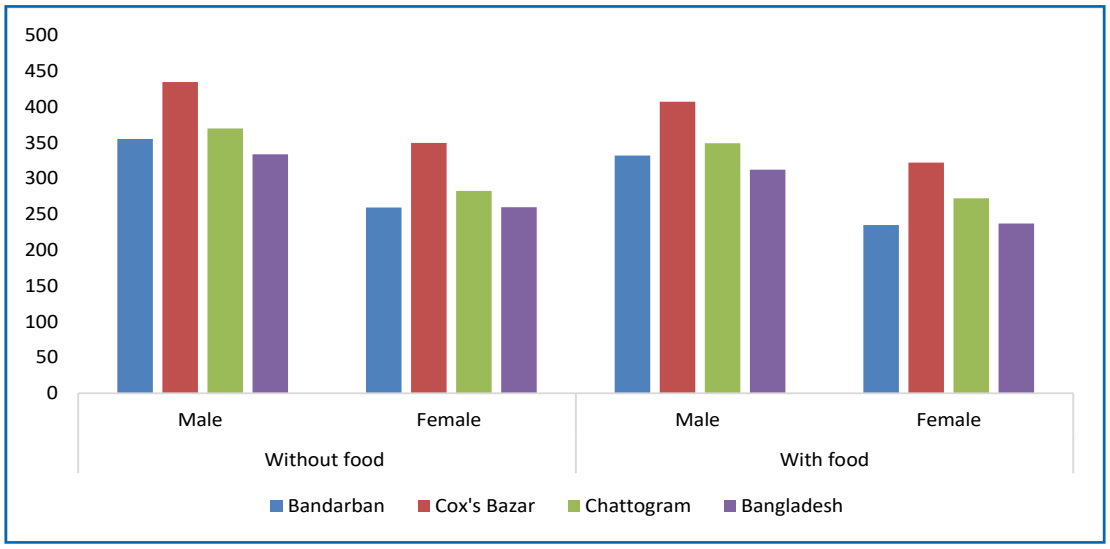
Source: BBS (2017c, 2018); Ministry of Finance data.

Figure 3.7. Ranking of districts by per capita income, Bandarban and Cox's Bazar districts, 2016 (US$)



Source: Estimates from World Bank using nightlight intensity data.

Figure 3.8. Daily average wage rate for agricultural labour without and with food, by sex, Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh (Tk.), April–May 2016



Source: Estimates from BBS data (2017a).

3.5. Income and consumption

Wages in Cox's Bazar, at about Tk. 11,317 per month, are just below the national average or the median wage (Table 3.1). This is nearly a third less than wages in Dhaka, and Cox's Bazar ranks 49th out of 64 districts in this regard (Figure 3.7). These low wages probably reflect the lack of industrial jobs and possibly of rural non-farm employment opportunities.

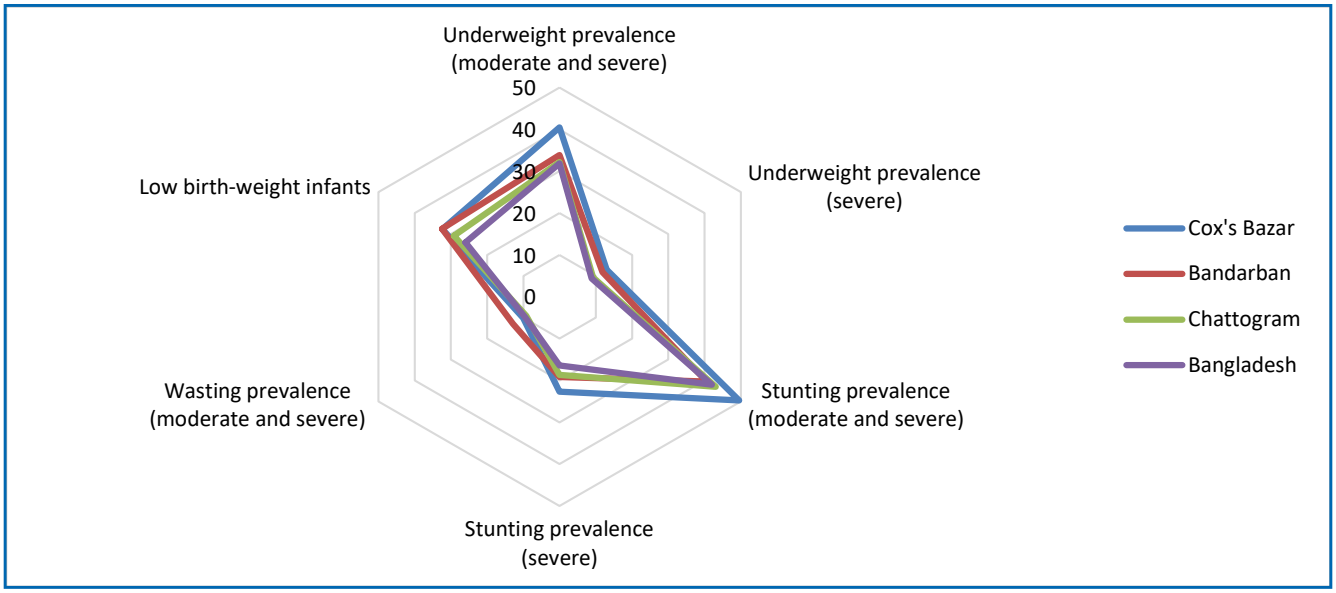
However, the daily wages for agricultural labour in Chattogram division are higher than the national average agricultural wage rate (Figure 3.8). In Cox's Bazar, a large number of people are engaged as wage labourers in fishing and salt production. Workers in these sectors are likely to be paid higher wages than those who work in agriculture. Official statistics report gender-based wage gaps for all districts in Bangladesh.[16] On average, male agricultural wage labourers earn Tk. 435 per day, including food, whereas female workers get Tk. 350.

Data provided by the World Bank show that the per capita income of Cox's Bazar (US$534) is close to the national district-level average after the top four districts are excluded. Bandarban, however, with a per capita GDP of US$290, is one of the poorest districts. Data from the HIES 2016 show that both per capita income and consumption in Cox's Bazar are comparable with the corresponding national averages. Bandarban's per capita income and consumption are much lower than those of Cox's Bazar and the national average (BBS, 2017c).

3.6. Health and education

According to data provided in the Multiple Indicator Cluster Survey (MICS) (BBS, 2015c), Cox's Bazar is characterized by high prevalence of stunting: moderate and severe stunting is 7 percentage points higher than the national average of 42 per cent.

Figure 3.9. Status of nutrition, Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh (%)



Source: Estimates from BBS data (2015c).

16 The statistical significance of the gender wage gap has not been tested.

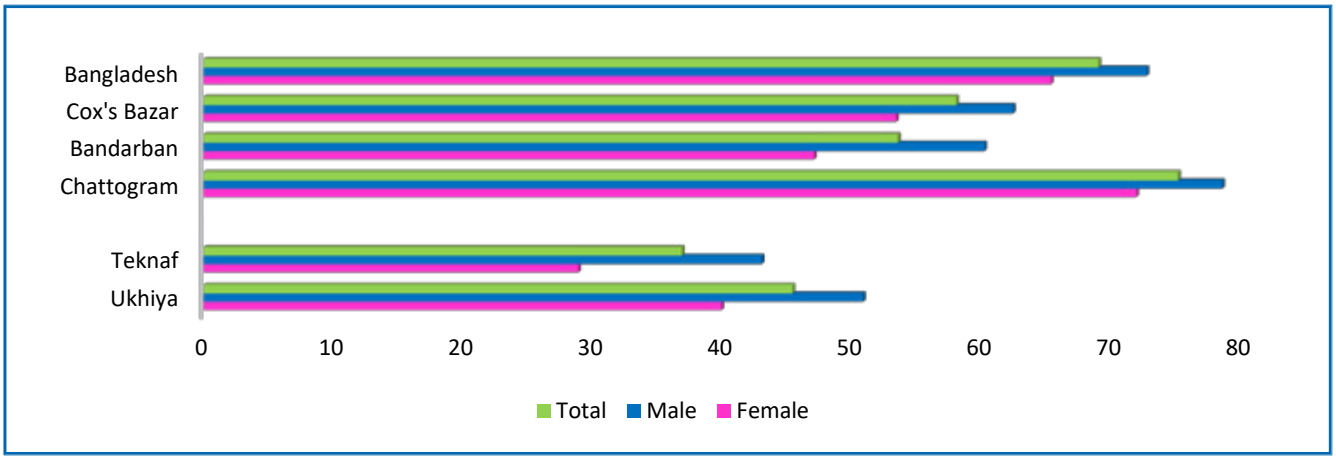
Similarly, moderate and severe underweight prevalence among children in Cox's Bazar is 40.5 per cent as against the national average of 31.9 per cent. These health indicators for the Bandarban population are largely comparable with those of Cox's Bazar. In both Cox's Bazar and Bandarban, 32 per cent of infants are born underweight, compared with the national average of 26 per cent. Moderate acute malnutrition rates, also referred to as moderate wasting prevalence, are for Cox's Bazar and Bandarban, respectively, 10.1 per cent and 12.9 per cent—higher than the national average of 9.6 per cent. Severe acute malnutrition (SAM), also known as severe wasting prevalence, is 3 per cent in Cox's Bazar and 4 per cent in Bandarban, compared with the national average of 1.6 per cent.

According to the Bangladesh Demographic and Health Survey (BDHS) 2014, SAM in Ukhiya (1.3 per cent) is lower than that in Teknaf (2.8 per cent), which surpasses the SPHERE standard of emergencies (SAM >2%) (BBS, 2014).

All these indicators are interrelated, and poor performance is caused by food shortage, food insecurity and unplanned pregnancy.

Cox's Bazar and Bandarban also lag behind most other districts on educational attainment. The adult literacy rate in Cox's Bazar is 58 per cent, against the national average of 69 per cent (Figure 3.10) (BBS, 2018). Teknaf and Ukhiya perform even worse: LFS 2016–2017 data show literacy rates in these two *upazilas* are 36.9 per cent and 45.4 per cent, respectively.

Figure 3.10. Literacy rates, by sex, Teknaf and Ukhiya upazilas, Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh (%)



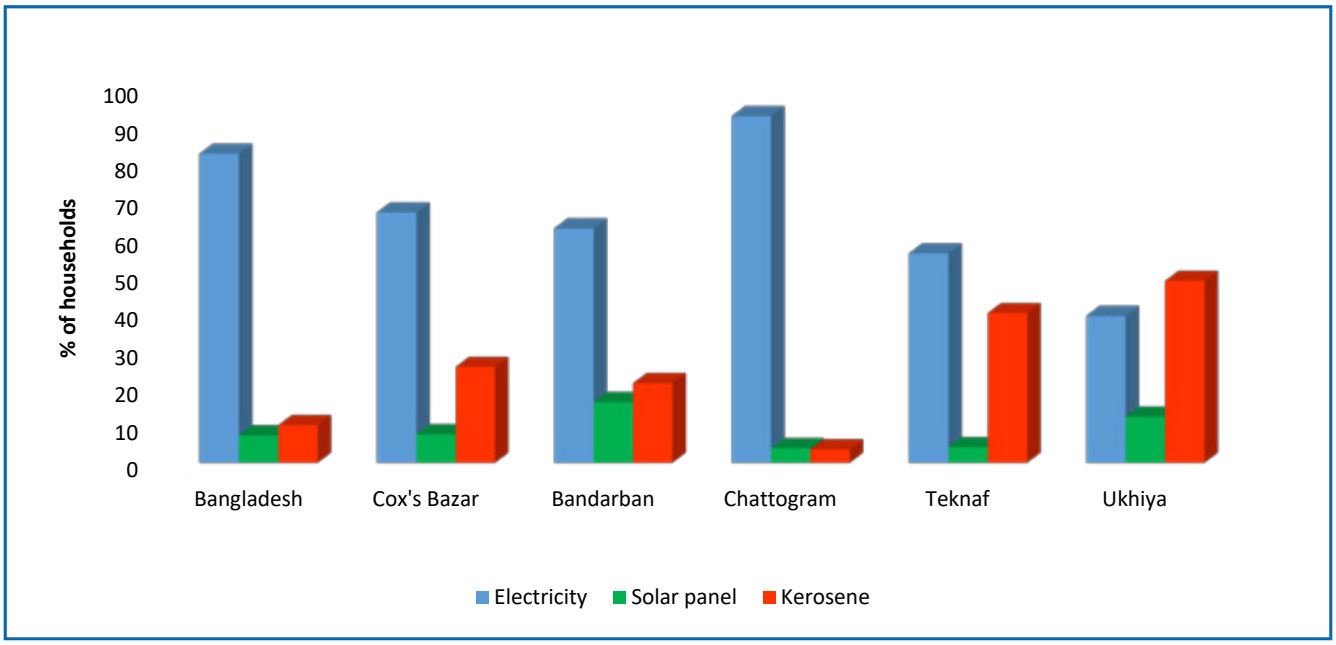
Source: Estimates from BBS data (2018).

The female literacy rate in both Bandarban and Cox's Bazar districts and both Teknaf and Ukhiya upazilas is lower than that of males: Bandarban shows 60% versus 47%, Cox's Bazar 62% versus 53%, Teknaf 43% versus 29% and Ukhiya 51% versus 40%.

3.7. Infrastructure

Electricity connectivity in Cox's Bazar and Bandarban is far below the national average: 82.5 per cent of Bangladeshi households have electrical connections but only two thirds of households in Cox's Bazar and Bandarban (BBS, 2018). For Teknaf and Ukhiya, the comparable figures are around 60 per cent and 40 per cent, respectively (Figure 3.11).

Figure 3.11. Electricity connectivity and other sources of lighting at home, Teknaf and Ukhiya upazilas, Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh (% of households)

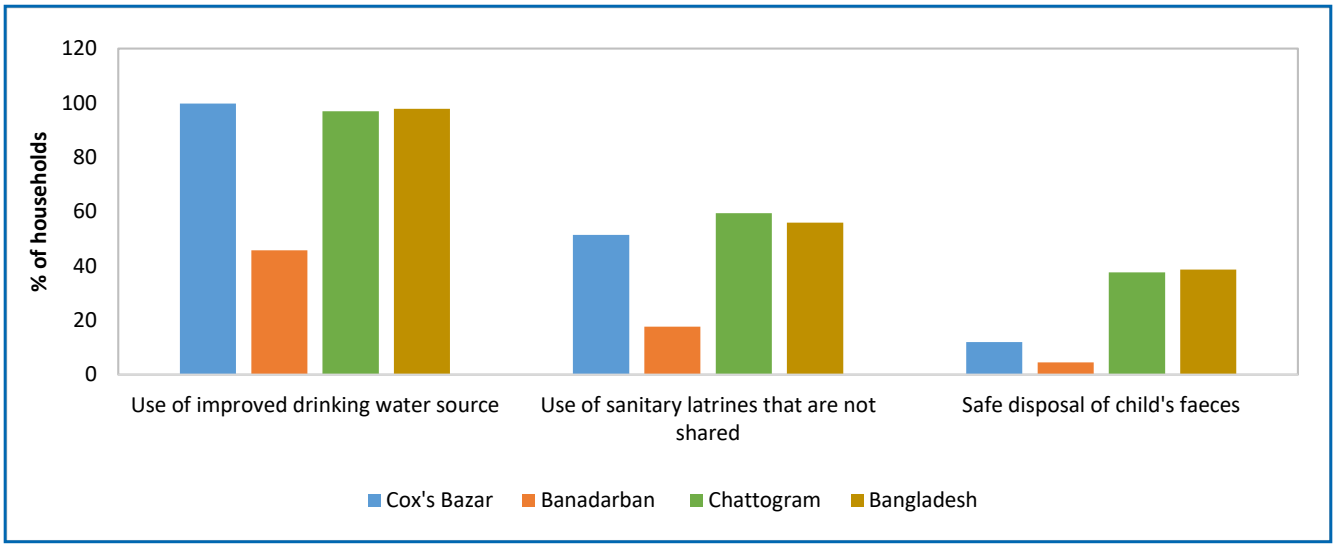


Source: Estimates from BBS data (2018).

As many as 92 per cent of households in Cox's Bazar and 84 per cent in Bandarban rely primarily on firewood for cooking. This compares with 44 per cent for Bangladesh overall (BBS, 2018). Lack of access to alternative fuels and easy availability of forest resources may have contributed to this dependence on firewood.

According to the MICS (BBS, 2015c), with regard to safe drinking water and sanitation, Bandarban fares far worse than Cox's Bazar and the country as a whole. While 98 per cent of the population as a whole has access to safe drinking water, the figure is only 45 per cent in Bandarban. Improved and unshared sanitary latrines are used by 56 per cent of households in Bangladesh; the figure is 52 per cent in Cox's Bazar but only 18 per cent in Bandarban. Similarly, while 39 per cent of Bangladeshi households practise safe disposal of child faeces, in Cox's Bazar the figure is 12 per cent and in Bandarban it is slightly less than 5 per cent.

Figure 3.12. Water and sanitation indicators, Teknaf and Ukhiya upazilas, Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh (% of households)



Source: Estimates from BBS data (2018).

In Teknaf, 5.8 per cent of houses are *pucca*, 12 per cent semi-*pucca*, 63.1 per cent *kutcha* and the remaining 19.1 per cent *jhupris*. In terms of drinking water, 78.7 per cent use hand pumps (tube wells), 1.1 per cent tap water and the remaining 20.2 per cent "other sources". Housing in Ukhiya is composed of 4 per cent *pucca* houses, 10.5 per cent semi-*pucca* houses, 67.8 per cent *kutcha* houses and 17.75 per cent *jhupris*. A total of 82 per cent of households get their drinking water from hand pumps (tube wells); only 0.8 per cent have piped water and the rest use other sources. About a quarter of households in both *upazilas* have been brought under the Rural Electrification Programme. Only about 40 per cent have sanitary latrines (BBS, 2013a).

The transportation system in Cox's Bazar and Bandarban is not well developed. Apart from in Chakaria, dirt roads dominate the transportation network in all upazilas in Cox's Bazar.[17] However, certain new developments are benefiting the area. For example, the 80 km Marine Drive along the Bay of Bengal is now a major road connecting Teknaf and Ukhiya to Cox's Bazar. Construction of a 129.6 km rail track joining Chattogram–Cox's Bazar–Ghumdum is underway.

3.8. Trade and investment

Economic activities in Cox's Bazar are mostly concentrated in Cox's Bazar Sadar and Chakaria, in terms of both number of establishments and persons engaged. Economic activities in Teknaf are at twice the level of those in Ukhiya, in terms of both establishments and persons engaged. Major non-agricultural activities are concentrated in wholesale and retail trade (47.5 per cent), manufacturing (14 per cent), hotels and restaurants (7.5 per cent) and transport and storage (7 per cent) (see Annex 2, Table A2.4). Most manufacturing establishments in Cox's Bazar are oriented towards the domestic market; only 3 per cent are export-oriented (BBS, 2013b). Several public sector investment programmes are currently underway, including special economic zones (SEZs) and tourism parks, large coal-based thermal power

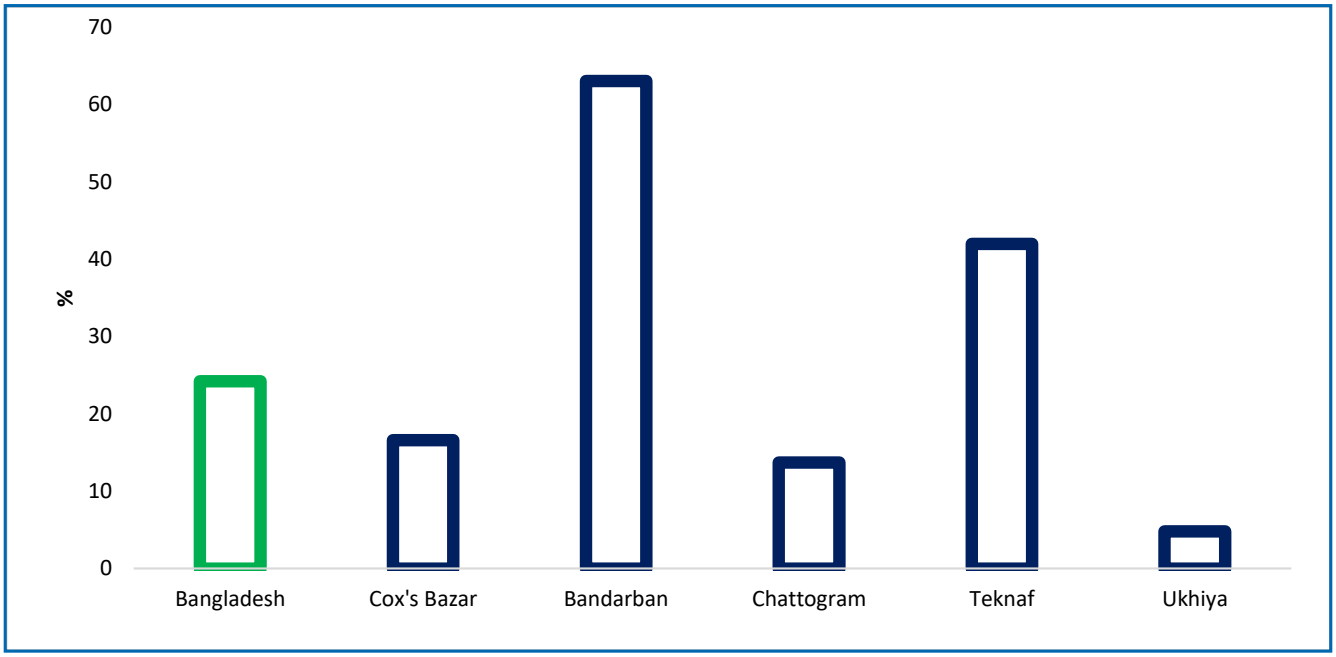
17 Supplied by the Local Government Engineering Department (LGED).

plants at Matarbari and Maheshkhali and construction of a liquefied natural gas (LNG) plant. Bandarban lags far behind in terms of economic activities (BBS, 2016a).

3.9. Headcount poverty

According to the latest poverty estimates, in the HIES (BBS, 2017c), 24.3 per cent of the Bangladeshi population lives in poverty. The same source states that headcount poverty incidence in Cox's Bazar is 16.6 per cent. Using the BBS data, we can calculate the headcount poverty rates for Teknaf and Ukhiya *upazilas* at 42 per cent and 4.8 per cent, respectively. It is striking that Ukhiya has such low incidence of poverty.[18] The headcount poverty rate in Bandarban is as high as 63 per cent. This makes Bandarban one of the most severely poverty-stricken districts in the country (Figure 3.13).

Figure 3.13. Headcount poverty, Teknaf and Ukhiya *upazilas,* Bandarban and Cox's Bazar districts, Chattogram division and Bangladesh (%)



Source: Estimates from BBS data (2017c).

3.10. Social protection

Several social protection schemes are being implemented in Cox's Bazar as part of the government's social safety net programmes. These include an old age allowance, vulnerable group feeding (VGF), vulnerable group development (VGD), allowances for widows, stipends for transgender and other marginalized groups, allowances for lactating mothers, interest-free loans for the disabled and rural social services. In all, there were 13,754 programme beneficiaries in Teknaf in 2017/18, costing Tk. 68 million. For Ukhiya, the number of beneficiaries was 10,981 at a cost of Tk. 46 million (see Annex 2, Table A2.6).[19]

18 There is no discussion in the BBS report on local-level poverty incidence. Studies on the refugee-affected areas seem to suggest much higher levels of poverty and vulnerability.

19 Statistics from DSS. The cost figures include allowances and total disbursed loans.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Chapter 4

The Rohingya influx, GoB response and institutional set-up

An estimated 641,000 Rohingya refugees[20] trekked into Bangladesh during August and September 2017, fleeing violence in Rakhine state of Myanmar. Most of the refugees are children, women and old men. This number added to some 278,000 existing Rohingya refugees left over from two smaller episodes, in 1978 and 1992. With this new influx, the total number of Rohingya refugees has reached 919,000, according to the latest Inter Sector Coordination Group (ISCG) report (2018a).

Figure 4.1. The Rohingya exodus—from Rakhine state to Cox's Bazar district

Source: www.aljazeera.com/ (accessed July 2018).

20 Though 641,000 is an oft-quoted figure, the most recent figures bring the figure down to 626,000 in camps and another 15,000 living in host communities (RRRC interview).

The bulk of the refugees have settled in the two *upazilas* of Teknaf and Ukhiya. The host communities around these two *upazilas*—themselves mostly poor and lacking in public services—were the "first responders" in welcoming vast numbers of Rohingya refugees, along with the Cox's Bazar District Administration, backed by GoB. However, communities soon found their lives and livelihoods came under stress from the weight of competition for access to scarce natural and physical resources and public services.

The total population of Cox's Bazar district within a few months had increased by 50 per cent, bringing the population density to 1,500 per km—far exceeding the national average of 1,100. In Teknaf and Ukhiya, the size of the population has increased three times. The crisis is imposing colossal, perhaps irreversible, damage on the environment in and around Cox's Bazar district.

4.1. The refugee population profile

4.1.1. Definition

GoB refers to Rohingya who have fled from Myanmar and entered Bangladesh since August 2017 as Forcibly Displaced Myanmar Nationals (FDMN). They are not recognized as "registered refugees", though the UN system has been able to mobilize humanitarian aid for these displaced persons, according them whatever protection and sustenance that can be mustered internationally and with the full cooperation of GoB.

4.1.2. Previous inflows, repatriation and remaining refugees

There have been three main waves of Rohingya refugee influx from Rakhine state into Cox's Bazar district since 1978, with the wave arriving in 2017 influx the largest. Following each previous influx, some Rohingya refugees were repatriated, at the initiative of GoB, but a sizeable number remained in Bangladesh. These refugees are mostly accommodated in two major refugee settlements—Kutupalong and Nayapara in Ukhiya *upazila*—which have existed since the 1990s. These Rohingya are designated as registered refugees, and are managed by GoB through the Refugee Relief and Repatriation Commission (RRRC). GoB calls them Undocumented Nationals of Myanmar (UNM).

4.1.3. The latest influx

The latest influx of Rohingya (FDMN) into Bangladesh started after the Myanmar army's brutal crackdown during August 2017. This refugee influx has turned into one of the fastest-growing refugee crises in the world.

4.1.4. Demographic and other characteristics of refugees

The total refugee population according to UNHCR is estimated at 882,676, comprising 203,137 families. A total of 52 per cent are female and 48 per cent are male. Children constitute more than half of the refugee population, at 55 per cent, while adults and the elderly constitute 42 per cent and 3 per cent, respectively.

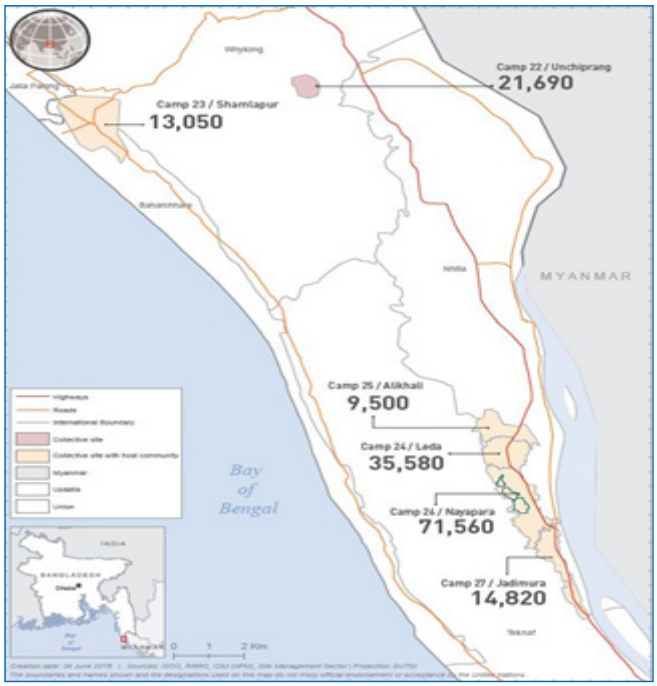
The total number of refugees estimated in Cox's Bazar stood at 919,000 as of 6 July 2018 (ISCG, 2018a). Table 4.1 shows where these refugees are camped in Cox's Bazar district. The table only shows the refugee population in camps located in Cox's Bazar. Some 15,000 refugees are estimated to be living in host communities. Figures 4.2 and 4.3 present these camps in map form.[21]

Table 4.1. Location of refugees camped in Cox's Bazar district

Camp location/area	Upazila	Refugee population
Kutupalong Expansion Site	Ukhiya	610,251
Kutupalong Refugee Camp	Ukhiya	16,251
Camp 14, 15, 16	Ukhiya	98,529
Camp 21 (Chakmarkul)	Ukhiya	12,823
Camp 22 (Unchiprang)	Teknaf	21,685
Camp 23 (Shamlapur)	Teknaf	13,049
Camp 24 (Leda)	Teknaf	35,583
Camp 25 (Alikhali)	Teknaf	9,501
Camp 26 (Nayapara)	Teknaf	71,562
Camp 27 (Jadimura)	Teknaf	14,822
Total number of refugees in camps and settlements	**Cox's Bazar**	**904,056**

Source: ISCG (2018l).

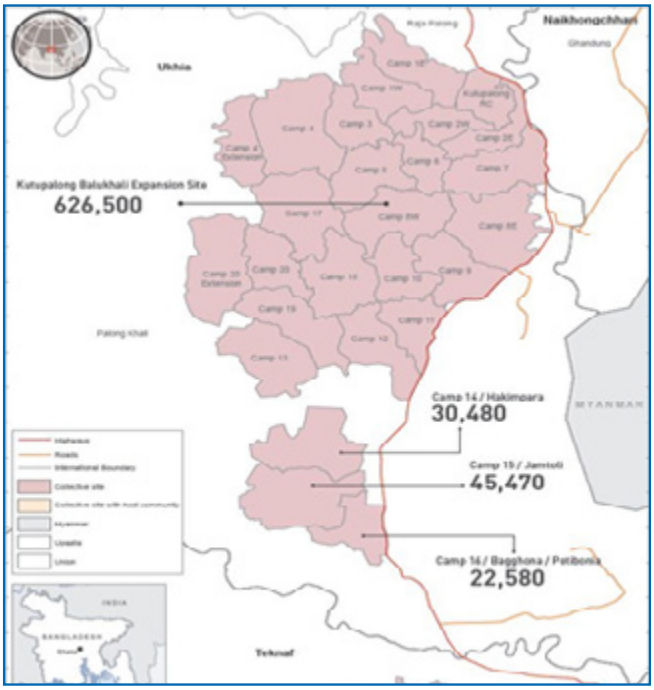
Figure 4.2. Refugee population in Teknaf, Cox's Bazar, as of 21 June 2018 (rounded)



Source: ISCG (2018a).

21 The location of the Rohingya refugees can be traced at https://data.humdata.org/dataset/site-location-of-rohingya-refugees-in-cox-s-bazar (accessed on 30 September 2018).

Figure 4.3. Refugee population in Ukhiya, Cox's Bazar, as of 21 June 2018 (rounded)



Source: ISCG (2018a).

Table 4.2. Ratios of refugees to host communities, by *upazila*

Upazila	Bangladeshi population	Rohingya refugees	Rohingya refugees with host communities	% refugees vs. host population
Ukhiya	198,099	737,854	2,920	374
			740,770 (total)	
Teknaf	366,979	166,202	5,332	47
			171,532 (total)	
Total for 2 *upazilas*	565,078	904,056		161
			912,302 (total)	
Other camps (including in host communities)			6,634	
Total for Cox's Bazar			918,936	

Source: BBS (2017c) and ISCG (2018a).

4.2. Bangladesh government policy on the Rohingya and response

GoB, with the support of the international community, organized temporary settlement of the refugees. However, the scale of the crisis was so enormous it quickly became clear Bangladesh alone could not meet the demands arising out of this huge refugee influx—and nor should it. The international community has responded to the crisis positively, mostly through various UN and other multilateral agencies and NGOs, both local and international.

Box 4.1. Statements on the Rohingya crisis

Prime Minister Sheikh Hasina

- "It is a responsibility of every human being to stand beside the distressed humanity... it would be inhumane if we don't stand beside the Rohingyas at the time of their distress." 16 October 2017
- "The global community will have to continue their pressure on the Myanmar government to take back the forcibly displaced Rohingyas from Bangladesh." 5 June 2018

UN Secretary-General António Guterres

- "I've just heard unimaginable accounts of killing and rape from Rohingya refugees who recently fled Myanmar. They want justice and a safe return home." In Cox's Bazar, 1 July 2018
- "The Rohingya are one of the most discriminated against and vulnerable communities on Earth. The Rohingya refugee crisis is a humanitarian and human rights nightmare." Tweeted on 1 July 2018
- "Nothing could've prepared me for the scale of crisis and extent of suffering I saw today in Cox's Bazar, Bangladesh. I heard heartbreaking accounts from Rohingya refugees that will stay with me forever. My appeal to the int'l community is to step up support." Tweeted on 2 July 2018

World Bank President Jim Yong Kim

- "Our cooperation with UN agencies is unprecedented. By filling the gap between humanitarian and development response, we are able to provide better support to refugees and host communities." At a Rohingya camp in Kutupalong, 2 July 2018
- "We are deeply moved by the suffering of the Rohingya people and stand ready to help them until they can return home in a safe, voluntary, and dignified manner. At the same time, we are also continuing to support the Bangladeshi people and the host communities, who have shown great generosity by welcoming these refugees." 28 June 2018

UN High Commissioner for Human Rights, Zeid Ra'ad Al Hussein

- "The situation seems a textbook example of ethnic cleansing." 36th Session of the Human Rights Council at the UN in Geneva, 11 September 2017

United Nations Refugee Agency

- "The speed and scale of the influx made it the world's fastest growing refugee crisis and a major humanitarian emergency. The Government of Bangladesh, local charities and volunteers, the UN and NGOs are working in overdrive to provide assistance. But much more is urgently needed. The efforts must be scaled up and expanded to receive and protect refugees and ensure they are provided with basic shelter and acceptable living conditions. Every day more vulnerable people arrive with very little — if anything – and settle either in overcrowded existing camps or extremely congested makeshift sites." Joint statement issued by UNHCR, 16 October 2017

International Committee of the Red Cross President Peter Maurer

- "Conditions to return will require not only humanitarian and mitigating activities, but also effective political steps towards ensuring freedom of movement; access to basic services; freedom to undertake economic activity and access to markets in Rakhine." 3 July 2018

Current GoB policy with regard to Rohingya refugees is ultimately to repatriate them to Myanmar, whose citizens these refugees are. Bangladesh does not have a refugee policy, nor it is a signatory to the International Refugee Convention. During both 1978 and 1992, initiatives taken by GoB in conjunction with the UN led to the repatriation of some refugees, but many remained in Bangladesh.

In the wake of the 2017 refugee influx, in November, representatives of GoB and the Government of Myanmar (GOM) held several rounds of meetings, and a draft repatriation document has reportedly been signed (not in the public domain). A Memorandum of Understanding signed between the two governments, dated 23 November 2017, specifies repatriation based on eligibility criteria and a verification process. It has been claimed that GOM and not UNHCR would undertake the verification process. According to one report, Myanmar could verify up to 300 potential returnees a day, so this process alone could take years to complete.[22]

At this point in time, though, there is no clear indication as to what agreement has been reached between GOB and GOM on the issue of how repatriation will take place. The UN and other international agencies have opined that, unless the safety and security of the returning Rohingya are guaranteed under the auspices of an international body (e.g. the UN), repatriation should not take place.[23] So far, whatever repatriation agreement GoB and GOM have worked out has not led to any meaningful action on the ground.[24] There appears to be no definite timeframe within which refugees can be repatriated voluntarily. There is a strong belief that repatriation may take a very long time, and many refugees may not be repatriated at all.

Under these circumstances, if GoB and humanitarian aid agencies are to plan for the future, some scenarios of repatriation may be useful. Three alternative repatriation scenarios are under consideration: 1) a pessimistic scenario that would repatriate only 100 refugees per day for 20 days each month (24,000 a year); 2) a realistic scenario to repatriate 300 refugees per day for 25 days a month (90,000 a year); and 3) an optimistic repatriation scenario, with 600 Rohingya repatriated each day for 30 days a month (216,000 per year). As such, the best-case scenario is one where the entire population of Rohingya refugees is repatriated in more or less five years, starting from January 2019. Chapter 5.5 goes in more depth into the socio-economic impacts of such scenarios.

Meanwhile, given the possibility of delayed repatriation, GOB is undertaking mid- and long-term planning. As a part of this, GOB plans to shift some refugees to Bhashanchar Island, to minimize issues related to social cohesion and the impact on the environment, as well as to ensure better refugee management (see Dhaka Tribune, 2018).

Meanwhile, the field survey revealed that, while most men want to go back to Myanmar, most women (who comprise 52 per cent of the Rohingya refugees) do not, because of the trauma they suffered in Rakhine. Policy planners will thus need to be realistic: it is likely that many refugees will remain in Bangladesh for a long time while efforts to repatriate them continue. Even under the best-case scenario above, any resource planning for the future will have to take at least a medium-term approach. There is a need to devise at least a three- to-five-year programme to manage the crisis, one that calls for a combination of refugee settlement and rehabilitation measures; augmentation of infrastructure capacity; and strategies and approaches to build a congenial atmosphere among the host communities living around the Rohingya camps.

22 On the previous occasion, it took almost 13 years to complete the repatriation that started in 1993. Almost 200,000 refugees were repatriated and another 30,000 could not be returned (Liton, 2017)

23 The UN Secretary-General's Special Envoy on Myanmar, Christine Schraner Burgener, after meetings with Myanmar leaders during 12–21 June 2018, said that granting citizenship to the Rohingya and ensuring accountability for the perpetrators of violence against the community could help create a conducive environment for their safe and voluntary repatriation (Daily Star, 2018).

24 An RRRC official reported that GOM had agreed to repatriate Rohingya camped in Teknaf/Ukhiya at a rate of some 1,500 persons per week. At this rate, it would take 10 years to repatriate all Rohingya that have come since August 2017. With some 300 babies born in the camps each week, this agreement (if it is a serious one) has limited utility.

4.3. Organizational framework for the refugee crisis management

4.3.1. Critical public institutions engaged in managing the Rohingya crisis

The Rohingya influx led to the mobilization of an international humanitarian aid effort with the help of UN agencies such as UNHCR, IOM, the UN Children's Fund (UNICEF) and the UN Development Programme (UNDP), along with NGOs and INGOs numbering in the hundreds. Drawing on experience in managing refugee settlements in other conflict-ridden regions of the world, a commendable effort has gone into the temporary encampment of the million displaced Rohingya.

At the national level, the Prime Minister's Office is the central coordinating authority. The Secretary of the Ministry of Foreign Affairs (MOFA) leads a national-level task force for the Rohingya, which is co-chaired by the Secretary of the Ministry of Disaster Management and Relief (MODMR).

However, when the influx occurred during August–October 2017, it was the Cox's Bazar District Administration that bore the brunt of the emergency operation, providing land, food, shelter and other settlement logistics. The 149 officers of the Deputy Commissioner's Office (DC Office), the main public administrative mechanism of the district, had previously looked after 2.5 million people—that is, 16,900 people per staff member. The same officers now had to manage the affairs of the additional refugees, bringing them to 23,066 people per staff member—an increase of 36.5 per cent.

By late November 2017, after the emergency period was over, the Refugee Relief and Repatriation Commission (RRRC), a public institution that was already in place, was entrusted with overseeing all aspects related to the settlement and management of the refugees. Headquartered in Cox's Bazar, RRRC collaborates with the Inter Sector Coordination Group (ISCG) (led by IOM and UNHCR) in the district and the Strategic Executive Group of UN agencies in Dhaka, including in the delivery of public services such as food security, shelter, health and nutrition, water and sanitation, in-camp education and overall welfare.

4.3.2. Short-/medium-term response

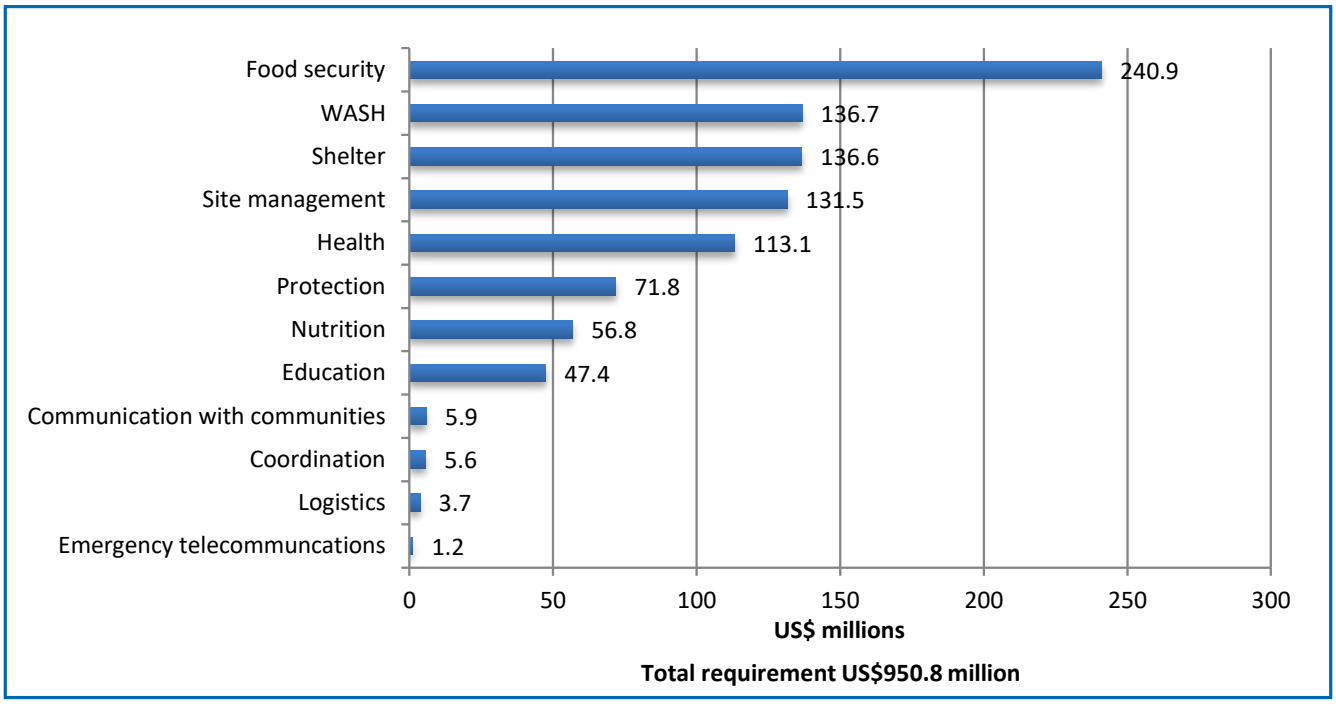
At the initial stage of the crisis, most initiatives were related to immediate crisis response, but the enormity and complexity of the need to provide immediate food and shelter to so many people meant joint efforts were required. In light of this, the humanitarian community, led by ISCG and the Strategic Executive Group of UN agencies, worked closely with GOB to draw up its Joint Response Plan (JRP) for 2018 (March–December) (ISCG, 2018a).

The JRP lays out a vision for a coordinated response to address the immediate needs of the refugees and mitigate the impacts on affected host communities (see Chapter 9 for further information on support to the host community). In preparing the JRP, widespread consultations were undertaken with all relevant stakeholders, keeping in view the multi-sectoral needs and strategic planning requirements to respond to those needs.

The JRP covers strengthening government institutions and systems in the area of health and nutrition, WASH, education, agriculture, forestry and the environment. Support is also provided to RRRC and local authorities in Teknaf and Ukhiya, to help with the coordination and management of refugees.

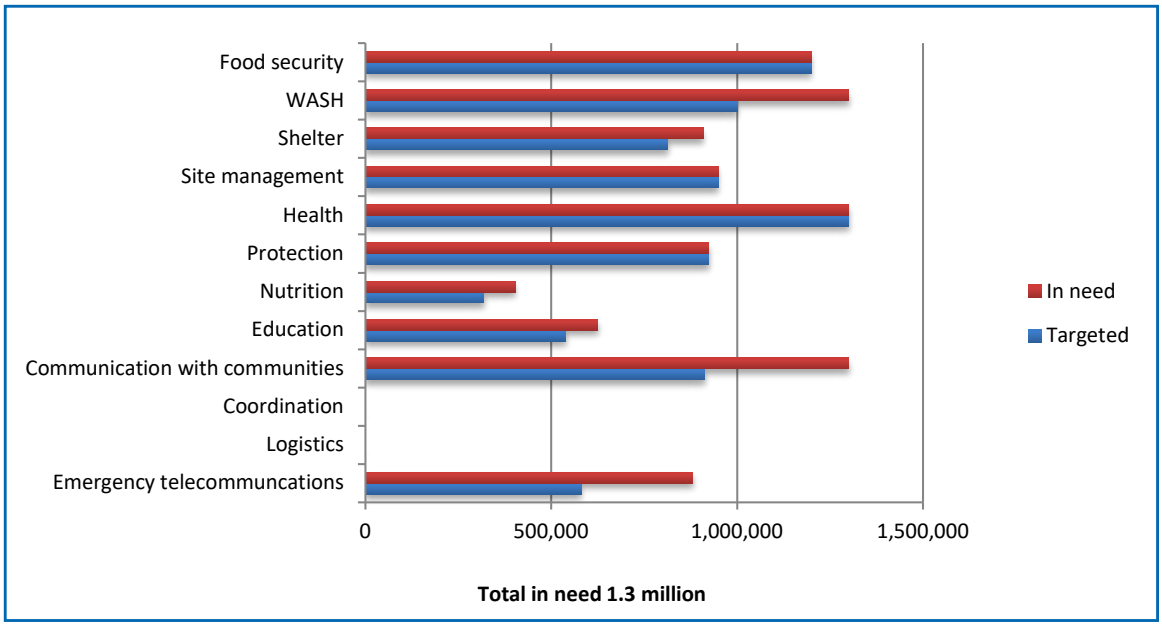
The JRP provides estimates of the cost of providing these programmes. To raise the required funds, the UN has appealed to the international community, and pledges/commitments have been forthcoming, albeit more slowly than expected. As of June 2018, according to ISCG, 26 per cent of the stipulated funds had been received, though that figure is on the rise.

Figure 4.4. JRP funding requirements by sector (US$ million)



Source: Estimates from ISCG data (2018a).

Figure 4.5. Numbers of people in need and numbers targeted in the JRP



Source: Estimates from ISCG data (2018a).

4.3.3. From humanitarian assistance to recovery

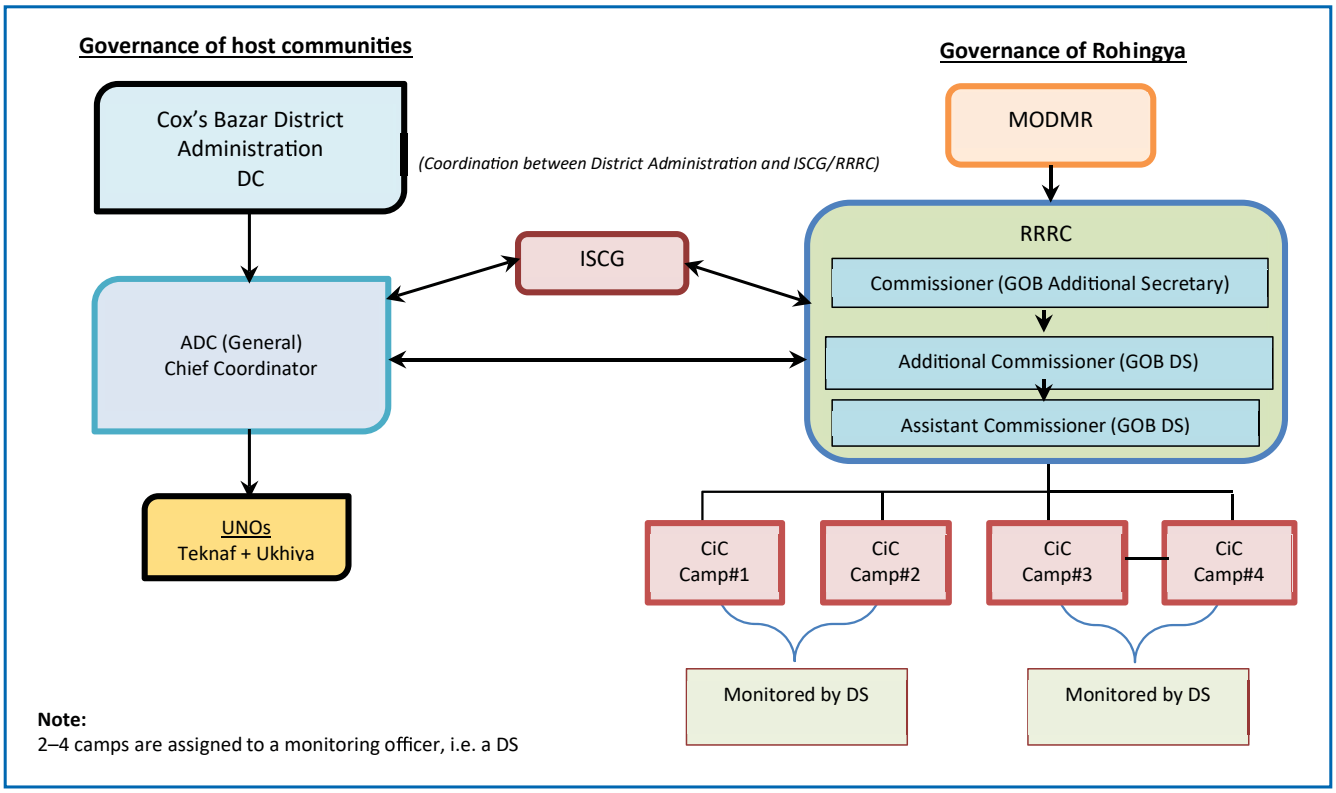
GoB and ISCG have been continually striving to improve and refine their intervention tools, focusing on a medium- to long-term response as the likelihood of immediate repatriation for the refugees has become increasingly uncertain.

Building on the immediate crisis response as outlined in the JRP, the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR) have taken a much longer perspective in preparing the Rapid Impact, Vulnerability and Needs Assessment (RIVNA) (World Bank, 2018). This encompasses interventions to build resilient communities in Cox's Bazar district, extending to two years beyond the early recovery period. The report estimates that more than US$1.15 billion will be required to meet the needs of displaced Rohingya and host communities in this period. The RIVNA identifies a number of critical challenges and stresses that most of these are interrelated.

4.3.4. DC Office–RRRC–ISCG coordination

ISCG has mapped out an elaborate Rohingya management system, identifying key sector activities and assigning key players to specific service delivery areas. Though the task of management has been passed on to RRRC, effective coordination between the DC Office and RRRC is critical to the smooth operation of the Rohingya camps.

Figure 4.6. Management of Forcibly Displaced Myanmar Nationals



Source: UNDP

DC Office

The DC is still the first port of call for the central government when it comes to executing government policies and development programming in the district. The DC chairs the monthly development coordination meeting, attended by representatives of all sector departments, including the police. However, the effectiveness of the DC Office in monitoring implementation is weaker than in the past: departmental heads now look up to their line ministries for orders and guidance. Nevertheless, during the emergency period of the Rohingya influx, the Cox's Bazar DC was able to mobilize the entire multi-sectoral team in the district to adequately meet the immediate challenge.

RRRC

Seventy-five GOB officials of different ranks run RRRC. RRRC is headed by a Commissioner (Additional Secretary), with supporting staff of Deputy Secretary (DS) and Senior Assistant Secretary rank. Each of the 32 Rohingya camps has a Camp-in-Charge (CiC) and an Assistant CiC, with eight supervisors (DS) each assigned four camps.

ISCG

ISCG coordinates the funding and activities of UN organizations as well as partner NGOs and INGOs. IOM set up ISCG in 2016 and plays the leading role in funnelling international humanitarian aid to refugees. Though IOM has general supervisory authority, ISCG is managed by a Coordinator, and all participating UN agencies and NGOs/INGOs have their own management system. The RRRC Commissioner presides over all ISCG meetings where decisions are made. IOM also coordinates various UN agencies' activities within 14 sectors, with different organizations performing different duties in different sectors.

Coordination

Though the day-to-day management of the Rohingya camps (maintaining living conditions and providing basic needs like food, shelter, education, health services, etc.) in cooperation with UN agencies and NGOs is now devolved to RRRC, this organization can be effective only if there is strong functional coordination with the DC Office.

The DC Office remains a critical component of the overall management of the refugee camps, in that major instructions and guidance from the central government relating to the Rohingya are communicated/ implemented through this office.

In addition, though the RRRC CiCs hold a rank above the district's Upazila Nirbahi Officers (UNOs) (who are Senior Assistant Secretaries), they lack their executive authority, as well as the magisterial powers of Executive Magistrates (Senior Assistant Commissioners in the DC Office). As such, to resolve disputes, CiCs need to cooperate with the DC Office Executive Magistrates, who are the only officers with magisterial authority to conduct mobile courts for adjudication in cases of offences committed by refugees or disputes between refugees and local people. Law and order issues related to the Rohingya, which crop up frequently, place an additional burden on the local police force. The Department of Defence also deploys a huge contingent of armed forces to ensure security at the border as well as in the camps.

Other administrative responsibilities that are devolved to the District Administration include monitoring relief and humanitarian assistance channelled through the Bureau of NGO Affairs and clearing private donations of food and other goods.

The fact that the RRRC Commissioner (Additional Secretary) is senior in rank to the DC (DS) has thus far not presented any major problem in terms of coordination. The Additional Deputy Commissioner (General) in the DC Office serves as the Chief Coordinator between the District Administration and ISCG/RRRC in handling the Rohingya situation.

For more on actual interventions, in particular for host communities, see Chapter 9.

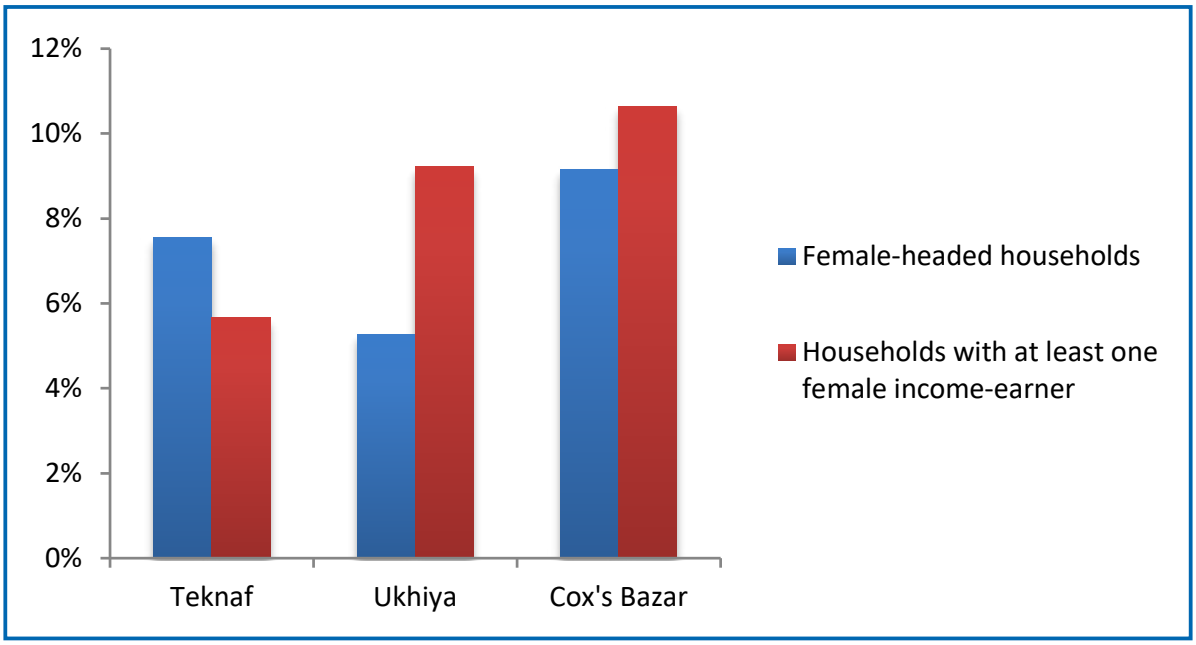
Chapter 5
Socio-economic impacts of the Rohingya influx on host communities

5.1. Brief overview of sample households

Before analysing the socio-economic impacts on the host communities, we first give a brief overview of the households surveyed, with figures to accompany this.

Within the sample, 9.2 per cent of the households were female-headed, which is comparable with the national average (around 10 per cent). Mean schooling for adults was four years; as many as 40.6 per cent of respondents had no formal education but 30 per cent had had at least eight years of schooling.

Figure 5.1. Female-headed households and households with at least one female income earner (% of households)



Source: UNDP household survey 2018.

Figure 5.2. Level of education (% of total aged 25+)

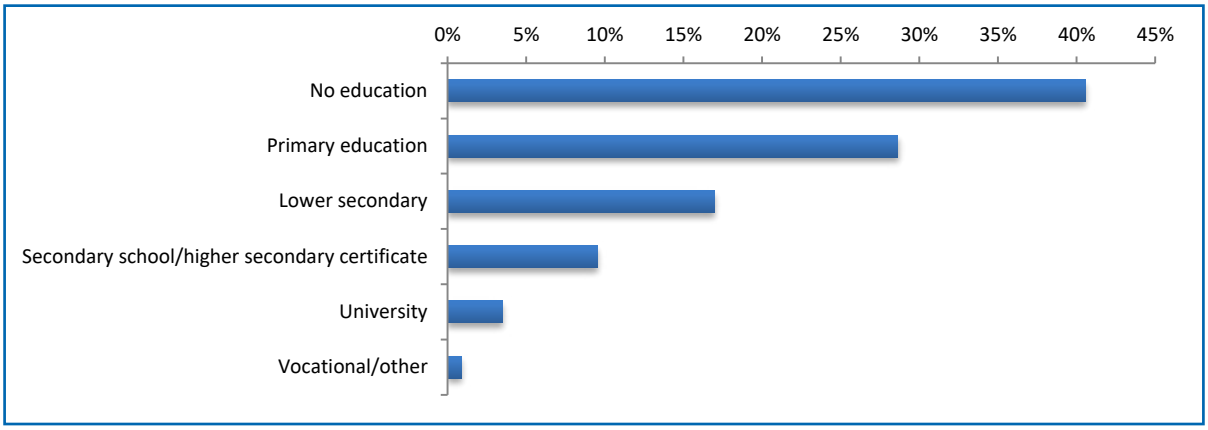


Figure 5.3. Households by major income source (% of households)

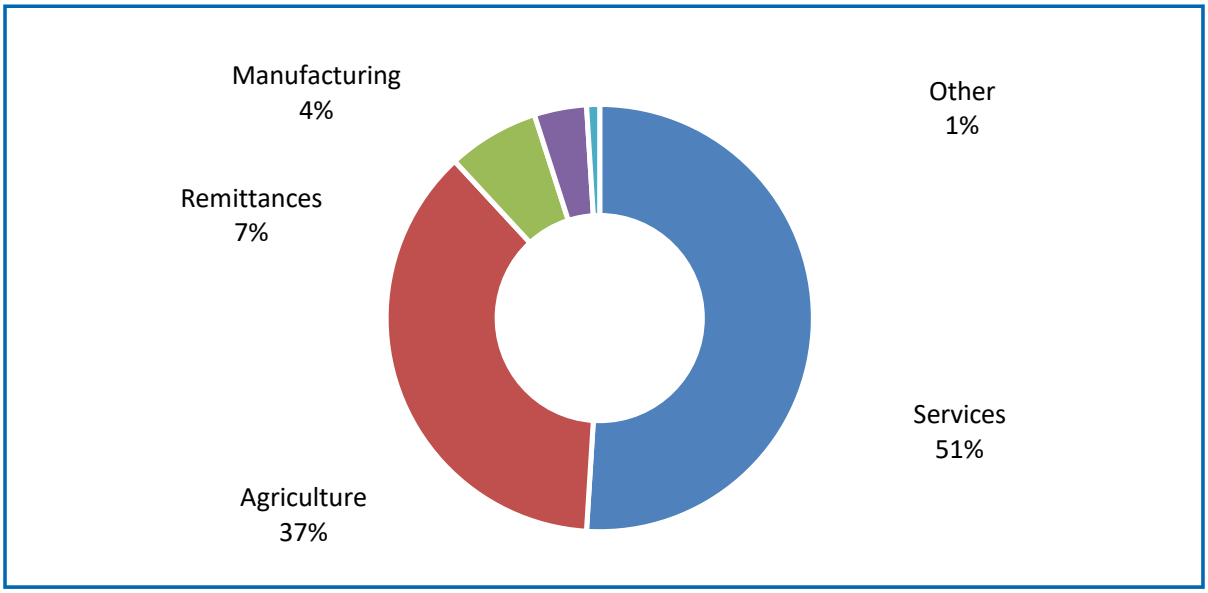
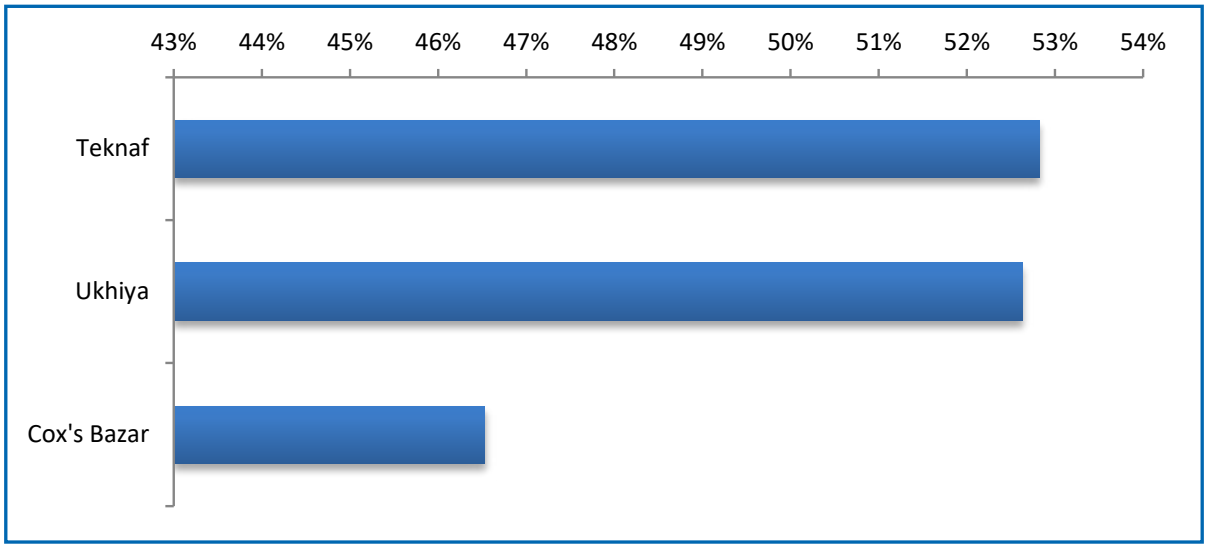


Figure 5.4. Households with at least one member associated with agriculture (% of households)



Source: UNDP household survey 2018.

For just over half of the sample (51 per cent), the most important source of household income was derived from service-related activities. Next came agriculture (37 per cent). At least 46.5 per cent of households had some relationship with agriculture, with at least one member employed by or associated with the sector. In just over 10 per cent of households there was at least one female income-earner.

Almost all households reported having access to safe drinking water, while 82.7 per cent had access to improved sanitation through either sanitary or pit latrines. Almost three quarters of households had a national grid electrical connection. In addition, 9.4 per cent of households mentioned using solar lighting. As much as 70.3 per cent of households relied on firewood for cooking.

Figure 5.5. Households by type of latrine used (% of households)

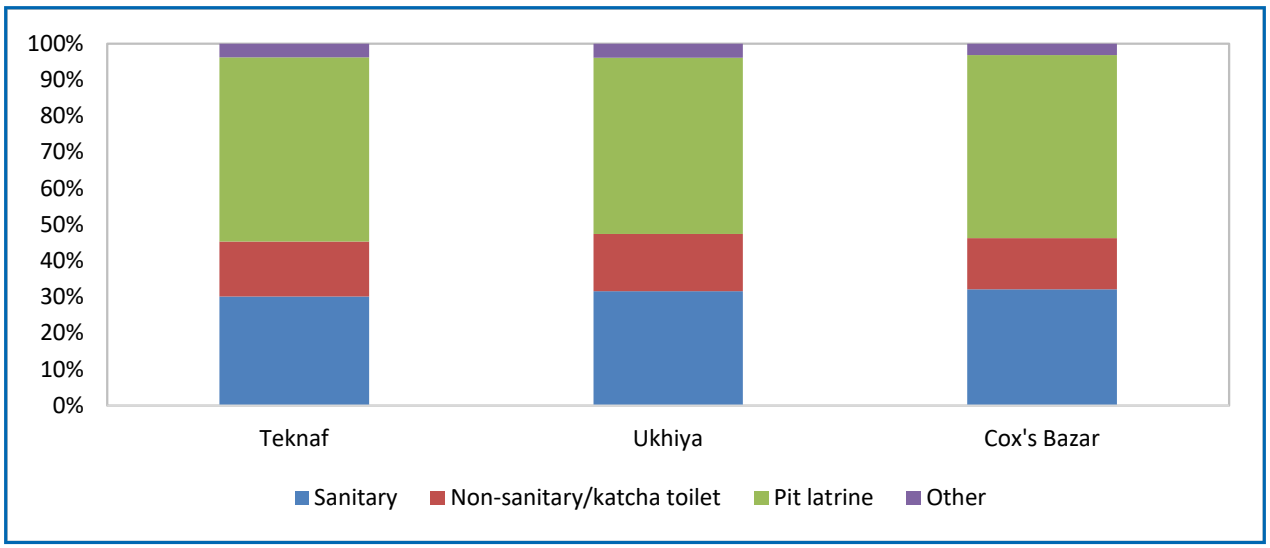
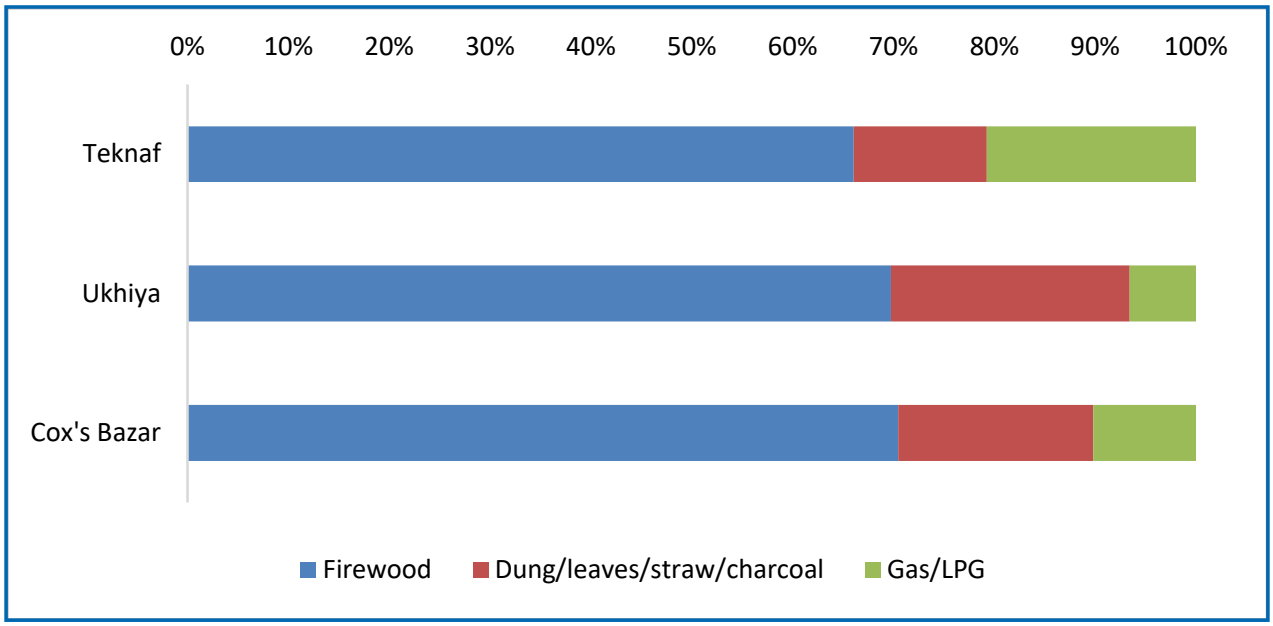


Figure 5.6. Households by type of latrine used (% of households)



Source: UNDP household survey 2018.

Households in Teknaf and Ukhiya had a monthly per capita income on average 13.3 per cent lower than that of Cox's Bazar district overall. Almost 10.6 per cent of the sample households in the district had some remittances sent by family members or relatives working abroad. The figures on this for Teknaf were 11.3 per cent of households and for Ukhiya just 6.6 per cent. Within the sample, 22.8 per cent of households reported receiving some assistance under GoB's social security programmes.

Figure 5.7. Monthly household income by income quintile, Cox's Bazar (Tk.)

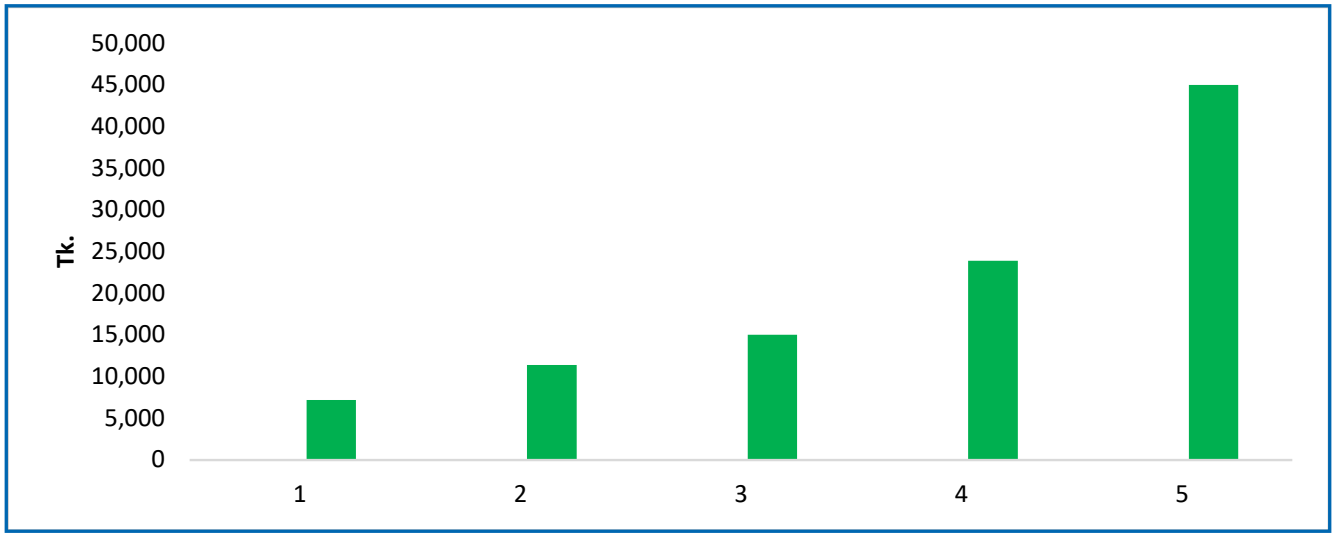
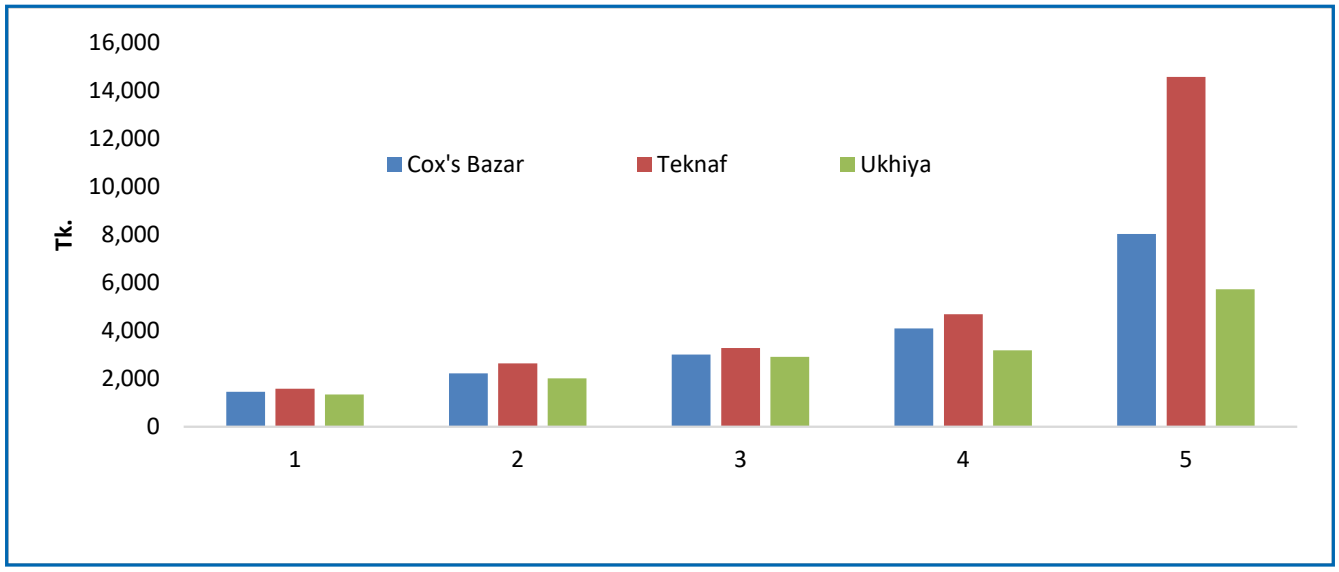


Figure 5.8. Monthly household per capita income by income quintile, Cox's Bazar (Tk.)



Source: UNDP household survey 2018.

5.2. Microeconomic impacts: Impacts on prices, wages and poverty incidence

5.2.1. Impacts on prices

It is often reported that host community households are affected by increased prices for food and other items. However, our survey data show mixed trends in terms of price movements.

At the time of our fieldwork (May–June 2018), it appeared to be common knowledge that refugees were selling large quantities of certain in-kind assistance received as relief items. Rice, lentils and cooking oil were mentioned as being the most traded. Every FGD involving Teknaf and Ukhiya residents confirmed this. Discussions with Rohingya within the camp suggested some households were selling up to half of their supplies of rice, and even more of their lentils and oil. Local shopkeepers and sellers reported depressed prices of products that were leaking out of the camps as Rohingya families were selling them in the local market at much lower than market price.[25]

Their purchases of other products, on the other hand, push prices up. Rohingya purchase several items, including potatoes, fresh vegetables, meat, fish and firewood, thereby raising prices on those goods. The net effect demonstrated by the survey suggests slightly decreased price pressures on the food products that are considered most relevant to the poor.

The survey revealed the prices households were paying for some basic commodities at the time. Participants were also asked to recall the prices of the same items six months before the arrival of the Rohingya. Table 5.1 compares this information with the prices reported in another survey, carried out by Action Contre la Faim in September 2017. The prices revealed in the latter survey confirm the initial inflationary effect of the refugee influx, particularly on rice, lentils, edible oils and potatoes. A comparison with the survey suggests that prices of rice and potatoes have stabilized. The price of lentils has fallen considerably while that of flour has increased significantly.

Hill et al. (2017) assess impacts on prices in the host community as a result of the Rohingya influx, using data from the Action Contre la Faim survey. They find that the price increase of most goods has been around 10 per cent.

Table 5.1. Pre- and post-influx prices of essential commodities (Tk.)

Food item	PRI findings		Action Contre la Faim findings	
	Pre-influx	Post-influx	Pre-influx	Post-influx
Rice	32	38	35	38
Flour	28	35	23	26
Lentils	100	93	102	109
Edible oil	100	90	85	96
Potato	22	30	22	30
Sugar (gur)	60	62	59	60
Salt	22	25	26	32
Meat (beef)	440	500	n/a	n/a
Fish (fresh water)	130	150	n/a	n/a
Other vegetables (leafy and non-leafy)	25	30	n/a	n/a

Source: Action Contre la Faim Market Assessment 2017; UNDP household survey 2018.

25 This has also been reported in the newspapers (e.g. Mahmud, 2018).

We must exercise caution when interpreting changes in prices, which can vary for many reasons unrelated to their relationship to higher demand owing to the refugee influx. It must be pointed out that the country saw a massive price hike in rice in the aftermath of three episodes of flooding in 2017 (see Parvaz, 2018). Rice imports increased sharply during July–December 2017, yet prices remained at a much higher level (Figures 5.9 and 5.10).

Figure 5.9. Rice imports, 2012–2018 (thousand tons)

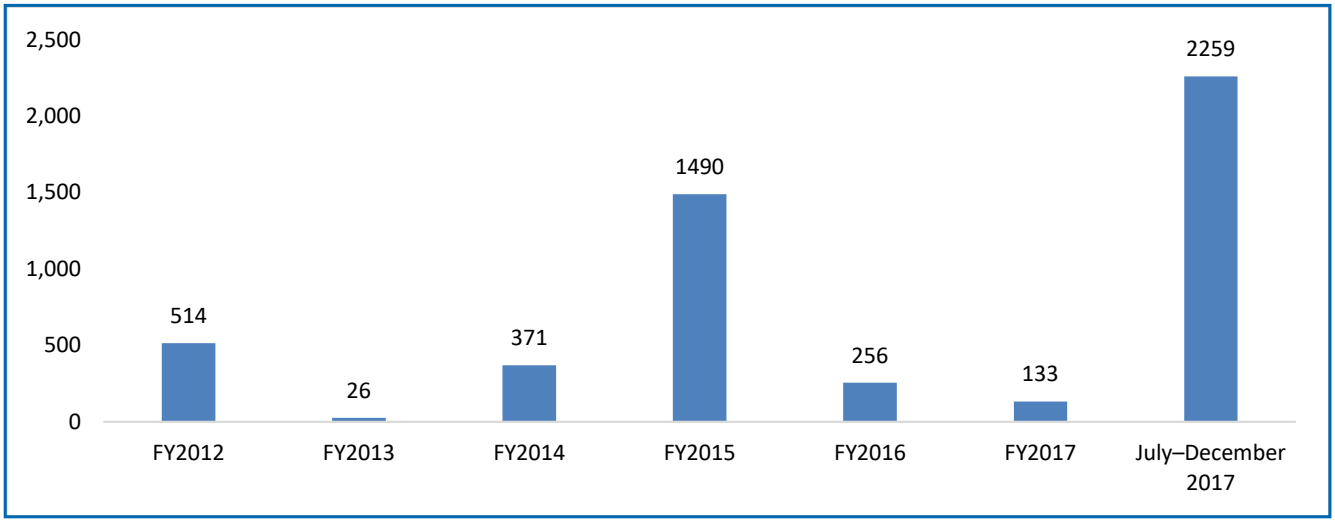
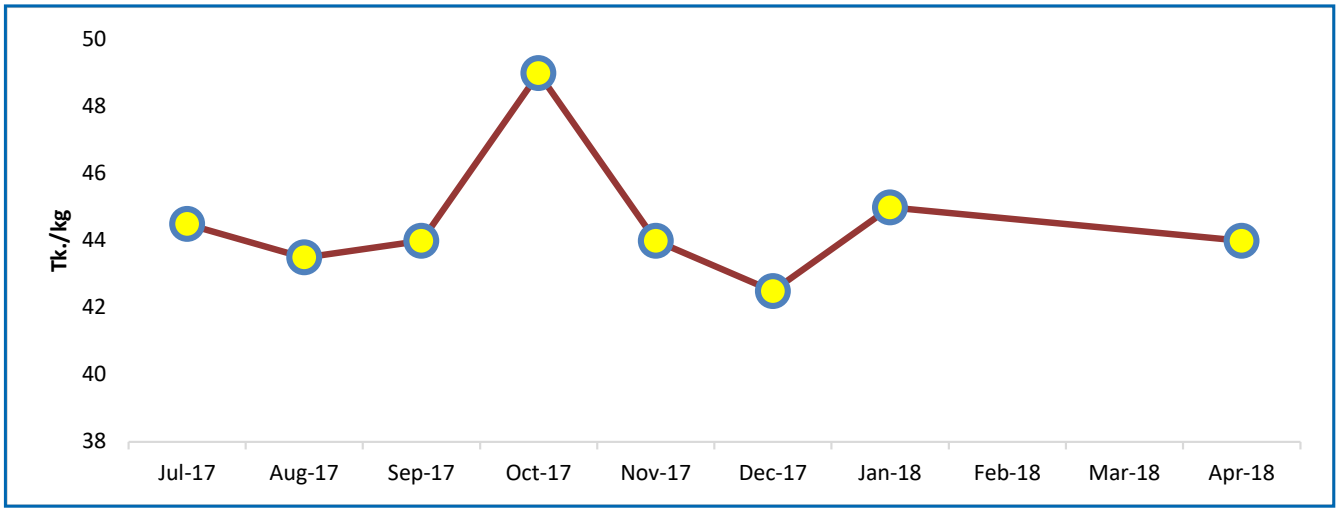


Figure 5.10. Average coarse rice price, July 2017–April 2018 (Tk./kg)



Source: Data from www.dgfood.gov.bd/ and http://data.gov.bd/dataset/export-and-import-rice-data-bangladesh

However, it is reasonable to consider that rice prices in the refugee-affected areas have been considerably depressed as a result of leakages from the camps. When measured against price trends at the national level, the depressed price level in the refugee-affected areas becomes even clearer.[26] As Table 5.1 shows, the survey found rice prices in Teknaf and Ukhiya post-influx to be Tk. 38 per kg during May–June 2018, lower on average than the national price by Tk. 6 per kg (Tk. 44 in April 2018, see Figure 5.10).

26 The Action Contre la Faim Market Assessment shows rising rice prices post-influx (by Tk. 3 per kg). However, when compared against trends in Bangladesh, rice prices in refugee-affected areas have actually been restrained.

5.2.2. Impacts on wages

Host community households are also often reported to be affected by falling wages for daily labour. Our survey confirmed depressed wages for agricultural and other unskilled workers, which emerged as a finding in all FGDs conducted, both in Teknaf and Ukhiya of Cox's Bazar and in Naikhongchhari upazila of Bandarban district. The reason given was that the Rohingya were working as day labourers at a lower wage rate in the regions near their camps.

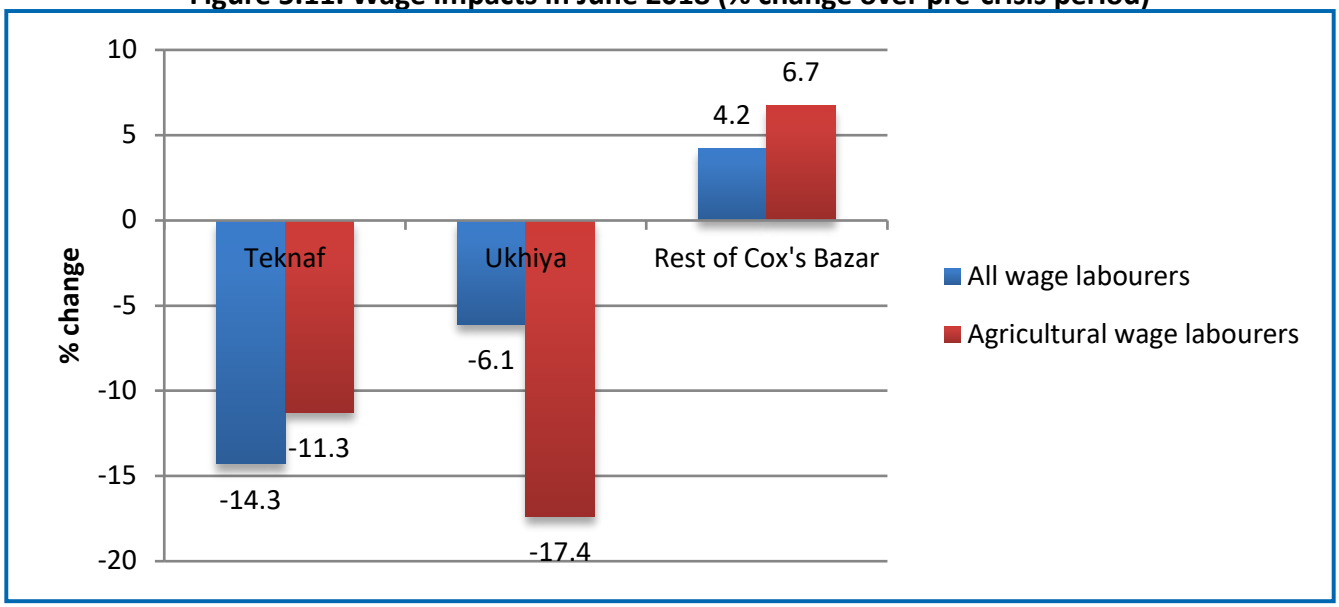
The survey data show that the mean wages of all labourers, as reported by households, declined from Tk. 417 pre-influx to Tk. 357 post-influx, which means that, post-influx, wages have fallen by more than 14 per cent in Teknaf (Table 5.2). The figure for Ukhiya is about 6 per cent. However, agricultural wages in Ukhiya have fallen by a much higher rate. The mean agricultural wage rate in Teknaf has fallen by 11 per cent in the post-influx period; the figure for Ukhiya is 17 per cent.

Overall, though, the survey points to a somewhat lower rate of decline in wages compared with other studies that did not use the household survey method to report on the changes in wages.[27]

In sharp contrast with Teknaf and Ukhiya, mean wages in the rest of Cox's Bazar have increased by more than 4 per cent for all wage labourers and 6.7 per cent for agricultural wage workers (Figure 5.11). One plausible explanation for this contrasting finding is that the Rohingya are mostly working close to their camp area (in Teknaf and Ukhiya). During the fieldwork, road patrols and checkpoints were in operation, which may make long-distance travelling difficult for refugees. Finding wage work is likely also to be much easier for Rohingya in Teknaf and Ukhiya near the camps.

Since the survey found wages in the rest of Cox's Bazar district had actually risen by 6.7 per cent, it is estimated that the influx has depressed wages in Teknaf and Ukhiya by on average 20 per cent.

Figure 5.11. Wage impacts in June 2018 (% change over pre-crisis period)



Source: UNDP household survey 2018.

27 Several studies have reported wage declines for daily workers. UNDP and UN Women (2017b) report that Rohingya are working for 50 per cent lower wages. The Centre for Policy Dialogue (CPD) found that a day labourer earned Tk. 150–200 per day compared with Tk. 400–500 per day in Cox's Bazar (CPD, 2018a). A rapid assessment by Oxfam in November 2017 showed the average daily wage of unskilled labour had decreased from Tk. 460 to Tk. 360, a decline of about 22 per cent.

Hill et al. (2017) had no survey information on daily wages in Teknaf and Ukhiya to draw on to analyse the impact on wage rates after the influx. However, they argue that "anecdotal data suggests a very large impact on wages, with wages reported to have fallen by 50 percent or more".

5.2.3. Measuring poverty pre- and post-influx

The latest official HIES, conducted by BBS in 2016, was published in October 2017. This provides poverty estimates by district, and it is possible to draw poverty at the *upazila* level from the same source. Therefore, the HIES should be able to provide a suitable benchmark for poverty in Cox's Bazar district and Teknaf and Ukhiya *upazilas* prior to the refugee situation. We should then be able to use post-influx changes in prices and wages against HIES data to simulate their impact on poverty.

However, HIES 2016 poverty estimates have in some cases been surprising. There is no denying that overall incidence of poverty in Bangladesh has declined. It is very difficult to explain why the proportion of the population in Teknaf that lived in poverty in 2016 was about 42 per cent while that in Ukhiya was less than 5 per cent: both estimates are drawn from the HIES 2016. This would suggest that incidence of poverty in Ukhiya between 2010 and 2016 fell 30 percentage points (from 37.8 per cent in HIES 2010), which is extremely difficult to justify.

This study makes use of the "income approach", in which household incomes are compared with the specified poverty line income; BBS compares household consumption expenditures.[28] This means that poverty estimates presented here may not be directly compared with those of BBS.

Using the survey data, it is possible to generate estimates of the incidence of poverty in the refugee-affected regions. This requires establishing a poverty line income, which is accomplished following the so-called "cost of basic needs" (CBN) approach, as used in the BBS HIES, which utilizes a methodology outlined in Ravallion and Sen (1996). According to this method, a normative basic needs bundle of goods is specified, and the poverty line corresponds to the cost of this basket of goods plus some additional allowances for non-food basic needs.[29] A comparison of the constructed poverty line with household income per person makes it possible to determine the poverty incidence, depth and severity of sample household units.

We use six measures. The first (HCR1) estimates the poverty rate for 2018 using an estimated poverty line income. An important feature of the National Social Security Strategy (NSSS) (Planning Commission, 2015) approach is to assess the economically vulnerable population in addition to the poor population so as to be able to cover both. Following this approach, a standard measure of vulnerability has been defined by raising the upper poverty line (UPL) using a 25 per cent adjustment factor (i.e. UPL * 1.25) (HCR2),[30] then a 50 per cent adjustment factor (i.e. UPL * 1.5) (HCR3).

28 In calculating consumption expenditures, BBS collects consumption data from the households for 14 consecutive days (BBS, 2016b: 31). Given time and resource constraints, it was not possible in this study to establish consumption expenditures over several days. Instead, household incomes were estimated by using reported incomes from a wide range of sources, including wage employment, self-employment, agriculture, non-farm activities, remittances, rents and other allowances (e.g. receipts from social safety net programmes run by the government).

29 The basket is chosen such that it is adequate to provide a predetermined caloric requirement of, on average, 2,112 kcal per person per day. In Bangladesh, there is broad consensus on the composition of the basic needs bundle. The average prices paid by households in the survey were used to determine the CBN or the food poverty line. As in Ravallion and Sen (1996), the allowance for non-food basic consumption is considered to be 35 per cent of the food poverty line.

30 In Bangladesh, poverty rates are calculated using per capita equivalence scales—suggesting that the consumption of each person within the household is equivalent to that of an adult. That is, the household survey poverty analysis is driven by per capita assumption rather than the underlying data. To correct for this, the NSSS attempts an alternative poverty analysis by invoking a different equivalence scale for children and using various poverty lines. It should be borne in mind that no equivalence scale or economy of scale measure is correct. It is, however, important to test the sensitivity of results to different assumptions. In the NSSS, the vulnerability definition is UPL * 1.25.

HCR1 = headcount poverty for 2018 using the estimated poverty line income
HCR2 = HCR1 * 1.25
HCR3 = HCR1 * 1.5

An adjusted poverty line incorporating the price rise and wage rate reduction is used to estimate poverty rate under HCR4. The adjusted poverty line used in HCR4 is augmented by 25 per cent and by 50 per cent to derive thresholds for measuring vulnerability during the post-influx period.

HCR4 = headcount poverty for 2018 using an adjusted poverty line that includes the price increase affect and wage reduction affect in the estimation of the poverty line (based on the UNDP survey 2018)
HCR5 = HCR4 * 1.25
HCR6 = HCR4 * 1.5

5.2.4. Impacts of price changes alone on poverty

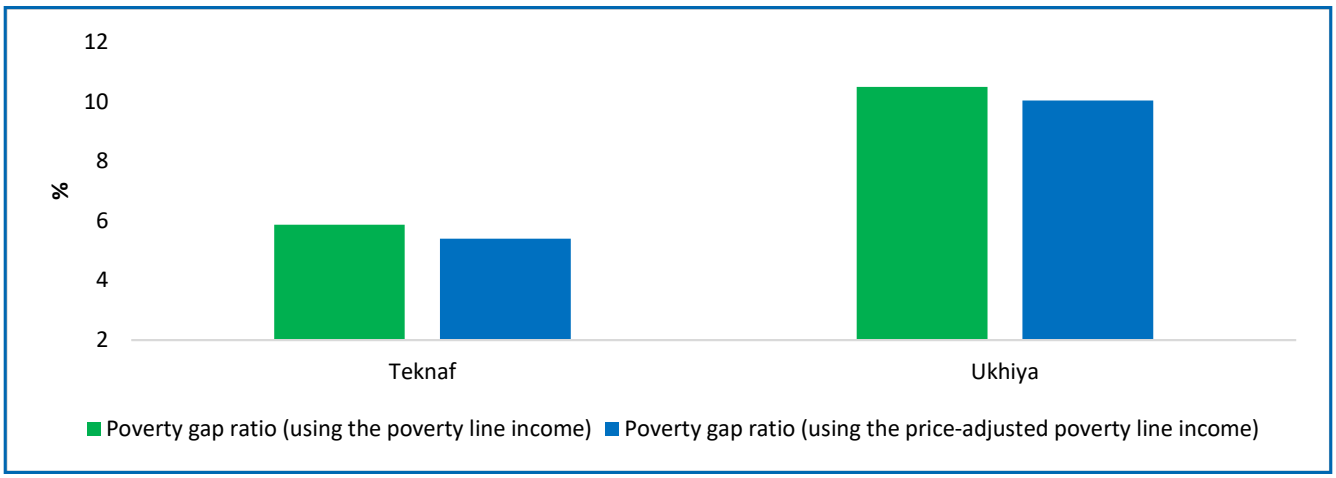
In order to capture the effects of price changes on poverty as a result of the Rohingya influx, we constructed a poverty line that takes into consideration the depressed prices of rice, lentils and cooking oils and the increased prices of vegetables and other commodities. We used the prices of rice taken from the TCB.[31] In the case of other commodities in the food basket, we adjusted prices using the food inflation rate. The price-adjusted poverty line income is higher than the post-influx poverty line. The difference in the poverty incidence estimates using the two poverty lines can be considered as the net effect of price changes as a result of the Rohingya crisis.

The estimated poverty census rate using the price-adjusted poverty line remains unchanged. That is, in our sample there are no households that fall between the post-influx and price-adjusted poverty lines. The relatively small difference between the two poverty lines is the obvious reason for this.[32]

However, the unchanged census rate does not imply there has been no impact on poverty at all. One way of measuring impact is through the poverty gap ratio, given in Figure 5.12. The estimates show that, when we take only price effects into consideration, the poverty gap ratio as a result of the influx has declined slightly—by 0.48 percentage points in Teknaf and 0.45 percentage points in Ukhiya.

31 This would suggest that, had the Rohingya influx not taken place, rice prices in Cox's Bazar would be at par with those of the rest of the country.
32 Prices for certain items fell as a result of the influx, whereas prices for others rose. As such, the net effect has been small.

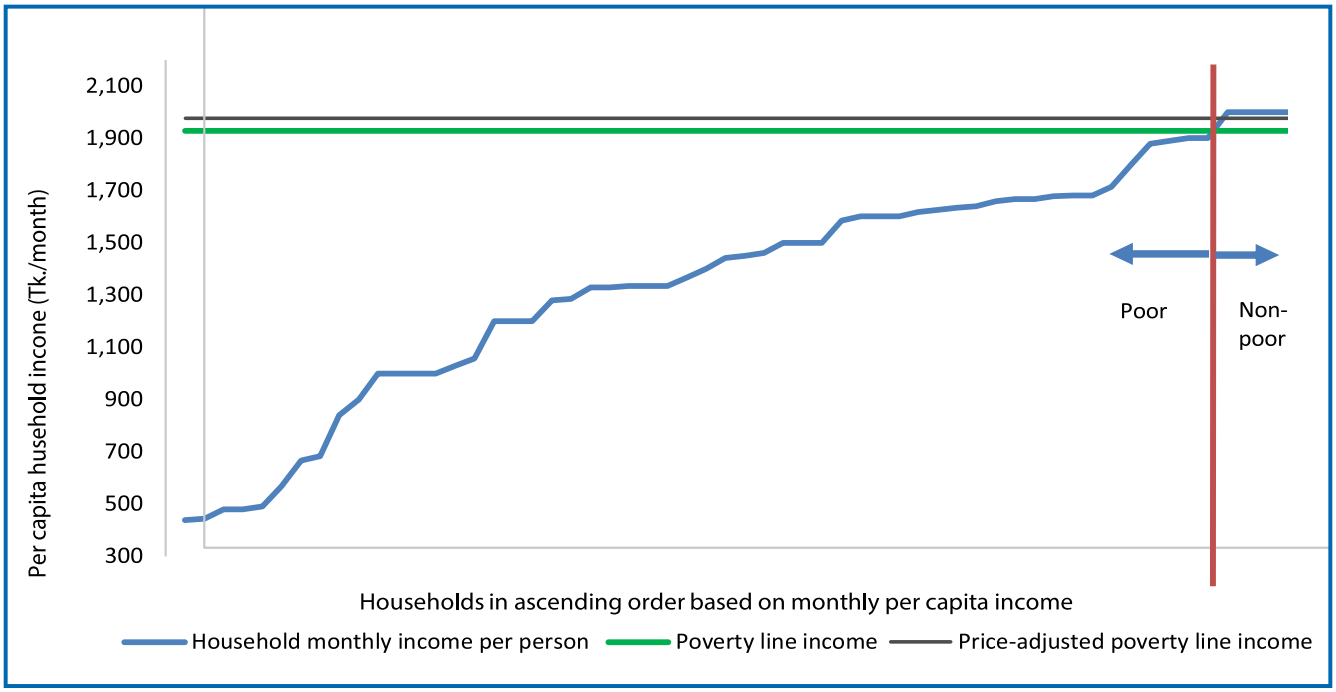
Figure 5.12. Effects of price changes on poverty gap ratio (%)



Source: Analysis using data from UNDP household survey 2018.

The graph in Figure 5.13 captures unchanged headcount poverty incidence with the varying poverty gap ratio.

Figure 5.13. Effects of price changes on poverty in Teknaf and Ukhiya (%)



Source: Analysis using data from UNDP household survey 2018.

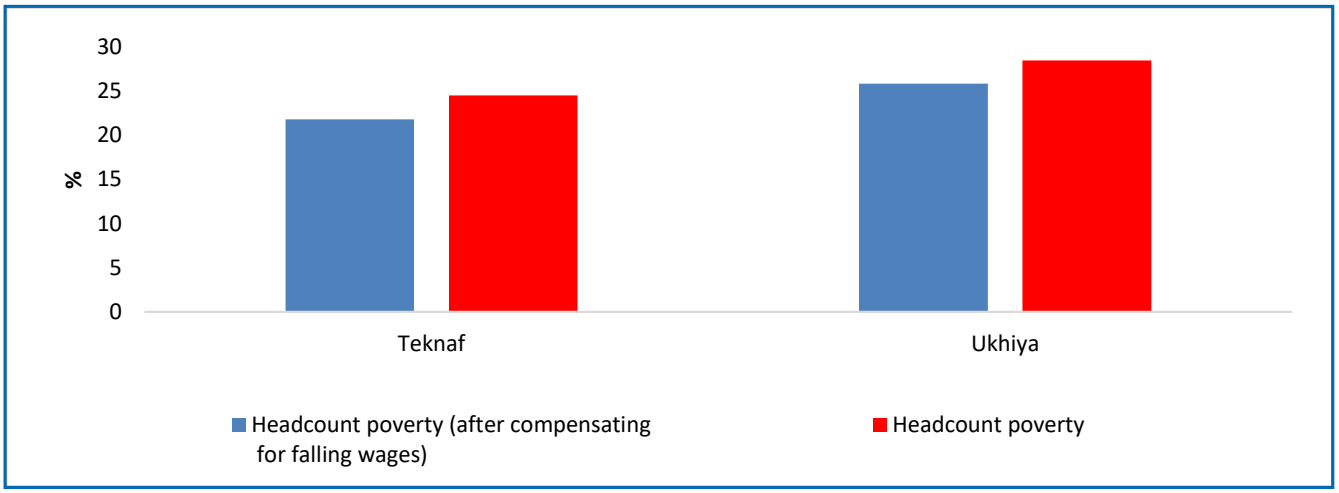
Hill et al. (2017) used HIES 2016 data to simulate how price rises would lead to increases in the poverty census ratio in Cox's Bazar and Bandarban by 1.1 percentage points.

5.2.5. Impacts of wage changes alone on poverty

We capture the impact of wage changes on poverty by compensating the relevant households for the loss of income as a result of falling daily wage rates. This compensation is equivalent to the average fall in daily wages in Teknaf and Ukhiya plus the average increase in wages in the rest of Cox's Bazar. This is tantamount to an assumption that, in the absence of the Rohingya influx, wages in Teknaf and Ukhiya would have risen by the same amount as in other part of Cox's Bazar district.

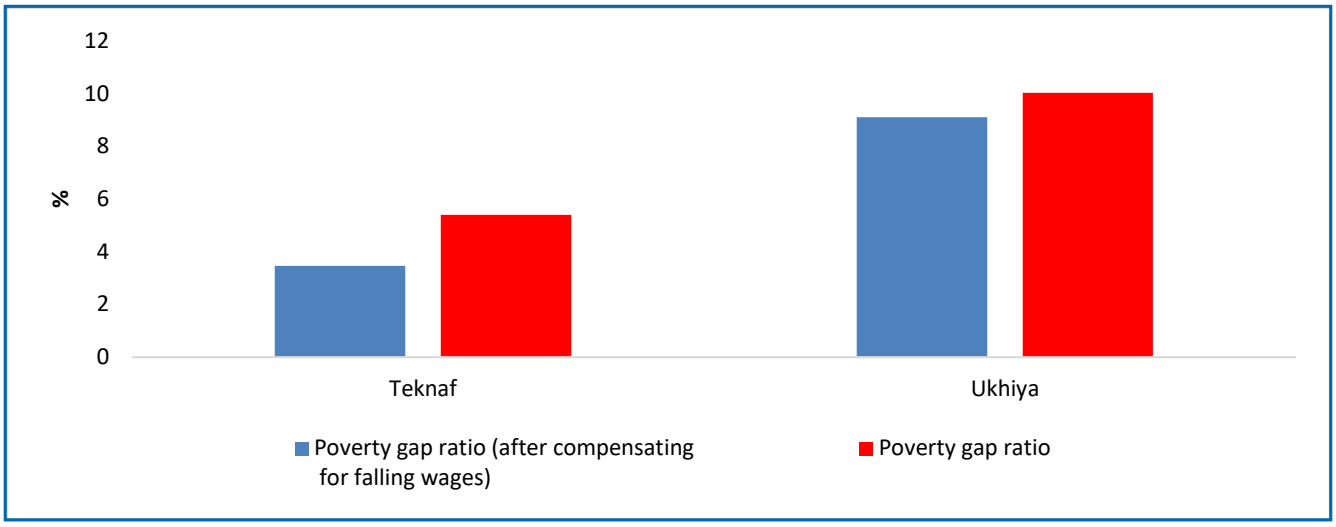
The estimates show that, because of declining wages, headcount poverty rates in Teknaf and Ukhiya have increased by 2.73 and 2.63 percentage points, respectively (Figure 5.14). That is, if there were no impact on wages, headcount poverty in Teknaf would be 21.82 per cent instead of 24.5 per cent. In Ukhiya, poverty incidence would have fallen to 25.8 per cent from 28.5 per cent if there had been no impact on wages. Declining wages have resulted in poverty gaps rising by 1.9 and 1.4 percentage points in Teknaf and Ukhiya, respectively (Figure 5.15).

Figure 5.14. Effects of wage changes on headcount poverty (%)



Source: Analysis using data from UNDP household survey 2018.

Figure 5.15. Effects of wage changes on poverty gap ratio (%)

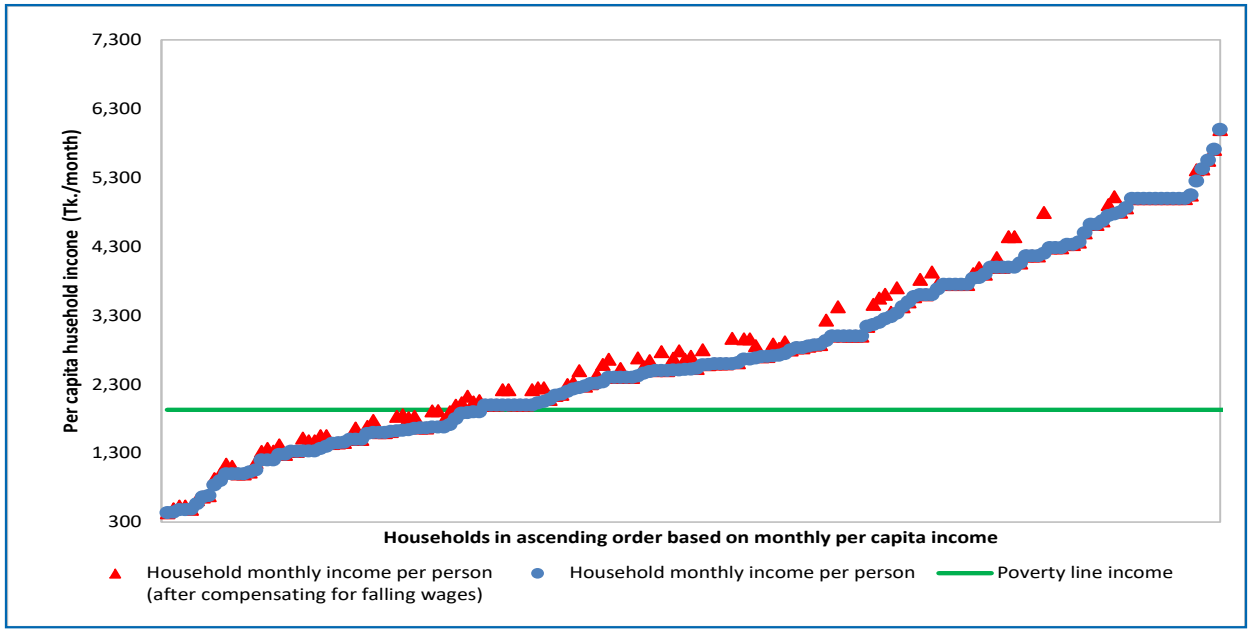


Source: Analysis using data from UNDP household survey 2018.

Hill et al. (2017) mention that the wage rate reduction may exert a much stronger impact on poverty (compared with price rises) since a significant share of the income of poor/vulnerable groups is derived from wage income. The authors found a simulated poverty increase of around 11 percentage points when a 25 per cent wage reduction was considered. The poverty increase doubled to 22 per cent when the wage rate reduction was 50 per cent. However, the authors recommended using survey data to examine the impact on the wage rate and hence on poverty.

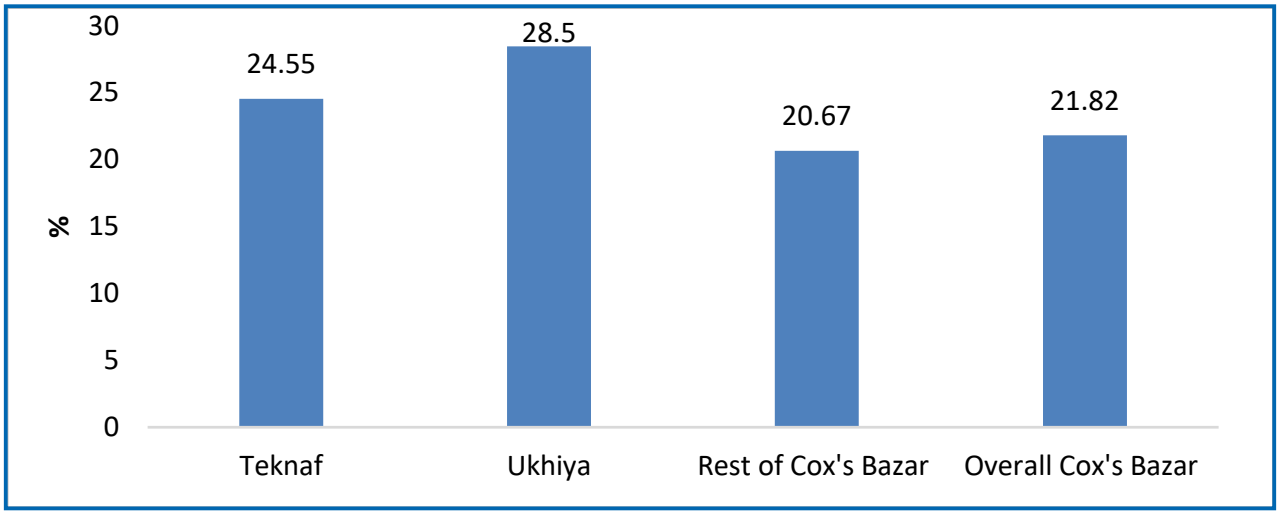
The graph in Figure 5.16 shows the change in wages, showing a number of households to be falling below the poverty line because of depressed wages.

Figure 5.16. Effects of wage changes on household per capita income and poverty in Teknaf and Ukhiya (Tk./month)



Source: Analysis using data from UNDP household survey 2018.

Figure 5.17. Poverty headcount rate post-influx (%)



Source: UNDP household survey 2018.

5.2.6. Combined impacts of wages and prices on poverty

Based on our methodology, the poverty census rate for Cox's Bazar in May 2018, when the survey was undertaken, and which is considered to be after the refugee influx period, is 21.8 per cent. The corresponding rate for Teknaf is 24.6 per cent and that for Ukhiya 28.5 per cent (Figure 5.17).

Table 5.2. Poverty and vulnerability, pre- and post-crisis, under various poverty lines (%)

Locations	Headcount poverty rates					
	Pre-crisis values			Post-crisis values		
	HCR1	HCR2	HCR3	HCR4	HCR5	HCR6
Teknaf	21.8	30.9	44.6	24.6	32.1	46.4
Ukhiya	25.3	40.4	59.5	28.5	42.4	59.5
Poor and vulnerable population						
Teknaf	67,060	94,997	136,917	75,450	98,716	142,480
Ukhiya	62,383	98,482	143,527	68,725	102,243	143,527
Poor and vulnerable households						
Teknaf	10,770	15,257	21,990	12,118	15,584	22,883
Ukhiya	12,356	17,927	26,127	13,510	18,612	26,127

Source: UNDP household survey 2018.

Headcount poverty in Teknaf increased by about 2.8 percentage points, or 12.8 per cent. In the case of Ukhiya, the percentage point increase is 3.2, or 12.6 per cent. Estimated numbers under HCR1/HCR4 of new poor individuals and poor households in Teknaf are 8,390 and 1,348. The corresponding figures for Ukhiya are 6,342 and 1,154, respectively.

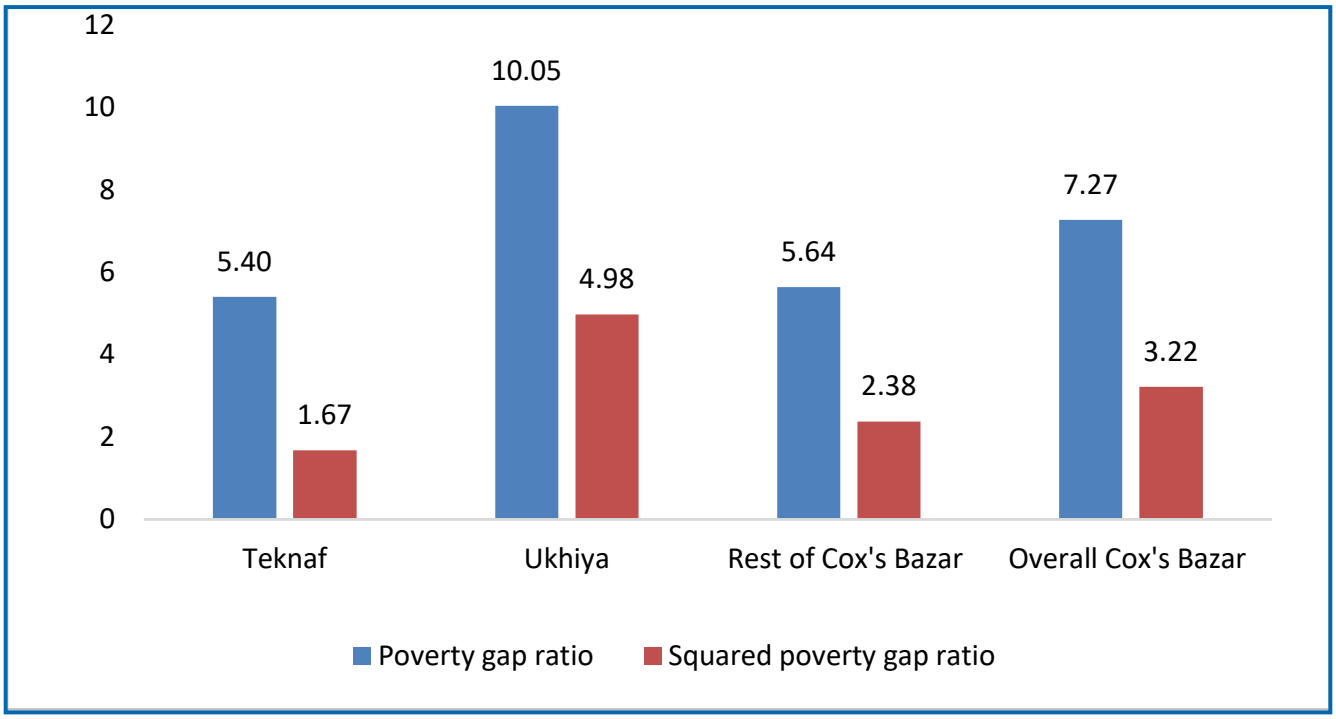
Using our survey, we can also estimate poverty incidence by using unions, although in doing so the small sample size must be kept in mind. Refugees in Ukhiya are in all five unions. In Teknaf, refugees are being hosted mainly in three unions: Baharchhara, Nhilla and Whykong. The poverty rates are found to be much higher for Nhilla (Teknaf) (47.2 per cent) and Palong Khali (Ukhiya) (46.5 per cent).

While the headcount rate measures the proportion of people below the poverty line, the poverty gap ratio estimates the depth of the poverty—that is, on average how far below the poverty line the poor fall as a proportion of the line.[33] For Cox's Bazar district overall, the poverty gap ratio is estimated to be 7.3 per cent, compared with 5.4 per cent for Teknaf and 10 per cent for Ukhiya (Figure 5.18). That is, poor households in Ukhiya appear to be further below the poverty line.[34] Finally, the squared poverty gap, which measures the severity of poverty by providing greater weight to those that fall far below the poverty line, is estimated to be 3.2 per cent for Cox's Bazar overall, 1.7 per cent for Teknaf and almost 5 per cent in Ukhiya.

33 In other words, the poverty gap expresses the amount of money that would be needed to raise the poor from their present incomes to the poverty line, as a proportion of the poverty line and averaged over the total population. For the non-poor, the distance between their income and the poverty line is considered to be zero.

34 According to the HIES 2016, the national poverty gap in Bangladesh is 5 per cent (using the upper poverty line): 5.4 per cent for rural areas and 3.9 per cent for urban areas.

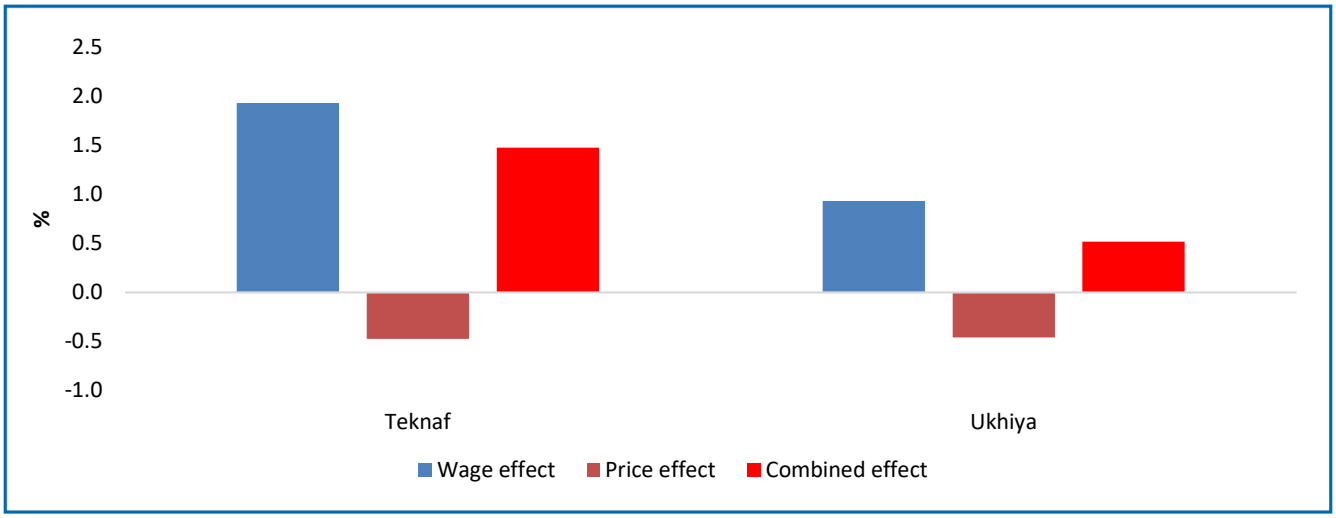
Figure 5.18. Poverty gap and squared poverty gap ratio post-influx (to poverty line income)



Source: UNDP household survey 2018.
Note: Rest of Cox's Bazar includes all upazilas other than Teknaf and Ukhiya.

The combined effects of changes in wages and prices should provide the net impact of refugees on the host community's incidence of poverty. The estimated net effects show headcount poverty has increased by 2.73 percentage points in Teknaf and 2.63 percentage points in Ukhiya. Since there is no price impact for the headcount poverty, the wage impact alone contributes to the net effect.

Figure 5.19. Effect of wages and prices on the poverty gap ratio (%)

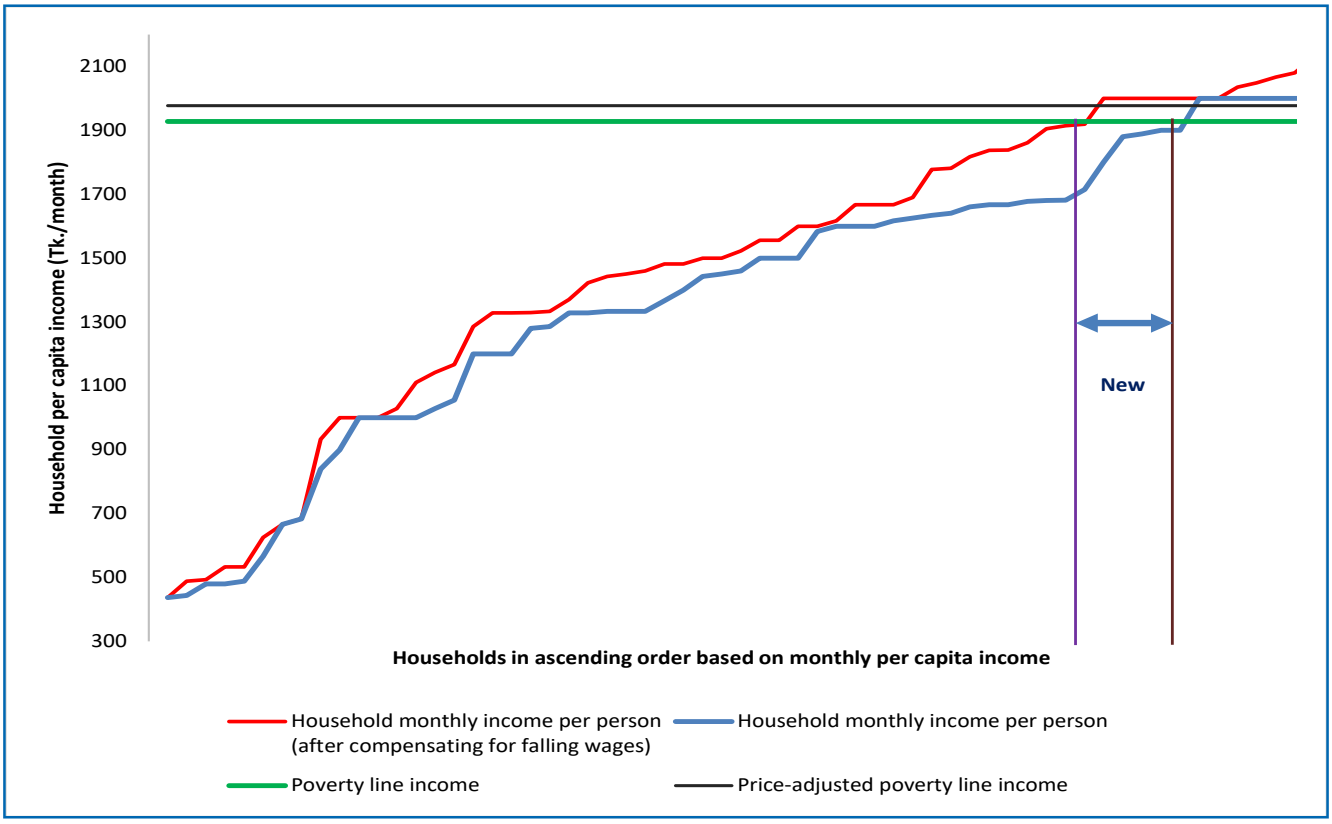


Source: UNDP household survey 2018.

Figure 5.19 shows the poverty gap ratios from the combined effects. Falling wages lead to a rise in the poverty gap by 1.93 and 0.93 percentage points, respectively, in Teknaf and Ukhiya. On the other hand, depressed prices help reduce the poverty gap by 0.47 and 0.46 percentage points, respectively. Therefore, the net change in the poverty gap ratio is estimated to be 1.47 percentage points for Teknaf and 0.52 percentage points for Ukhiya.

The graph in Figure 5.20 depicts the combined effect of changes in prices and wages on household poverty.

Figure 5.20. Combined effects of wages and prices on household income per person and poverty in Teknaf and Ukhiya (Tk./month)



Source: Analysis using data from UNDP household survey 2018.

5.2.7. Impacts on vulnerability

Some households that are not currently impoverished may be regarded as "vulnerable" in the sense that relatively minor shocks could push them back below the poverty line. Following the NSSS, we defined the standard measure of vulnerability by raising the UPL with a 25 per cent adjustment factor (i.e. UPL * 1.25). An extended definition of vulnerability was also adopted by raising the UPL with a 50 per cent adjustment factor (i.e. UPL * 1.5).

In Teknaf, the headcount rate has increased by 1.21 percentage points, or 3.9 per cent, under the standard definition of vulnerability (see Table 5.2 above for these figures). For Ukhiya, the figures are 1.56 and 3.8 per cent, respectively. Under the extended definition of vulnerability, the headcount rate

in Teknaf has increased by 1.8 percentage points or 4 per cent. No change is found for Ukhiya.

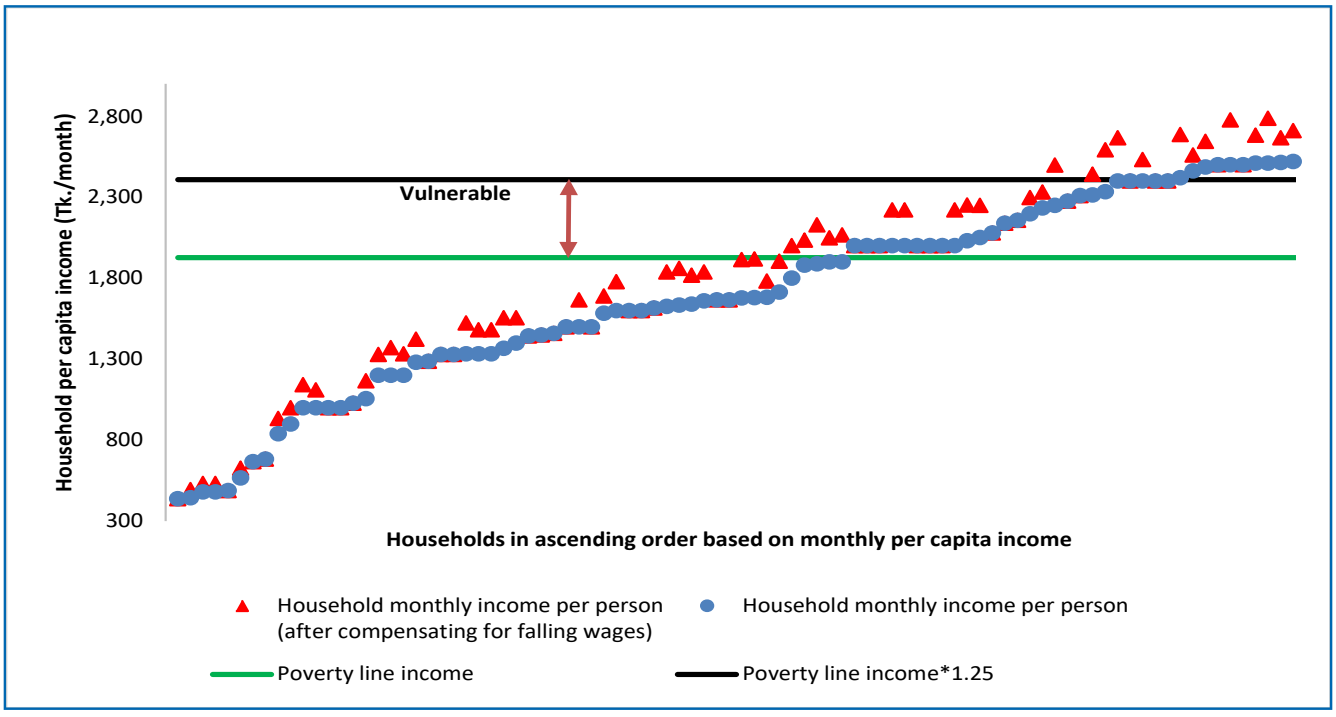
An estimated 14,732 people (8,390 in Teknaf and 6,342 in Ukhiya), in 2,500 households, have fallen below the poverty line as a result of the refugee influx.

When the standard definition of vulnerability is used, as many 3,719 individuals and 567 households in Teknaf became vulnerable. The figures for Ukhiya are 3,762 and 685, respectively. Under the extended definition, the estimated number of households becoming vulnerable as a result of the crisis is 893 in Teknaf only.

However, the overall impact on vulnerability is reduced if it is measured using the population of the newly vulnerable.

Figure 5.21 shows pre- and post-influx poverty and vulnerability in Teknaf and Ukhiya. About 15,000 people (8,390 from Teknaf and 6,342 from Ukhiya), making up around 2,500 households, became poor after the influx. An additional 7,500 people (3,719 from Teknaf and 3,762 from Ukhiya) in 1,282 households (579 from Teknaf and 685 from Ukhiya) became vulnerable. However, the overall impact on vulnerability is reduced if it is measured by the population of the newly vulnerable.

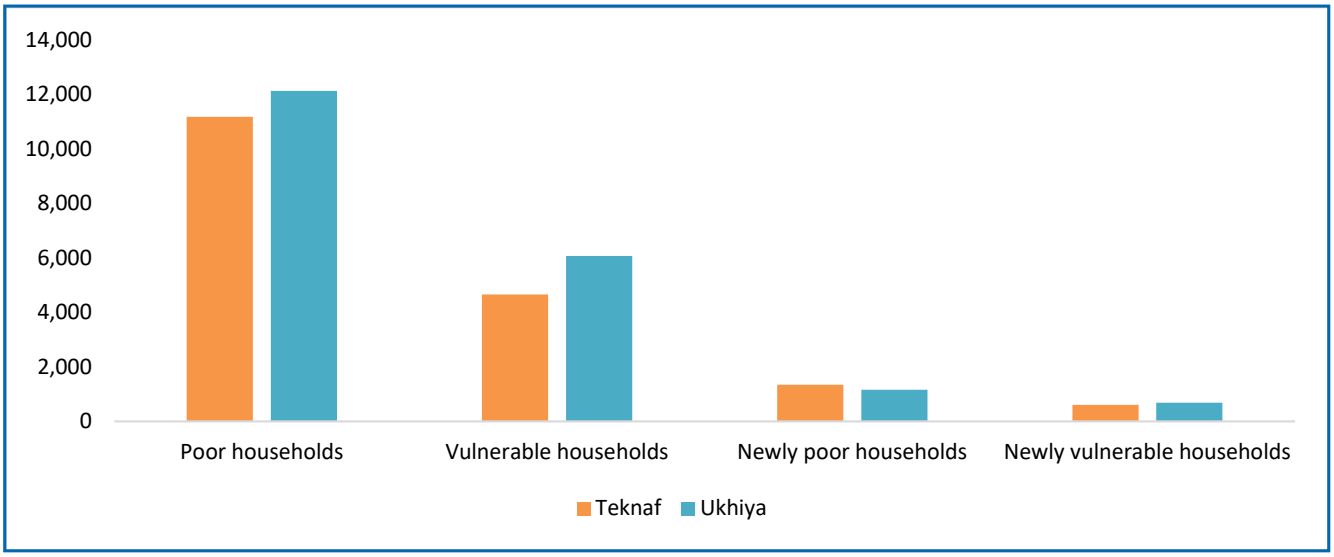
Figure 5.21. Poor and vulnerable in Teknaf and Ukhiya (Tk./month)



Source: Analysis using data from UNDP household survey 2018.

As Figure 5.22 shows, the degree of vulnerability has intensified because household incomes have declined among those who were vulnerable before the influx but their vulnerability status is unchanged.

Figure 5.22. Number of poor and vulnerable households in Teknaf and Ukhiya



Source: UNDP household survey 2018.

5.2.8. Comparing male- and female-headed households

The household survey data enabled assessment of the impact on households according to the sex of the head of household. Results from regression analysis that explain variations in household incomes by various factors suggest households headed by women, on average, earn almost 25 per cent less than those headed by men (see Annex Table A8.3 in Annex 8).

However, we did not find any significant difference in per capita income between male- and female-headed households because of the refugee influx. That is, households with female heads have not become worse off relative to male-headed households because of the crisis. One potential reason for this is that male-headed households may have greater numbers of wage labourers, and it is this group of people that the Rohingya influx has most adversely affected, as shown above.

5.2.9. Estimating the impacts on wages and incomes using difference-in-difference

The survey also asked sample households about their monthly income in early 2017, well before the arrival of refugees, to help assess income changes after the crisis. Since the Rohingya refugees are confined mainly to the Teknaf and Ukhiya areas—as there is a *de facto* ban on their mobility outside camp areas—the other *upazilas* within the sample can be considered a control group.

Taking Teknaf/Ukhiya as the treatment group, difference-in-difference (DID) estimates can be performed to assess the changes in selected variables of interest.[35] Compared with the control group, the monthly wages of all Teknaf/Ukhiya wage labourers have fallen by Tk. 1,471, which is statistically significant (Table 5.3). The differences in wages are even larger for agricultural day-labourers (by Tk. 1,770) and

35 DID is usually used as a quasi-experimental research design that makes use of data from two groups to obtain an appropriate counterfactual to estimate a causal effect. It is typically used to estimate the effect of a specific intervention or treatment (such as refugee influx) by comparing the changes in outcomes over time between a population that is subject to a shock (the group) and a population that is not (the control group). It calculates the effect of a treatment on an outcome by comparing the average change over time in the outcome variable for the treatment group, compared with the average change over time for the control group.

also statistically significant. The DID estimates suggest that total monthly income, per capita household income and per capita household income for the households with at least one day labourer have declined in Teknaf and Ukhiya in the post-refugee period, although the associated differences in these cases are not statistically significant.

Table 5.3. DID estimates of income and wages (Tk.)

Variable	Monthly wage income	Monthly wage income of agricultural labourers	Monthly household income	Monthly household income per capita	Per capita monthly income of households with at least one day labourer
DID (Tk.)	-1,471** (733.3)	-1,770** (758.8)	-424.0 (4,211)	-56.79 (780.6)	-625.7 (560.7)
Observations	700	495	808	803	499
R-squared	0.007	0.012	0.001	0.008	0.018
Mean control pre-influx	9,113	8,692	22,654	4,685	3,537
Mean treated pre-influx	10,268	9,721	21,660	3,791	3,070
Difference pre-influx	1,156	1,029	-993.9	-894	-467.3
Mean control post-influx	10,159	9,410	24,495	4,977	3,976
Mean treated post-influx	9,844	8,669	23,077	4,026	2,883
Difference post-influx	-315	-740.9	-1,418	-950.8	-1,093

Source: UNDP household survey 2018.
Note: Standard errors in parentheses. Statistical significance at the 5 per cent level is indicated by **.

5.2.10. Benefits from the refugee influx

The micro-economic impacts of a refugee influx can be quite varied. Rising prices and falling wages—the most common outcomes among host countries across the world—often hurt the poorest and most vulnerable groups more than others. But there are also those who benefit from the changed circumstances. For example, low wages help relatively well-off population segments that utilize the services of wage labourers (e.g. large farmers). Price hikes can also benefit traders and certain farmers who are able to take advantage of market mechanisms. There is a clear boost on business volume (driven by consumer spending and sales) resulting from the influx and continued presence of 1 million refugees demanding various staple foods as well as consumer necessities. New markets have sprung up while old markets are functioning on overtime.

5.3. Mesoeconomic impacts: Sector-specific impacts

Here, we look at socio-economic impacts of the Rohingya influx on various sectors. Chapter 6, on public service delivery, discusses a number of other sectors related to this area, including governance, infrastructure, health, WASH and education, among others.

5.3.1. Impacts on land and agricultural production

According to one estimate from the Department of Agriculture Extension (DoAE), between August 2017 and March 2018 at least 100 ha of crop land in the Teknaf/Ukhiya peninsula was damaged by refugee activities, in addition to 76 ha of arable land occupied by refugee settlements and humanitarian agencies.

Rabi crops—those sown in winter and harvested in spring—were particularly affected. DoAE estimates suggest a loss of 19,000 tons of *rabi* crops during the winter just past. Also, because the Rohingya influx took place immediately before a harvesting season, standing crops were damaged. It has been reported that refugees around Thangkhali settlement (Ukhiya) have their camps on cultivable agricultural land, which reduces the available arable land for the host community (ACAPS and NPM, 2018). Several betel leaf gardens and vegetable farms have also been destroyed.

Around 5,000 acres of land have been rendered useless because of sandy soil flowing down from the mountain slopes, which are being used for refugee housing purposes. Grazing lands have been destroyed, meaning farm animal numbers have fallen drastically, by 10–15 per cent. About 12 acres of mango groves have been used to make room for the refugees. All the Jagirdars of the forest areas have been removed, adding to the economic woes of people dependent on the forests, which are under great environmental threat (see Chapter 5.3.3).

In some places near the Myanmar borders there is a *de facto* ban on cultivation because of heightened security tensions. During FGDs in Ghumdum, Bandarban district, local people suggested that no farming activities could be undertaken on several hundred acres. Owners of these lands were reportedly not receiving any compensation for their lost income.

Farmers in Teknaf have always faced a lack of freshwater for agricultural production. The primary groundwater level suffers from saline intrusion, while rocky underground layers mean the installation of shallow pumps is not possible. Many farmers rely mainly on surface water sources, such as hilly streams, for irrigation. However, a 2018 report by the Energy and Environment Technical Working Group (EETWG) of ISCG shows faecal contamination is now present in more than fourth fifths of these sources. According to DoAE estimates, about 93 ha of arable land around camps cannot be cultivated because of human waste contamination and pollution. An additional 380 ha cannot be cultivated because of lack of water for irrigation.

The Rohingya refugee crisis has created enormous pressures on local agricultural and food supply systems. Humanitarian organizations provide cereals, food grains and some other items, but refugees purchase vegetables from local markets. This additional demand has resulted in more costly vegetables, which are largely supplied from outside Teknaf and Ukhiya. While higher prices affect local residents, traders and producers benefit. If this situation continues, enhanced local supplies of these items are likely, which will benefit growers in affected and nearby areas.

On the other hand, while demand for food items has increased, local producers and sellers face the prospect of erosion in profit margins as a result of increased transportation costs and depressed prices of those products (mainly rice) that leak out of the camps to be sold in local markets.

5.3.2. Impacts on fishing and related activities

About 28 per cent of total employment in Cox's Bazar comes from fishing and related activities, including hatching, shrimp cultivation and dry fish preparation. Fishing is a particularly prominent occupation in Teknaf, employing nearly one in three persons (BBS, 2018). However, total fish production in Teknaf is substantially lower than in Kutubdia, which is the source of more than 92 per cent of Cox's Bazar's fish production. Fishers from Kutubdia and Maheshkhali specialize in deep sea fishing while their counterparts in Teknaf rely principally on the Naf River.

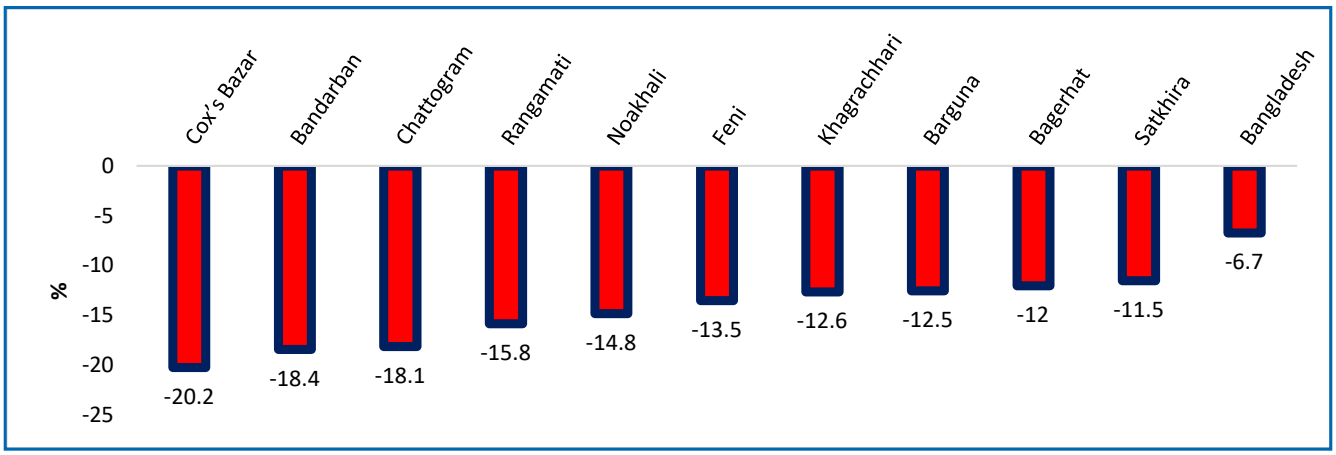
Marine resources are now depleting at a faster rate than the replacement rate, owing to overfishing and destructive fishing practices. Since the crisis in August 2017, a ban has been in place on fishing in the Naf River, for security and border control reasons. This prohibition has placed significant pressure on an estimated 30,000–35,000 fishers and their families.[36] According to some studies, the average annual income of Teknaf fishers ranged from Tk. 40,000 to Tk. 90,000 per year before the influx and the ban (Ghosh et al., 2015; WFP, 2017a). This has dropped to nearly zero. Many fishers have been compelled to work as wage labourers, but the surge of refugee workers has led to lower job availability and lower daily wages.

Government officials and FGD participants in Teknaf suggested that the fishing communities of the Naf River were likely to be among the groups most affected by the refugee crisis. Many Teknaf fishers were already living in poverty prior to the crisis, and they are thus likely to end up in a precarious situation. This study also revealed that many fishers in Teknaf were not registered, which means it could be challenging to identify them for any support measures.

5.3.3. Impacts on the environment

Bangladesh faces numerous environmental challenges and is regarded as one of the countries most vulnerable to climate change. A recent World Bank report identifies Chattogram division as extremely vulnerable to changes in temperature and precipitation, with seven out of the country's ten hotspot districts (Mani et al., 2018).[37] Among these, Cox's Bazar and Bandarban are predicted to experience the greatest adverse effects. According to the same report, the standard of living (measured by GDP) in Bandarban and Cox's Bazar could decline by about 20 per cent, in comparison with a predicted 6.7 per cent for the overall Bangladesh economy. Hill tracts in Bangladesh will be the most affected regions by 2050, as a result of deforestation, hill cutting, which has resulted in major landslides, destruction of property and damage to water resources.

Figure 5.23. Impact of climate change on the standard of living by 2050



Source: Estimation Mani et al. (2018).

Note: Estimation is based on Mani et al. (2018)'s carbon-intensive scenario, in which no action is taken to mitigate the negative effects of climate change.

36 Interview with Teknaf UNO.

37 A hotspot is defined as a location where changes in average weather will have a negative effect on living standards.

While Bangladesh's vulnerability to climate change has long been known, the recent influx of Rohingya refugees may intensify the problem. Indeed, environmental damage is among the worst effects of the refugee influx. The refugees were first settled in temporary camps on 6,000 acres of government land that was characterized by forests and hills. Forests had to be cleared and hills levelled to make room for temporary housing.

According to the Cox's Bazar Forest Department, across the district the refugee influx has already destroyed about 4,818 acres of forest reserves worth US$55 million (Table 5.4).[38] The damaged forest area includes both natural forests (58.5 per cent of total damaged forest lands) and artificial forests (41.5 per cent). In Naikhongchhari *upazila* of Bandarban, where refugees stayed for a shorter period of time, the private forests owned by local people were heavily damaged.[39]

Table 5.4. Deforestation as a result of the refugee influx

Location	No. of refugees staying at site	Occupied land (acres)	Destroyed project forest area (acres)	Destroyed natural forests (acres)	Losses from forestation projects (Tk. million)	Losses from natural forests (Tk. million)	Total loss (Tk. million)
Kutupalong, Ukhiya	218,000	1,767.5	570.0	1197.5	508.9	1,019.1	1,528.0
Balukhali 1 and 2, Ukhiya	126,900	1,114.0	550.0	564.0	704.5	480.0	1,184.5
Balukhali Dhala, Ukhiya	63,000	310.0	152.7	157.3	136.3	13.4	149.7
Tajnimar Khola, Ukhiya	56,250	451.0	192.5	258.5	199.1	220.0	419.1
Hakimpara, Mokkarbeel, Jamtolee, Begghona, Ukhiya	93,550	516.0	281.0	235.0	333.4	200.8	534.3
Shofillyakata (East + West), Ukhiya	13,000	201.2	92.5	108.7	96.2	92.5	188.7
Kerontoli, Chakmarkul, Teknaf	16,020	79.8	78.8	100.0	60.5	0.9	61.3
Putibunia, Teknaf	30,000	88.6	0.0	88.6	0.0	75.4	75.4
Nayapara, Teknaf	20,100	245.0	82.0	163.0	100.0	138.7	238.7
Leda, Teknaf	15,000	45.0	0.0	45.0	0.0	38.3	38.3
	651,820	4,818.1	1,999.5	2,917.6	2,139	2,279.1	4,472.7

Source: Forest Department, Cox's Bazar Sadar.

38 If we incorporate 695 acres occupied by Rohingya refugees in earlier crises, the total of permanently damaged forest is 5,513 acres (interview with Cox's Bazar Sadar Forest Officer).

39 FGDs conducted in Naikhongchhari Sadar, Ghumdum and Baishari unions of Naikhongchhari, Bandarban.

According to NPM Round 7, about 65 per cent of refugee households identified forests as the primary source of firewood. Every day, around 750,000 kg of timber, vegetation and roots are collected from the reserved forest as cooking fuel. This is equivalent to enough trees to cover the surface of four football fields (Martin, 2017). Table 5.5 shows figures for Teknaf and Ukhiya upazilas, where more than 5,000 acres has been taken over and daily firewood needs are at a total of 700 tons per day, leading to huge losses in forest assets.

Table 5.5. Impact on forestry in Teknaf and Ukhiya *upazilas*

Upazila	Land acquired	Lost forest assets	Created forest assets lost	Daily firewood need (in camps)
Teknaf	125 acres	Tk. 50 crore	Tk. 3 crore	50 tons
		US$6.0 million	US$0.36 million	
Ukhiya	5000 acres	Tk. 500 crore	Tk. 235 crore	650 tons
		US$60.2 million	US$28.3 million	

Source: Forest Department, Cox's Bazar Sadar.

The camp area has already encroached on the natural habitat of Asian elephants, which poses risks for both refugees and elephants. In fact, as of mid-June 2018, more than 12 refugees had died as a result of elephant incursions (Mahmud, 2017). The reserved forest areas are also home to 1,156 wildlife species, including mammals, fish, amphibians, reptiles and birds, among which 65 are identified as critically endangered, 94 as endangered and 56 as vulnerable. Already 1,500 hectares of wildlife habitat has been destroyed.

Deforestation also increases the risk of landslides by compromising the physiochemical properties of the soil, which makes it unstable (Zaman et al., 2010). It also raises the threat of flash floods and intensifies the likelihood of damage from cyclones (ISCG, 2018a).

The refugee influx has thus taken a very serious toll on the local forest area. Those who earn a living from forest resources have in many cases been deprived of their livelihood. Even trees planted on a long-term basis have been destroyed, including trees planted under the social forestation programme undertaken for a period of 10–42 years on a contract basis; contractors have not been given any compensation. If immediate effective measures are not undertaken, it is feared that more than 26,000 ha of forest land will be severely affected within a year, which will critically damage the ecosystem and endanger wildlife (ISCG, 2018a).

5.4. Macroeconomic impacts of the Rohingya refugee influx

As we have seen, the micro-economic impacts of a refugee influx can be quite varied. Even at the meso-economic level, the impacts can be mixed. For example, public expenditure and service delivery can come under pressure but aid and humanitarian investments in, among other things, infrastructure can benefit host communities as well as refugees (OECD, 2017).

5.4.1. Transactions between the refugee and host economies

From a macro-economic perspective, one issue of particular interest is whether refugees can stimulate the domestic economy or part of it by triggering a supply response, with consequent investments in retail trade and transport and a boost in GDP (EC, 2016). After examining the Tanzanian refugee crisis, Garcia and Saah (2010) reported a positive wealth effect for nearby rural households and negative wealth effects for urban households near refugee camps. Zhu et al. (2016) showed that adding a refugee household that received food assistance in Uganda increased annual real income in the local economy by more than US$1,106, while an increase of US$1 in cash aid raised the real income of local host households by US$0.75 within a 15 km radius of the refugee camps.[40] In the case of the Rwanda refugee crisis, Taylor et al. (2016) found an increase in the host community income of US$206 for each additional refugee within a 10 km radius of the camps.

In this light, we attempt here to capture the links between the host and the refugee economies through various transmission channels and to obtain a measure of the overall impact on the economy. The Rohingya camps provide additional economic activities that interact with the immediate local host economy, and through it with the economy of the region as a whole. [41]Teknaf and Ukhiya constitute the local or immediate neighbourhood host economy and Cox's Bazar the regional host.

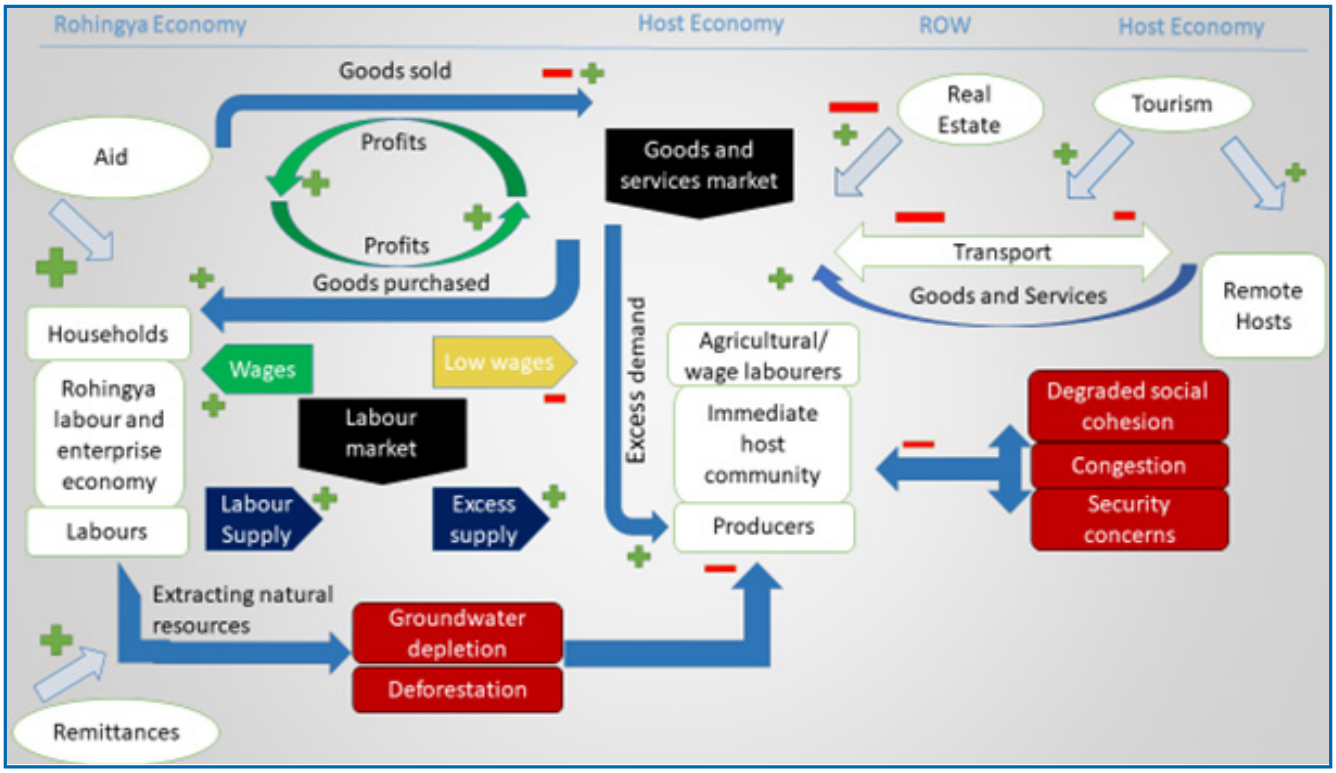
The possible interactions between the refugee economy and the immediate and regional host economies can be represented by a simplified circular flow of transactions (Figure 5.24). The Rohingya economy is regarded here as a rudimentary one, with no agricultural or industrial activities and limited to some trading and service activities, such as shops and tea stalls. Its interactions with host communities are mainly through the resale of refugees' rations and the purchase of some basic necessities (mainly food items). Although it is prohibited, Rohingya do participate in the labour market, mainly in Teknaf and Ukhiya.

The primary source of income in the Rohingya economy comes from international aid (mostly in kind to date), remittances and wage incomes.[42] A portion of the aid leaks to the local market and benefits local consumers by depressing the prices of those commodities that are traded outside. An opposite trend is found with other items that the refugees buy from the immediate host community.

Increased transportation costs and house rentals owing to the presence of numerous aid workers adversely affect nearby hosts. On the other hand, hotels, restaurants and transport businesses, mostly based in Cox's Bazar, gain from increased demand. Figure 5.24 also shows some of the environmental consequences, which are mainly confined to the immediate host economy.

40 The same study showed that food assistance rather than cash resulted in a lower gain (US$806–866) for the hosts.
41 This is because refugee populations are confined to their camps because of restrictions on their mobility.
42 About 12 per cent of the Rohingya reported receiving remittances (WFP, 2017c).

Figure 5.24. Interactions between Rohingya and host communities



5.4.2. Using the LEWIE methodology to assess the impact of interventions

The beneficiary refugee households could also be regarded as conduits through which new interventions enter the host economy. As they spend their cash buying goods and services from the host economy, they stimulate economic activities, given the inter-sectoral links within the host country. Using the Local Economy-Wide Impact Evaluation (LEWIE) methodology allows us to assess the impact of cash transfers or other interventions on local economies, "including on the production activities of both beneficiary and non-beneficiary groups; how these effects change when programs are scaled up to larger regions; and why these effects happen" (Taylor, 2013).

From a local economy-wide perspective, beneficiary households (or communities) represent a conduit through which new interventions enter the local economy. As they spend their cash, the beneficiary households (or communities) unleash general equilibrium (GE) effects that transmit programme impacts to others in the economy, including non-beneficiaries (i.e. control groups).

Generally, the starting point for capturing these local economy-wide effects is the construction of a Social Accounting Matrix (SAM) for a given geographic area and the wider economy. A SAM provides a comprehensive picture of the economic structure and comprises, among other factors, the distribution of value-added among sectors. A SAM can also capture the total impact of an exogenous demand shock (e.g. one associated with any particular sector/output) through its direct and indirect effects. Indirect effects result from production link effects (both backward and forward) and consumption links (i.e. increased income that generates demand for products of other sectors.[43]

43 Backward links are additional demand generated by producers when they purchase intermediate inputs from other sectors. Forward links comprise all supplies of upstream producers with intermediate inputs.

We have constructed a local-level data SAM for 2017 using the data of three economies: the Rohingya economy, the immediate host economy (Teknaf/Ukhiya) and the remote host economy (Cox's Bazar), to assess the spill-over effects triggered by the refugees.[44] The data SAM has been converted into SAM models for policy simulation.[45] Each of the three local SAM constructions has 21 accounts, which include 15 activities, 2 factors of production and 4 institutions.[46]

SIM 1 captures the impact of foreign aid provided to the Rohingya households/community (i.e. US$311 million or Tk. 26,124 million). Ideally, we should consider only that portion of aid that is used to induce activities in the economy of the host community. When in-kind assistance, procured from abroad, is entirely utilized by refugees, the resultant effect on the host economy is minimal. Despite limited information on the amount and nature of assistance received by the refugees and the uses to which it is put (e.g. direct consumption or procuring goods from the host economy), the total amount of aid received in August–December 2017 is estimated at about US$311 million, or Tk. 24.88 billion.[47] Spill-over effects mean this should have a positive impact on the immediate host community (Teknaf/Ukhiya) as well as the regional community (Cox's Bazar).[48]

SIM 2 considers the aid impact after adding the cost of deforestation. As noted earlier, more than 5,000 ha of forest resources in Teknaf and Ukhiya have been destroyed. The estimated market value of this loss is US$45 million, or Tk. 3.6 billion, at 2017 prices. This cost, however, does not include other consequences, such as loss of opportunity for a livelihood or impacts on wildlife. In this simulation, the negative impact of deforestation has been added to the aid injections. *That is, SIM 2 = SIM 1 + estimated value of forestry products destroyed.*[49]

In ***SIM 3***, another immediate adverse impact—the depletion of the groundwater specific to the host community—is considered along with the scenario in SIM 2. A conservative estimate of the depleted water level of US$14 million, or Tk. 1.12 billion, is considered appropriate.[50] In this third simulation, this negative impact has been added into the second simulation. *That is, SIM 3 = SIM 2 + estimated cost of water level depletion.*

44 The SAMs are constructed for 2017 (Annex 3). The data SAM has been converted into SAM models for policy simulation. A data SAM can be converted into a multiplier model by assigning SAM accounts to endogenous and exogenous accounts. Generally, accounts intended to be used as policy instruments (e.g. government expenditure, investment, exports, remittances and foreign aid) are made exogenous and accounts specified as objectives or targets must be made endogenous (e.g. outputs, commodities demanded, factor returns and household incomes or expenditures). For any given injection into the exogenous accounts of the SAM, influence is transmitted through the interdependent SAM systems among the endogenous accounts. The interdependence has been captured by inserting a special account known as the "zone of interest" (ZOI). The ZOI captures the important interdependence among the three regions or economies through inflow and outflows of goods and services. The rows of the ZOI account capture inflow into the respective regions from the other regions. The column of the ZOI account captures outflow from the respective regions from the other regions. There exist no regional SAMs for Bangladesh.

45 The simulation methods presented here are not a substitute for randomized control trials. Experimental findings are important to test and quantify the likely impacts of interventions on beneficiaries and, under some conditions, on ineligible beneficiaries.

46 Of these, 19 form part of the "endogenous" accounts. They are the 15 activities, 2 factors of production, the household and the ZOI. The exogenous accounts include government, rest of world and consolidated capital accounts.

47 Estimates from ISCG data (https://data.humdata.org/dataset/fts-requirements-and-funding-data-for-bangladesh, accessed 12 July 2018). The US$311 million represents an approximate evaluation of the total aid support provided to the refugees between August and December 2017. However, it does not incorporate logistics or camp management costs. From the data, it is not possible to identify the proportion of support provided in cash or in kind. Field visits and FGDs in Kutupalong refugee camp identified most of the aid as in-kind support. The amount of aid used is likely to be an over-estimate of the injection into the host economy. On the other hand, it was impossible to obtain information on any remittance money spent by the Rohingya. Furthermore, income received by local people from new employment should also be included as refugee-induced economic activity. Given the lack of detailed information, the total aid support provided to refugees is used in simulation exercises.

48 The SAM multiplier is injected into the system via the Rohingya household and the rest of world account.

49 The negative impact has been injected into the system via forestry activity and a dummy exogenous account.

50 This conservative estimate is based on the opportunity cost of providing an equivalent amount of water through rainwater collection. The negative impact of the depletion of the underground water level has been injected into the system via utility activity and a dummy exogenous account.

Table 5.6. Simulated static impacts on the host community (Tk.)

	Simulation 1 (aid inflow)	Simulation 2 (SIM 1 + forestry destroyed)	Simulation 3 (SIM 2 + reduced water level)
Cox's Bazar			
Per household	107,095	106,076	105,037
Per capita	23,799	23,572	23,341
Teknaf and Ukhiya			
Per household	125,727	-42,202	-82,910
Per capita	21,377	-7,176	-14,097

Source: LEWIE model for Cox's Bazar and Teknaf/Ukhiya.

Table 5.6 shows the simulated loss to the distant and immediate host economies. The loss per Teknaf/Ukhiya household is Tk. 82,910 and the per capita loss is Tk. 14,097. Based on these simulations, one possibility would be to design a household-level scheme covering the entire loss. This would entail a one-time transfer payment of Tk. 82,910 per household in Teknaf/Ukhiya.

Table 5.7 presents the simulation outcomes by the values of the 19 endogenous accounts. As expected, owing to the inflow of aid to Rohingya households, positive impacts are found for both the immediate and the regional host communities. The simulated changes for Teknaf/Ukhiya and Cox's Bazar ***under SIM 1*** are, respectively, Tk. 11.725 billion (US$140 million) and Tk. 59,915 billion (US$714 million). That is, with the assumption that aid money for refugees is going into the local economy, every US$1 of assistance leads to expanded host economy activities by US$2.70.

Under SIM 2, when the negative impact of the loss of forest resources is considered together with SIM 1, the outcome is negative for the immediate host community: a loss of Tk. 3.936 billion (US$47 million). There is hardly any change in the impact for Cox's Bazar from the scenario under SIM 1.

Under SIM 3 we see a simulated cost to the immediate host community of Tk. 7,732 million (US$92 million). Again, the impact on Cox's Bazar does not change significantly. It can be calculated that, when the costs associated with the loss of forest and water resources are considered, the economy-wide impact of US$1 of aid to refugees is reduced from US$2.70 to US$2.[51]

The higher gains for Cox's Bazar may owe to its greater involvement in supplies of goods and services and aid management.[52] On the other hand, the Teknaf/Ukhiya region is reliant predominantly on agricultural activities; most of the manufacturing supplies are either from Cox's Bazar or from the rest of Bangladesh via Cox's Bazar.[53]

The table adds SIM 4, introducing the finding from the household survey of a reduction in wages of day labourers as a stand-alone shock.[54] When the depressed wage rate is considered by itself, it exerts a negative impact on host communities. Estimated losses are much higher for Teknaf/Ukhiya: Tk. 1.857 billion (US$22 million). The calculated impact for Cox's Bazar is much smaller: a loss of Tk. 71 million (US$0.84 million).

51 It should be emphasized, however, that cost estimates owing to loss of forest and water resources are very conservative.

52 During the fieldwork for this study, some key informants in Cox's Bazar confirmed surges in various services such as

53 This also contributes to surges in trading and transportation for Cox's Bazar. It has been argued that even the vegetables (and perhaps some other essential items) supplied to Teknaf/Ukhiya come from Cox's Bazar and elsewhere in Bangladesh.

54 The labour value added from agriculture, livestock, forestry, fisheries and services is estimated to be Tk. 3.878 billion in 2017. The rate of reduction in wages obtained translates into a loss of labour value-added that is equivalent to Tk. 621 million. The negative impact of loss of labour value-added has been injected into the system via the labour factor and the gross fixed capital formation account and the dummy exogenous account.

Table 5.7. Simulated macro-economic impacts of the refugee influx

Endogenous accounts	Percentage change from 2017 values				Impact in Tk. million (change from 2017 values)			
	SIM 1	SIM 2	SIM 3	SIM 4	SIM 1	SIM 2	SIM 3	SIM 4
Teknaf/Ukhiya								
Crops	9.94	0.95	-1.3	-1.3	345	33	-45	-45
Livestock	11.23	2.24	0.3	-1.53	136	27	4	-19
Fishing	13.36	-99.91	-100.87	-0.7	505	-3,775	-3,811	-26
Forestry	11.37	9.52	8.9	-0.25	254	212	199	-5
Manufacturing	5.98	-2.64	-5.3	-0.57	435	-192	-386	-41
Construction	0.49	0.47	0.46	0	31	30	29	0
Utility	9.92	1.91	-167.24	-1.19	67	13	-1,122	-8
Mining	12.64	10.52	7.9	-0.08	544	453	340	-3
Trade	8.82	-7.3	-9.33	-0.72	266	-220	-281	-22
Transport	9.58	-6.01	-8.12	-1.06	286	-179	-243	-32
Housing and real estate	10.41	1.03	-1.08	-1.32	245	24	-25	-31
Social services	9.02	2.11	0.55	-1.28	181	42	11	-26
Public admin and defence	5.38	1.43	0.54	-0.72	97	26	10	-13
Hotels and restaurants	11.7	2.38	0.63	-1.05	104	21	6	-9
Services	8.19	0.18	-2.33	-0.85	388	9	-110	-41
Labour	10.23	-4.99	-6.97	-5.64	1,253	-610	-854	-691
Capital	9.9	-9.74	-15.48	-0.65	1,146	-1,127	-1,792	-76
Households	12.19	2.86	0.76	-1.72	5,443	1,278	340	-770
Cox's Bazar								
Crops	11.66	11.54	11.43	-0.01	2,409	2,386	2,363	-3
Livestock	11.67	11.56	11.45	-0.01	646	640	633	-1
Fishing	12.18	12.07	11.95	-0.01	1,395	1,382	1,368	-2
Forestry	9.41	9.32	9.23	-0.01	636	630	624	-1
Manufacturing	11	10.89	10.79	-0.01	6,770	6,706	6,640	-8
Construction	0.01	0.01	0.01	0	3	3	3	0
Utility	11.04	10.93	10.82	-0.01	389	386	382	0
Mining	11.13	11.03	10.92	-0.01	1,453	1,439	1,425	-2
Trade	10.97	10.86	10.76	-0.01	2,004	1,985	1,965	-2
Transport	11.37	11.26	11.15	-0.01	2,008	1,989	1,969	-2
Housing and real estate	11.18	11.07	10.96	-0.01	1,255	1,243	1,231	-1
Social services	9.29	9.2	9.11	-0.01	845	837	829	-1
Public admin and defence	5.53	5.48	5.43	-0.01	455	450	446	-1
Hotels and restaurants	12.49	12.37	12.25	-0.01	506	501	496	-1
Services	9.12	9.03	8.95	-0.01	2,033	2,014	1,994	-2
Labour	10.88	10.78	10.67	-0.01	6,055	5,998	5,939	-7
Capital	10.62	10.51	10.41	-0.01	5,585	5,532	5,478	-7
Household	12.55	12.43	12.31	-0.01	25,477	25,234	24,987	-30
Total change Teknaf/Ukhiya					**11,725**	**-3,936**	**-7,732**	**-1,857**
Total change Cox's Bazar					**59,925**	**59,354**	**58,773**	**-71**

Source: UNDP analysis.

The simulation outcomes thus suggest that deleterious impacts are more localized than the aid impact. Although Cox's Bazar and the rest of Bangladesh may be generating static gains in the short run, the losers are the immediate host community.

Several caveats must be considered with regard to the analysis provided above. First, obtaining information on economic activities at the upazila level or even the district level is not straightforward, given the absence of any existing regional and local national income accounts data. Plausible assumptions have been used to update some data.

Second, it may be overstated to consider that US$313 million worth of aid money going to Rohingya households will be injected back into the local economy. An overwhelming majority of the aid provided to the refugees is in kind. There is strong evidence from elsewhere that in-kind transfers have a much lower impact on the host community than cash transfers. For instance, Taylor et al. (2016) found that the positive impact generated from in-kind transfers was only 50–60 per cent of that generated by cash transfers.[55]

Third, the cost estimates on the adverse situations facing the host community—that is, environmental degradation—are likely to be under-estimated. For example, no evaluation could be undertaken on contaminated water and the health risks associated with it. Furthermore, the effects of many other changes, both positive and negative, could also not be considered.
Finally, while there may be an overall positive economic impact on the host country, the dire state of the displaced people's living conditions and some of the consequences borne by the poorest and most vulnerable local community groups, from a normative point of view, can barely be offset by the economic gains arising from increased demand for goods and services by the refugees.

5.5. Impact outlook in a situation of repatriation of Rohingya refugees

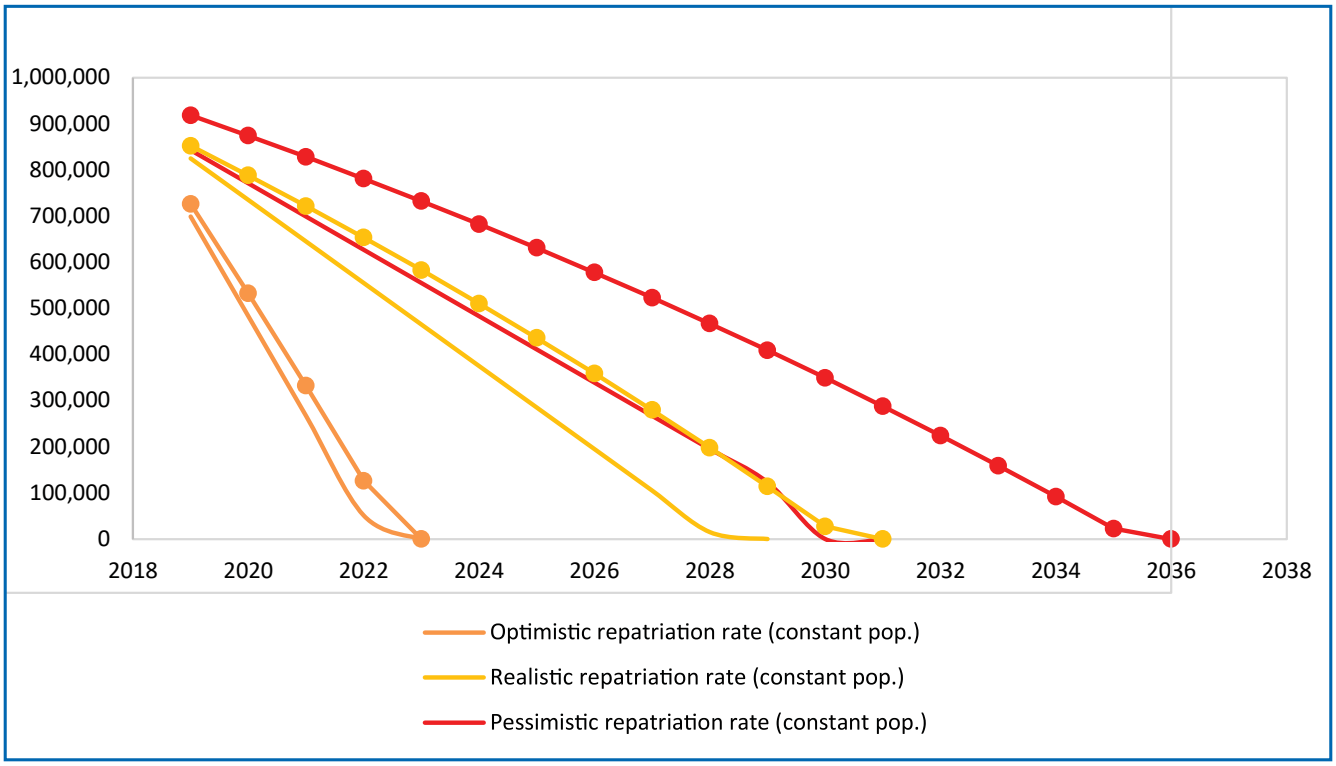
The consequences of the Rohingya influx are still unfolding. The initial impact on the prices of basic necessities may stabilize or may deepen. If immediate comprehensive measures are not taken, further environmental degradation, especially deforestation and water contamination, is likely to intensify. Groups within the host community may be affected in different ways depending on the nature of the developments that take place.

Any potential medium- to long-term implications are sensitive to one critical consideration—namely, the length of stay of the Rohingya. Repatriation is an important issue for the host community, but there is widespread recognition of the need to ensure a safe and dignified return for the refugees. Under current conditions, full repatriation appears to be a distant possibility at best.

As mentioned in Chapter 3, three alternative repatriation scenarios are under consideration: 1) a pessimistic scenario that would repatriate only 100 refugees per day for 20 days each month (24,000 a year); 2) a realistic scenario to repatriate 300 refugees per day for 25 days a month (90,000 a year); and 3) an optimistic repatriation scenario, with 600 Rohingya repatriated each day for 30 days a month (216,000 per year).

55 In the case of Rwanda, Taylor et al. (2016) found that, although additional aid support received by refugees led to increases of US$120–126 in annual real income in the local economy, this was significantly lower than the US$205–253 income generated by refugees who received additional cash.

Figure 5.25. Repatriation rates and duration of stay under different scenarios



Source: UNDP estimates.
Note: The dotted lines are estimates assuming a 3 per cent population growth rate.

Assuming an unchanged refugee population, even under the optimistic scenario full repatriation would require five years. Under a pessimistic scenario, it would take as long as 13 years. With further analysis, if a 3 per cent yearly population growth rate is added, complete repatriation increases by an additional two to five years.

Many other medium- to long-term sector-specific requirements and consequences are also sensitive to the repatriation rate. For example, if the refugees are not provided with alternative cooking fuels, about 400,000 tonnes of timber will be required for next year alone (July 2018–June 2019). It can therefore be estimated that, between the optimistic and the realistic repatriation scenarios, forest depletion will be in the range of 1.2–2.8 million tonnes of timber by the end of 2023 (Figure 5.26). The deforestation problem could be addressed by providing liquid petroleum gas (LPG) to the Rohingya refugees during their stay. The cost of such an intervention is estimated at US$75.3–270 million under alternative assumptions (Figure 5.27). Increased demand for water is another important issue. Around 5.6 billion litres of water will be required just for the next year alone. Between the optimistic and the realistic repatriation scenarios, the water requirement is estimated to range between 16 and 26 billion litres by the end of 2023 (Figure 5.28).

Figure 5.26. Firewood requirements under different scenarios (thousand tonnes)

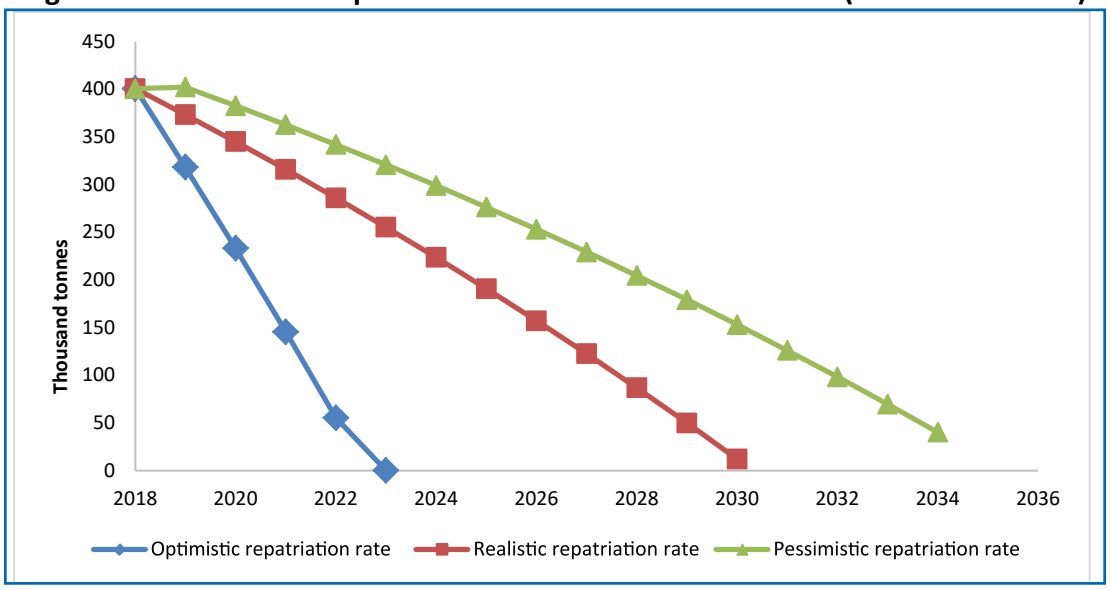


Figure 5.27. Costs of LPG cooking fuel under different scenarios (US$ million)

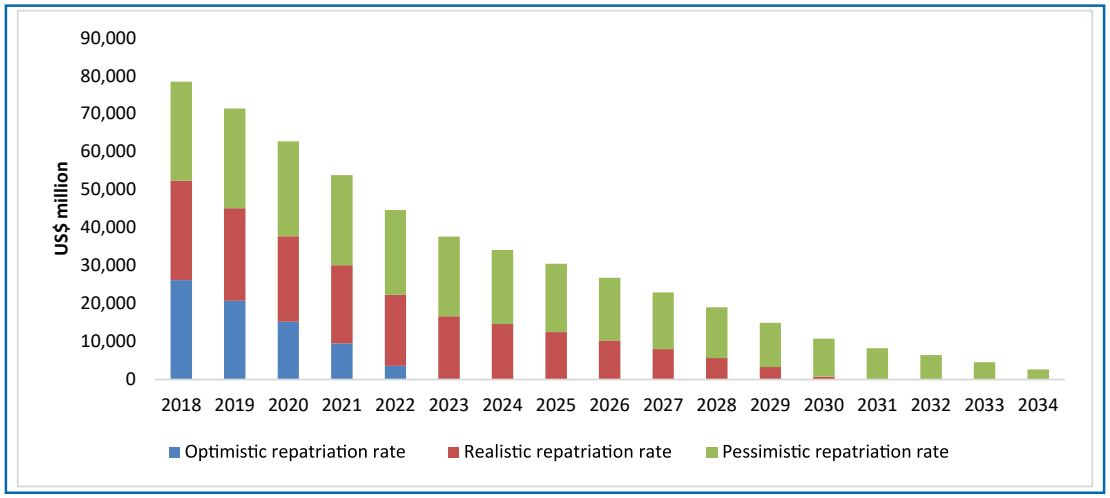
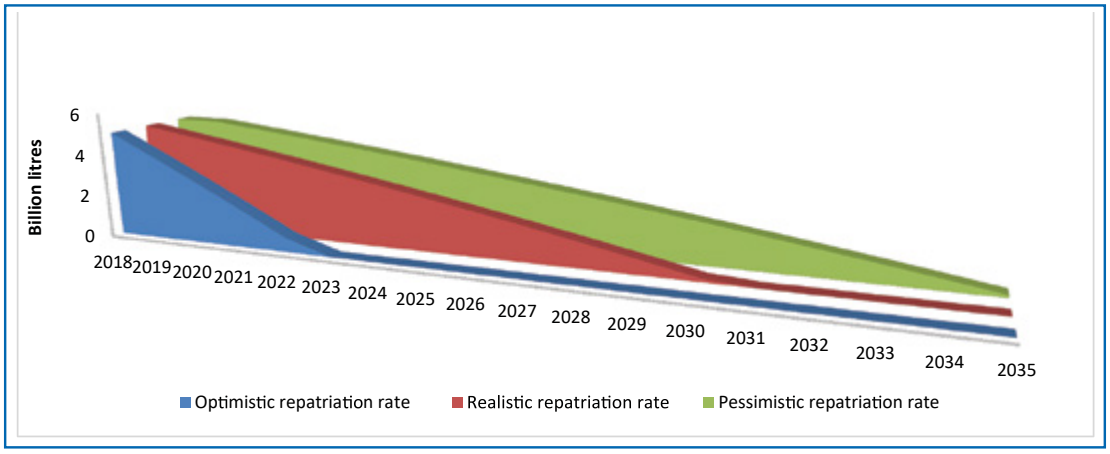


Figure 5.28. Annual water requirements for refugees under different scenarios (litres)

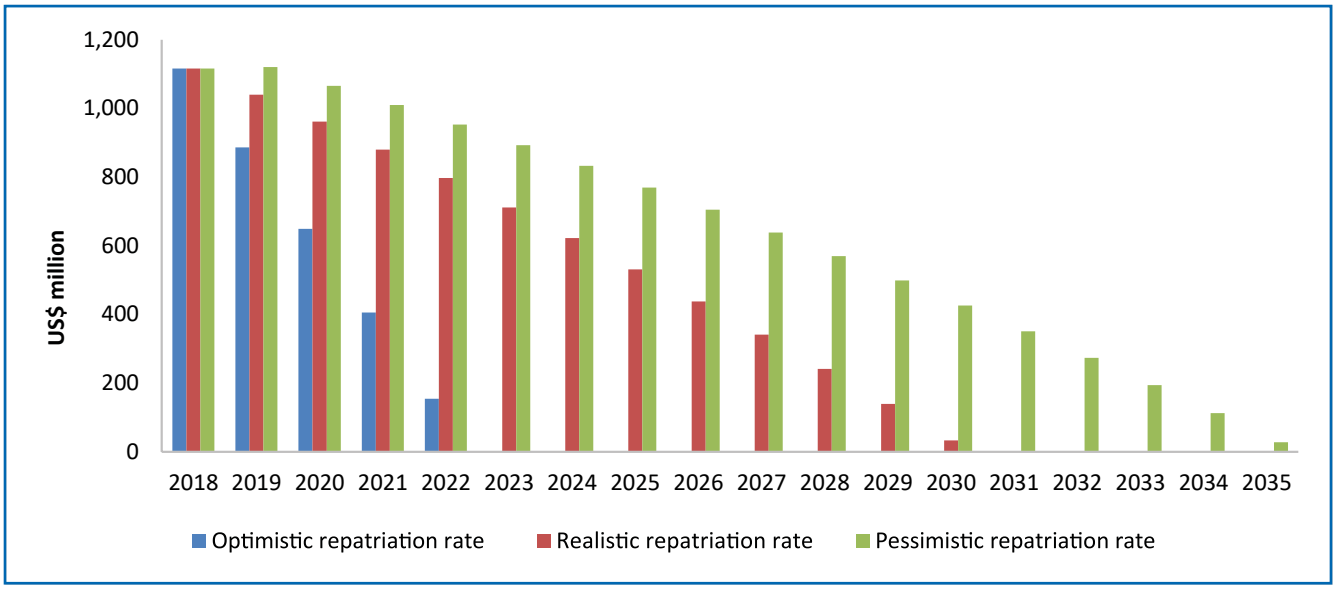


Source: UNDP estimates.

Note: The estimates assume a 3 per cent population growth rate.

When the length of repatriation is extended, the cost of supporting the refugees and the host community will increase. Considering only the refugee population, the cost of food, shelter, education and other basic needs, according to estimates, would be a minimum of US$1,219 per refugee per year. This translates to a total requirement of US$3.2 billion (in the case of the most optimistic scenario) to US$11.6 billion (for the pessimistic repatriation scenario) over the period of the Rohingya stay (Figure 5.29). With a protracted refugee crisis, the challenge of sustaining donors' interest will become more difficult. In fact, even within the first year of the crisis, the donor response in terms of financial assistance has been slow.[56]

Figure 5.29. Duration of stay and cost for the refugee crisis (US$ million)



Source: UNDP estimates.

In the absence of sustained external assistance, mitigation of adverse consequences, particularly environment degradation and health risks, will be extremely difficult for the host community. Elsewhere, international partnerships have recognized the critical role of long-term support to strengthen national and local development plans to sustain both host and refugee populations (Huang et al., 2018). It is important to review the lessons from international support and collaboration mechanisms in dealing with protracted refugee crises and consider any that would be useful for the displaced Rohingya and the Bangladeshi host communities (ibid.). Among other things, as already noted, there is an emerging body of evidence to suggest that, when cash assistance is provided to refugees instead of in-kind support, the spill-over effects that benefit the immediate host communities are much larger. While at the initial phase of the crisis in-kind transfers were important, cash assistance can facilitate more market-based interactions that benefit local communities.

56 The JRP estimated that US$950.8 million in assistance would be required for the period of March–December 2018 (ISCG, 2018a). Only 27 per cent of this funding had been received commitment as of mid-July 2018 (ISCG, 2018l).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Chapter 6
Impacts on public service and public goods delivery of the Rohingya influx in host communities

This chapter examines the nature of the challenge posed to the existing public service delivery system in Cox's Bazar and the overall impacts on host communities of what is likely to be a protracted episode of caring for a large number of forcibly displaced persons.

There is little doubt that the activities geared to refugee settlement and rehabilitation will impinge on the availability and quality of public services destined for the host communities around the camps. Public service delivery in Teknaf and Ukhiya, designed for a quarter of million people, now has to cope with an extra million people. Health care, roads, water supply, sewerage systems, waste disposal, the police and the civil administration are all being stretched far beyond their capacity.

Overall, the refugee influx has created huge demand for public services (including public goods), which has resulted in substantially reduced access to standard public services used by the local community prior to the arrival of Rohingya. These contesting demands are leading to tensions between the refugees and the host communities, the vast majority of whom are also very poor and vulnerable (see Chapter 8 for more on tensions between the communities).

6.1. Development and expenditure context in Cox's Bazar, pre-influx

Cox's Bazar is ranked as average in relation to other districts in Bangladesh in terms of poverty (our survey found a poverty headcount of 24 per cent in Teknaf and 27.9 per cent in Ukhiya, with 24 per cent for the district as a whole). Widespread poverty resulting from high levels of unemployment and underemployment, lack of investment and very limited access to public services, as well as high levels of illiteracy and poor quality of education, marked the district before the refugee influx of 2017. Many stress factors thus already existed well before the refugee influx. Meanwhile, the district is prone to flooding and landslides during the monsoon season (May–August), and, as it is situated next to the sea, it is affected by cyclones fairly regularly during April–May and October–November.

As Table 6.1 shows, government expenditure per capita (circa 2008–2010) in Cox's Bazar met the average in terms of development expenditure but ranked way below the average on non-development expenditure. In development expenditure, per capita expenditure was 73 per cent of the level in Dhaka and Cox's Bazar ranked 27th out of 64 districts. In non-development expenditure, Cox's Bazar received only 13 per cent of what was allocated to Dhaka, to rank 57th out of 64 districts. As non-developmental expenditures dominate, Cox's Bazar ranked very poorly in consolidated expenditures, at 19 per cent of Dhaka's expenditure, 65 per cent of the national mean and 80 per cent of the median. Consequently, host communities in Cox's Bazar were under-served to start with.

Table 6.1. Government expenditures per capita benchmarked with Dhaka and the national average

	Non-development	Development	Consolidated
National average	27	76	29
Dhaka district	100.0	100.0	100.0
Cox's Bazar	13.1	73.1	19.0
Rank of Cox's Bazar of 64 districts	57	27	64

Source: Estimates based on data from Ministry of Finance.

Public service delivery in Cox's Bazar is the responsibility of the District Administration and several GoB departments, such as health, WASH, roads and highways, housing and so on. The quality of public service delivery in the district, as elsewhere in the country, frequently falls short of people's needs, in great part because of lack of adequate resources and facilities. Naturally, the influx of refugees demanding food, shelter and basic shelter, initially all in a matter of days, has created multi-dimensional problems, the resolution of which will require multi-dimensional approaches.

6.2. The influx and the government response

6.2.1. Temporary settlement of the Rohingya

GoB allocated 6,000 acres of land for temporary settlement of the Rohingya. At the initial stage of the influx, spontaneous, very squalid, refugee camps sprang up wherever land was available. Soon, with the rapid response of GoB, UN agencies and NGOs, housing conditions for refugees started to improve. However, we are still a long way from accommodating the refugees in decent housing. There are an estimated 1,650 settlements with more than 200,000 households in Teknaf and Ukhiya *upazilas*. According to UNHCR, the recommended minimum surface area when planning a refugee camp is 45 m2 per person including kitchen/vegetable gardening space; excluding garden space, it should not be less than 30 m2. The current refugee accommodation does not fulfil these minimum requirements. Efforts are underway to relocate houses located in vulnerable areas and to upgrade current accommodation where possible.

6.2.2. The District Administration's response to the influx

The District Administration was geared up to handle the refugee influx on an emergency basis, providing food and housing in temporary camps on government land (mostly forest). However, this was not the end of it. There was also the huge task of preventing epidemics and health hazards, as well as providing drinking water and arranging solid waste disposal on a scale that was at least three times

the requirement for existing host communities around the camps. This operation can be assessed as satisfactory in that there were no deaths by hunger, nor any outbreak of disease. Even the anticipated fatalities owing to mudslides during the height of the monsoon did not materialize. But the medium-term challenges remain of providing adequate shelter, food security, education, health and nutrition to a refugee population of such a size.

The District Administration in Cox's Bazar is adequately staffed in accordance with GOB's approach to staffing based on the size of the district population and the complexity of public service demand. Predictably, however, it was stretched to its limit with the August 2017 influx of refugees. The refugee rehabilitation effort soon became a mammoth programme, which the District Administration could no longer handle and which was passed on to RRRC (see Chapter 4 on response management). The civil administration was naturally ill equipped to handle an international crisis of this magnitude. ISCG has also brought in the latest technology and communication systems, which have made obvious the low level of proficiency of the District Administration.

Nevertheless, many governance aspects of dealing with the refugee influx are still devolved to the DC Office in Cox's Bazar. Only the DC, or his representative, is authorized to execute some regulatory and administrative tasks related to the management of refugees. Even the delivery of relief goods destined for the camps has to be monitored, with clearance given by the DC Office, not to mention the issuance of various licences and permits related to doing business in the district. The police, with the support of the Ansar,[57] address law and order issues arising from the refugee settlements.

Table 6.2 identifies the key sectors involved in Rohingya management, the relevant linked government departments and their staff strength. For the most part, district and *upazila* sector officers follow their own chain of command (from ministries and directorates in Dhaka). The priority departments are Health (under the Civil Surgeon), WASH (Department of Public Health Engineering, DPHE), Environment (Forest Department), Water Development and Management (Water Development Board) and Transport (Roads & Highways; Local Government Engineering Department, LGED). All the sector departments of the line ministries have officers down to the *upazila* level (30 officers at this grassroots level represent the various departments).

57 The Ansar is a paramilitary auxiliary force responsible for the preservation of internal security and law enforcement. Usually, their services are invoked by orders from the DC or the Superintendent of Police (SP) in emergencies.

Table 6.2. Mapping of government offices to Rohingya management activity in Cox's Bazar

Key sector	Government department	Government personnel	
		Officers	Support staff
Overall coordination	DC Office	32	115
Protection	SP Office	40	58
Health	Health Department	122	125
Education	District Education Office	8	19
WASH/public health	DPHE	2	10
Environment	Forest Department	5	57
Transport	Roads & Highways, LGED	8	81
Engineering	LGED	6	12
Disaster management	District Relief and Rehabilitation Office	1	4
Urban development	Development Authority (autonomous)	6	6
Urban development directories	Urban Development Directories (government)	2	9
Social development	DSS	2	8
Agriculture extension	DoAE	6	14
Fisheries	Department of Fisheries	2	5
Livestock	Department of Livestock	2	6
Water development and management	Water Development Board	14	27
Total		258	556

Source: Based on information received from Cox's Bazar government departments and UNDP.

Although the DC no longer has full command over the activities of sector departments, he still holds some power to get things done in the district, as all national policy and regulatory orders are passed on to the grassroots level through his office. The DC also holds the traditional role of coordination of all sector departments at the district level through a monthly meeting of the District Development Committee. After the Rohingya influx, a District Task Force was set up to coordinate the key sectors.

6.3. Impacts of the influx on public service delivery

The sudden influx of refugees has aggravated the challenges in Cox's Bazar district, which now spread across a number of fronts. Overall, it has brought with it a host of challenges, in particular for the host communities living around the refugee camps. Here, we look at the impact of the influx in terms of governance, solid waste management, WASH, housing, roads, business infrastructure, health services and education services. Chapter 5 on socio-economic impacts looked at the environment and forestry in more detail with regard to livelihoods as opposed to service delivery.

6.3.1. Impacts on governance

There is little doubt that the refugee influx has significantly stretched local governance institutions and civil servants' ability to perform their designated duties. Governance institutions are not very strong in

Bangladesh in general but in the face of this massive crisis they are becoming even more limited in their effectiveness.

Some local administration and sector officials spend 50 per cent or more of their time on Rohingya matters, resulting in delayed if not scaled-down public service delivery. Civil servants at various levels from different departments indicated that a considerable amount of their time was taken up attending to refugee-related work rather than the tasks they are mandated to perform. They also work on weekends without additional remuneration. Often, expenses incurred in attending to refugee-related matters are not reimbursed. There are more than 100 organizations working with the refugees involving in excess of 200 projects.

Officials also have to spend a considerable amount of time attending meetings, which can number three or four a week. They also have to perform protocol duties when local and foreign dignitaries including foreign celebrities come to visit refugee camps. Such visits have become quite frequent as the Rohingya problem has become internationalized. Consequently, they feel very stressed, and this is affecting their physical and mental health. This also significantly reduces the time available to perform their designated duties in addressing the needs of the host communities.

Meanwhile, there has been a substantial rise in the population per officer. During the emergency period of August–October 2017, GOB did depute some 35 civil servants to the DC Office to help tackle the crisis, but these officers were subsequently absorbed into RRRC as CiCs. The district and *upazilas* offices are already not fully staffed, meaning there is an additional workload for civil servants even under normal circumstances.

Staffing positions in government offices are fairly rigidly fixed, which means that, despite the presence of a million Rohingya refugees in the district, no increase in the number of officers or staff in government departments will be seen in the near term. Planning for additional staffing and physical resources will become meaningful once we see the Rohingya presence as lasting at least into the medium term. However, with plans to move the refugees to alternative locations (e.g. Bhashanchar Island), there is little appetite to augment delivery capacities in Cox's Bazar government departments. Any capacity augmentation is likely to be directed to investments in infrastructure and technology (with supporting equipment and training).

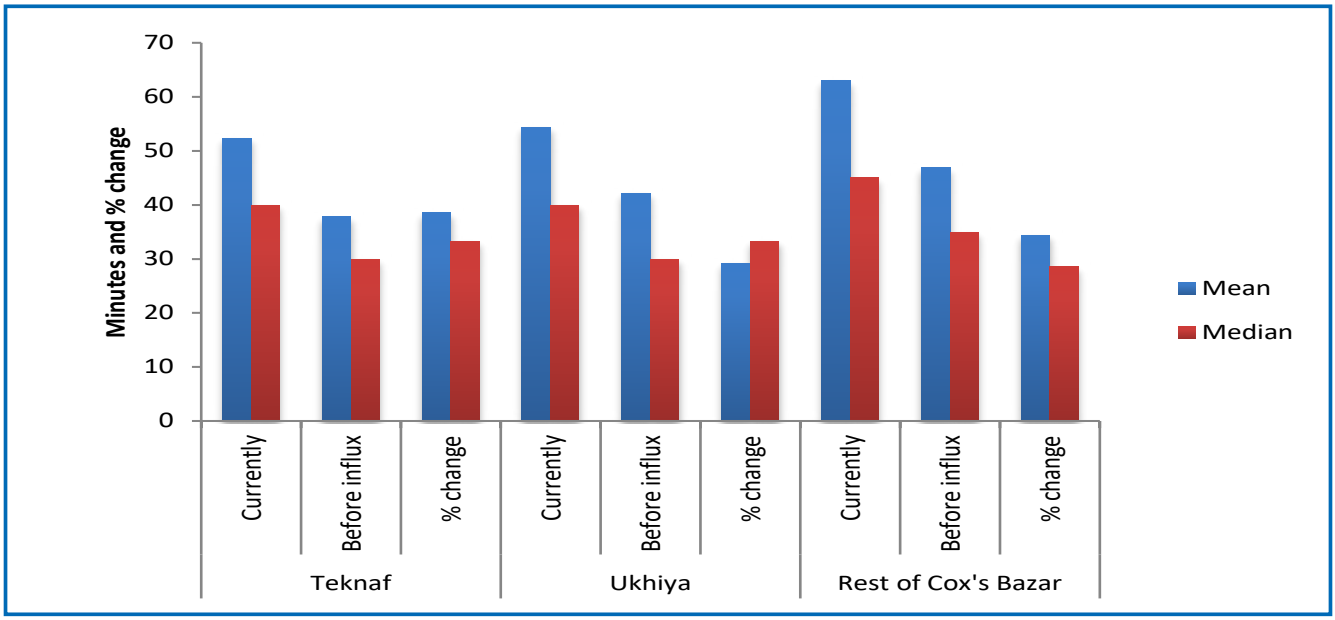
UNOs in Teknaf and Ukhiya regularly exercise their magisterial functions to settle disputes between Rohingya and host communities.[58] Maintenance of law and order is a high priority but deployment of police so far has fallen short of requirements. The presence of a million Rohingya has stretched security capacities to the limits, despite the arrival of additional forces. Only five police camps have been set up to ensure law and order within the camps—which most observers assess to be grossly inadequate. Outbreaks of crime have become a regular phenomenon (according to reports, 19 Rohingya have been killed and 55 arrested in 6 months (Al Masum Molla, 2018)).

To further complicate the situation, disputes between various government institutions cause further delays in implementing projects for both the refugees and the local community. Effective coordination between the DC Office, RRRC and ISCG is essential to ensure public service delivery.

58 The UNO in Ukhiya, which harbours the largest numbers of Rohingya, spends 90 per cent of his time on Rohingya matters.

Figure 6.1 shows results from the survey with regard to households' perceptions of the time required to obtain a service in the union parishad in Teknaf and Ukhiya upazilas as well as in the rest of Cox's Bazar. According to these perceptions, the time required has increased throughout Cox's Bazar, but the perceived rise in the median time needed has been significantly greater in Teknaf and Ukhiya compared with the rest of the district. Respondents gave an estimated mean time to obtain a typical service of 55 minutes, increased from 41 minutes before the influx.[59]

Figure 6.1. Perceived time required to access a service in union parishad (minutes and % change)



Source: UNDP household survey 2018.

6.3.2. Impacts on solid waste management and WASH

The huge influx of refugees into Cox's Bazar district has severely affected the environment, creating severe strain and stress on the provision of public health engineering services including solid waste management. With about 10,000 tons of additional solid waste being produced a month, its management is now a priority challenge. Water resources have in many instances been contaminated by human waste, as have 86 per cent of drinking water wells. Agricultural lands near the camps are also getting silted up and contaminated by human waste.

The situation is particularly worrisome in the neighbourhood of the Balukhali–Kutupalong mega-camp owing to faecal contamination in surface and groundwater reservoirs (ISCG, 2018b). It has been reported that over 30 per cent of latrines were located less than 10 m from water sources in the camp area as of January 2018 (ISCG, 2018a). The problem deepens as faecal contaminants are washed down by rainwater to then spread waterborne diseases to both refugees and host communities (e.g. cholera, bloody diarrhoea, typhoid, hepatitis E). Local people use water from ponds, canals and wells for daily needs such as washing clothes, cooking and bathing.

About 2 per cent of households in Teknaf and Ukhiya reported in our survey that they had had to change their main water source as a result of contamination of surface water, depletion of ground water and increased pressure on water sources. About 20 per cent of households reported experiencing problems

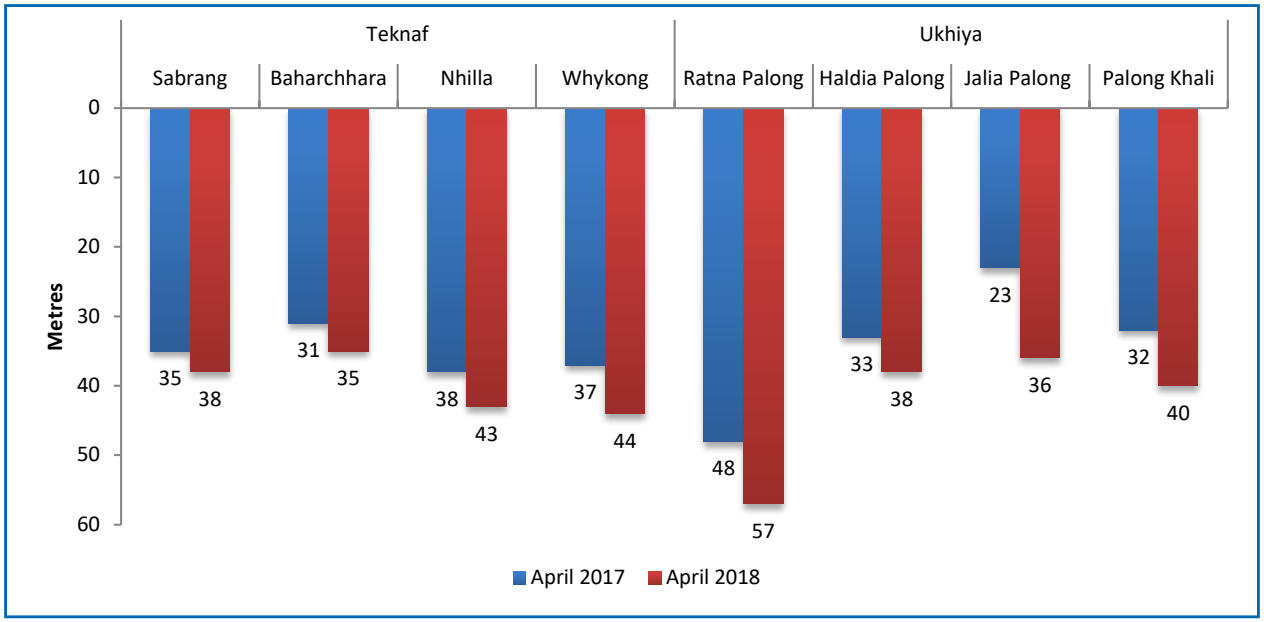
59 This reported increase is statistically significant.

arising from declining underground water levels, as their wells, tube wells and shallow pumps dried out. About 6 per cent of host community households reported having to walk more than 30 minutes to get fresh drinking water.

Even before the influx, many places in Bandarban district and Teknaf and Ukhiya *upazilas* were recognized as areas with limited access to potable water (see Ahmed and Hassan, 2012). It is estimated that about 2.8 million litres of drinking water are required per day for the host community in Naikhongchhari (in Bandarban) and in Teknaf and Ukhiya (in Cox's Bazar), along with another 43.5 million litres for other daily activities including irrigation and manufacturing. In the post-influx period, refugees are demanding an additional 13.8 million litres per day (including 3.4 million litres for drinking water).[60] This massively increased daily demand for fresh water, together with the severe water contamination levels in the affected areas, has deepened the water crisis.

To supply water to the refugees, an estimated 5,731 tube wells were installed between August and December 2017, of which about 21 per cent had become non-functional by the end of January 2018 (ISCG, 2018a). In fact, the excessive dependence on ground water is lowering the water levels in the area (Figure 6.2). The water levels around the camp areas are reported to have fallen between 5 m and 9 m. The freshwater options in the affected areas are extremely limited, particularly in Teknaf (Cox's Bazar) and Naikhongchhari (Bandarban), where the bedrock surface at 25–30 m below ground level makes deep tube wells a costly option for the locals.[61] Irrigation wells are slowly drying up as the water table is falling as a result of watershed destruction and a significant reduction in the recharge of ground water reserves.[62] Continued pressure on the aquifer may result in salt water intrusion, rendering it unusable for the district.

Figure 6.2. Falling water tables in Ukhiya and Teknaf (metres)



Source: Yearly updated data from DPHE, Cox's Bazar.

60 15 litres per day per person of water consumption is assumed under an emergency situation or humanitarian crisis.
61 This issue was discussed in detail with Cox's Bazar DPHE and FGD participants in Naikhongchhari.
62 Discussion with DoAE.

6.3.3. Impacts on housing

Land for cultivation and housing is a very serious issue in the district, and more so in Teknaf and Ukhiya. The scarcity of land works against the poor. Better-off land-owners rent out their land for salt production, shrimp farming and betel leaf and nut production. Most of the poor do not own any land, but usually squat on public land or land given by or rented from rich land-owners. According to a study undertaken by the World Food Programme (WFP, 2017b), half of the local population in Teknaf and Ukhiya are categorized as poor and very poor who do not own any land; the other half are categorized as middle- and high-wealth groups, owning on average just about an acre of land.

Any poor households that own land have just enough to build a house, and rarely enough to grow some seasonal vegetables. Most people live in one-room houses with polythene roofing. In general, the local people live in housing that is in very poor condition and is vulnerable to natural factors such as strong winds, heavy monsoon downpours and flooding.

Land scarcity has also contributed to overcrowding—which has worsened with the arrival of the refugees. Meanwhile, some Rohingya refugee camps are built on cultivable lands, further reducing the availability of land for cultivation and housing.

Both the JRP and the RIVNA have allocated funds for shelter, at US$136.6 million and US$131 million, respectively, but this appears to be focused only on the refugees.

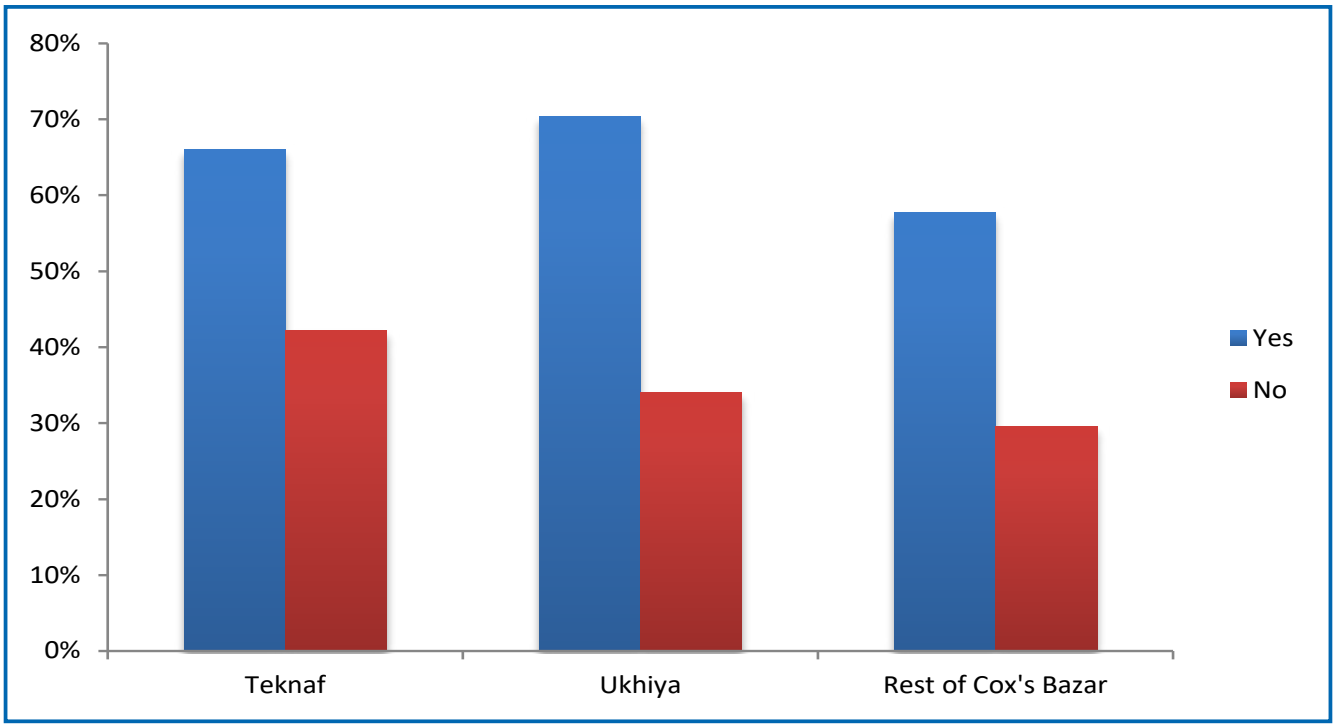
6.3.4. Impacts on roads

Movement of a very large number of Rohingya and aid workers, public officials, international visitors and humanitarian relief vehicles is seriously degrading the existing roads leading to and from local communities to the refugee camps, including link roads. An estimated 40 km of roads have been damaged (UNDP and UN Women, 2017a). During the primary stage of the influx, refugees took shelter on roads, dams and bridges, which led to substantial damage. Construction of and use of transit camps and the subsequent abandonment of these have left behind a huge trail of infrastructural damage and environmental degradation. These sites now also include damaged schools and schoolyards and landslide-prone hills.

Increased traffic congestion on the roads has also raised access and safety concerns. Road congestion has increased massively on the Teknaf–Cox's Bazar highway, with heavy relief vehicles often blocking narrow roads. This results in frequent traffic jams, which were previously unknown to the host communities. In addition, frequent visits by foreign delegates and political leaders often lead to the suspension of regular transportation.

Nearly 40 per cent of household in Teknaf and Ukhiya reported that road conditions in their locality were either bad or very bad. In contrast, only 23.6 per cent of households in the rest of Cox's Bazar district said this. In terms of whether these conditions had deteriorated in the past year, the proportion saying "yes" was again much higher in Teknaf and Ukhiya than in the rest of Cox's Bazar: 66 per cent and 70 per cent compared with 58 per cent (Figure 6.3).

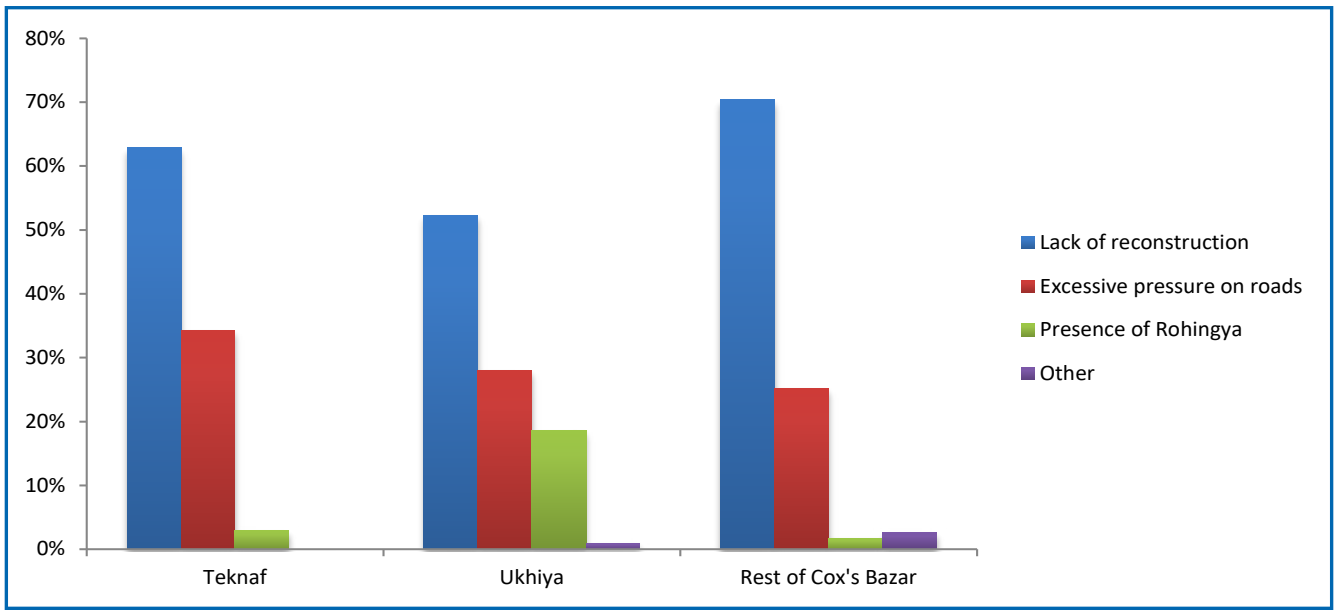
Figure 6.3. Perceptions regarding whether roads have deteriorated in the past year



Source: UNDP household survey 2018.

Most respondents in Teknaf and the rest of Cox's Bazar reported lack of reconstruction of roads as the main reason for the deterioration in their condition. However, nearly one in every five households in Ukhiya reported presence of Rohingya refugees as a major cause of road condition deterioration.

Figure 6.4. Perceptions regarding reasons for deterioration of roads in the past year



Source: UNDP household survey 2018.

The influx has given small and medium traders, particularly in markets located close to settlements such as Kutupalong and Balukhali, the chance to grow their business, but increasing transportation costs mean their margin of profit is at risk of falling. The main challenges reported by traders are road congestion, cost of hiring transport and delays in deliveries (UNDP and UN Women 2017b).

The Roads & Highways Department informed us that traffic had increased 2.5 times, with excess loads causing severe damage to the existing highway between Cox's Bazar and Teknaf, requiring preparation of a reconstruction budget of about US$100 million. Similarly, LGED, responsible for the construction of roads inside the camps and those linking the camps to the highways, has a budget estimate of another US$100 million.

The RIVNA has budgeted US$82.2 million to upgrading roads directly feeding the camps to all-weather standard, segregation of motorways from the camps and the host community and putting up structures on village roads, including improved traffic signage.

6.3.5. Impacts on business infrastructure

Power cuts have become more frequent than before, disrupting daily life and adding further to the cost of running a business. Transport difficulties have also caused disruptions in the supply chain to local markets. Local small shop-keepers are facing a double squeeze from these rising costs of running a business and increased competition as a result of increased Rohingya involvement in certain businesses, leading to downward pressure on their profit margins (see Chapter 5).

Tourism is a major industry in Cox's Bazar district, mainly centred around Cox's Bazar Sadar upazila. The sector has shown a declining trend because of the various security and other restrictions now imposed along the Bangladesh–Myanmar border. The tourism industry is already fairly underdeveloped, largely because of infrastructural deficiencies, which are now worsening.

6.3.6. Impacts on health services

The quality of public health care services, at both *upazila* and district levels, was very poor even in the pre-influx period. Almost half of the health care-related positions in hospitals and health complexes in the district were vacant. Under-staffing and shortages of medicines and medical equipment are on-going issues. Distance to health care facilities and bad roads and transport contribute to local community members' lack of ability to access those facilities.

Since the influx began, the Ukhiya health complex has seen an increase in consultations and admission by 25 per cent, and bed occupancy in the Teknaf health complex has risen above 40 per cent. Lack of sanitation, malnutrition and cabins that are more and more crowded are increasing the possibility of disease outbreak. After the crisis, in the Health Department under the Civil Surgeon, a large number of vacant doctor positions were filled to supplement the medical delivery capacities of this department, to save lives and control disease outbreaks. *Upazila* health complexes and district hospitals have become increasingly geared towards attending to the emergency needs of the refugees.

Post-influx, health services in Cox's Bazar and Teknaf and Ukhiya had to be boosted with personnel, equipment and medicine from the national health services. All health programmes in camps are now

run by NGOs under the supervision of the Director General Health Services (DGHS) and the Cox's Bazar Civil Surgeon. DGHS requisitioned a special contingent of doctors, nurses and medical support personnel to cope with the mounting additional demands for health services arising from the Rohingya influx. This contingent has 118 personnel supported by 25 from the Civil Surgeon of Cox's Bazar. Provision of medical services to refugees by DGHS along with monthly salaries is funded largely by UNICEF and the World Health Organization (WHO), and partly by GoB.

However, the local health care service is overstretched—and as a result local communities are not receiving the same level of health care service as the refugees.[63] The issue has become more complicated as refugees receive medication free but locals have to pay for the same. Host community members now have to wait longer for services: the survey found that the average waiting time had increased by 50 per cent.

6.3.7. Impacts on education services

Cox's Bazar as a district performs poorly in terms of literacy, as Chapter 3 shows. There are many factors contributing to low attendance at schools, with widespread poverty and high levels of child labour being the root factor.

Now, since the influx, students from the local community are dropping out of school or skipping classes to help their families with income-generating activities, such as selling goods at refugee settlements. Parents are restricting girls from going to school because they have concerns related to protection. During FGDs, many participants reported security concerns arising from the refugee influx, especially with regard to the mobility of women and girls. According to some FGD participants, these concerns may also have affected the school attendance rate. Meanwhile, students from affected schools have been performing poorly in public exams.[64]

Also, the high volume of traffic is creating serious road hazards that make travelling to and from school very dangerous. Teachers are often absent, making children more vulnerable in terms of their ability to achieve an education.

After the refugee crisis began, many school buildings and playgrounds were used as refugee transit camps, which led to some structural damage and the destruction of school furniture and fixtures.[65] Furthermore, in many cases, members of law enforcement agencies and security forces camped in school and college buildings. Regular activities in these schools were disrupted for several months. Even after the relocation of refugees to the camps, the repair and renovation work did not take place promptly so that regular school activities could resume. A list of primary schools in Teknaf and Ukhiya that are still waiting to be repaired is given in Annex 8 (Table A8.1). Some schools continue to be used as refugee-related support/coordination centres by various agency personnel who are involved in humanitarian projects. Educational activities in these schools use only part of the premises.

A large number of students and teachers have found well-paying jobs with international agencies and NGOs operating in the district, as local facilitators and translators. High absenteeism is now a major

63 In interview, the Civil Surgeon of Cox's Bazar claimed that, during the emergency period, health centres were overwhelmed. Now, roughly half of his time and that of doctors in health complexes is spent on Rohingya refugees.

64 The issue was discussed particularly in FGDs in Palong Khali union of Ukhiya upazila.

65 Discussion with Directorate of Primary Education.

issue facing many institutions. According to some estimates, absenteeism in Teknaf and Ukhiya schools and colleges has risen up to 60 per cent (COAST, 2018a). In some schools and colleges, up to 70 per cent of teachers have left their jobs for more lucrative NGO/INGO positions (ibid.).[66] While these developments do benefit some people, through enhanced income-earning opportunities, they affect overall educational activities in the host community.

6.4. Overall impacts on the poorest in the host communities and response

The impacts listed above are worse for the poor households in host communities, as they typically have the worst access to public resources. This is in a context where Rohingya refugees are taking jobs in construction, farming, fishing and restaurants, often accepting wages below half the normal rate. This has hit at least a third of the population who are classified as very poor.

Impacts are now so severe that host communities are resorting to negative coping mechanisms as survival tactics—namely, selling small assets and livestock, taking loans, migrating temporarily to the towns of Cox's Bazar and so on.

The ISCG approach has been to prepare a medium-term strategy to manage the Rohingya population while also addressing the needs of the host communities (the JRP). Broadly speaking, this approach should mount a holistic campaign of rehabilitation, recovery and resilience for the entire district of Cox's Bazar, not just the refugees. A medium- to longer-term economic and social development strategy will be necessary, to confer benefits to all—host communities and refugees. Chapter 9 goes into more detail on what programmes are being put in place and what more can be done.

66 Seven teachers out of ten from two high schools left for NGO/INGO jobs, affecting almost 1,200 students (ibid.).

Chapter 7
Impacts on social safety nets of the Rohingya influx in host communities

Loss incurred as a result of any action with regard to a particular community should be compensated. An important and well-accepted compensating mechanism is to introduce new social protection schemes or modify existing such schemes. This chapter summarizes the key features of the Bangladesh and Cox's Bazar social protection system and then assesses the impact of the Rohingya influx on the delivery of this system in the host communities. It then goes on to identify potential social safety net programmes that could deal with any adverse impacts on the host communities.

7.1. Key features of the Bangladesh social protection system

Bangladesh has rich experience in designing as well as implementing social protection systems. During the past four decades, different types of schemes have emerged to temper the extremes of vulnerability and provide a crucial cushion to the growth process by ensuring disaster resilience. Table 7.1 presents a timeline of this demand-driven process in Bangladesh.

Table 7.1. Innovations and experimentation on social safety nets: a timeline

Time period	Schemes	Reason for innovation
Mid- to late 1970s	VGF (Vulnerable Group Feeding) Scaled-up Food For Work Microcredit	Response to food shortage of 1974.
Mid-1980s	VGF transformed to VGD (Vulnerable Group Development) (later to IGVGD, Income Generation for Vulnerable Group Development) to reorient from relief to relief + development	Concerns that feeding alone was not enough to reduce chronic hunger and criticism from civil society that the poor were being made dependent, which spurred new initiatives to add training for income-generating activities and bring NGO collaboration.
Late 1980s	RMP (Rural Maintenance Programme): workfare innovations 1) Adding promotional to protection goals 2) Extending workfare projects beyond earthwork, e.g. social forestry, road maintenance	Response to the devastation by consecutive floods of 1987 and 1988, which saw new policy emphasis on all-weather infrastructure in place of seasonal earthen infrastructure.
Early 1990s	CCTs (conditional cash transfers) Food for Education Programme	Introduction of Food for Education and Female School Stipend Programme driven by two contextual factors: 1) A political factor contingent on the return of parliamentary democracy in 1991 that saw elected leaders seeking new sources of political support. 2) An instrumental search for new use for food aid on the phasing-out of the Palli Rationing programme.
Late 1990s	VGF card Old age allowance Widow allowance	VGF card occasioned by devastating flood of 1998, when rapid deployment of a food security programme was urgent. Two allowance programmes driven by competitive populist politics.
Early 2000s	Graduation goals A series of successor programmes to RMP and VGD with more explicit combination of protection and promotional goals	A discourse shift from protection goals to protection + promotion goals.
Mid 2000s	Geographic targeting Monga, chars	Greater recognition of poverty pockets.
Late 2000s	Employment guarantee	The food price hike of 2007/08 spurred a major innovation in terms of the introduction of an employment guarantee (bulk employment during slack seasons) in workfare programme.

Source: Planning Commission (2015).

The NSSS epitomizes the evolution of the social protection system in Bangladesh in the following statement (Planning Commission, 2015):

"There has thus been a significant demand-driven element in the growth of the social protection agenda in Bangladesh both as response to crisis events or as responses to new democratic aspirations. Bangladesh also appears to have pursued a pragmatic path of incremental program experimentation rather than a legalistic path of abstract rights in developing its social protection agenda. The original food security-focused VGD program and the public works RMP have inspired many follow-on programs such as IGVGD, FSVGD [Food Security Vulnerable Group Development], TUP [Targeting Ultra Poor], REOPA [Rural Employment Opportunities for Public Assets], RERMP [Rural Employment and Road Maintenance Programme] that have incrementally embraced more complex goals of graduation in their design and reach. Program growth has also run in parallel to the vulnerability discourse with a focus on identifying segments of the poor who were missing out in existing program coverage. This underlays the later focus on marginal communities such as the char-dwellers as well as the broader geographic targeting agenda initially with the Monga belt and now with the Haors and coastal communities."

Bangladesh's social protection system comprises a large number of programmes managed by a large number of ministries/agencies. According to comprehensive official Ministry of Finance data,[67] social safety net programmes are presented under two budget heads: non-development and development components. Table 7.2 presents the key features of the social safety net programmes for the past five fiscal years (i.e. from FY2015 to FY2019), under the two budget heads. The data are also separated for the pre- and post-Rohingya influx period, to enable us to see the impact on the national social safety net programmes post-Rohingya influx.

Table 7.2. Key features of the social safety net system in Bangladesh, pre- and post-Rohingya influx

	Pre-Rohingya period			Post-Rohingya period	
	2014/15	2015/16	2016/17	2017/18 (P)	2018/19 (B)
A. Social safety net (non-development and development budget)					
No. of schemes	137	140	143	136	130
Allocation (Tk. million)	306,360	359,750	408,570	485,240	641,770
% of GDP	2.01	2.19	2.31	2.44	2.53
Beneficiary (million man)	698.5	698.5	516.5	627.0	763.2
B. Social safety net (non-development budget)*					
No. of schemes	54	54	54	57	57
Allocation (Tk. million)	221,145	257,896	313,650	442,397	461,772
% of GDP	1.46	1.49	1.60	1.98	1.82
Beneficiary (millions)	55.50	51.50	52.20	56.60	64.70
Beneficiary % of population	34.43	31.60	31.70	34.27	39.06
Transfer amount (Tk.)	332.0	417.3	500.7	651.4	594.8

Source: Based on Ministry of Finance data.

Note: * Excludes schemes under the development budget component or social empowerment.

67 Social Safety Net Budget 2016/17, Budget 2016/17 Revised and Budget 2017/18, Finance Division, Ministry of Finance.

One of the key proposals of the NSSS is to consolidate the large number of small schemes into seven core lifecycle schemes. During the past five fiscal years, the number of schemes has varied between 130 and 143. The number of schemes is around 55 when considering only the schemes under the non-development budget. However, a closer review of the social protection budget suggests that the 30 large schemes covering a major part of the beneficiaries account for more than 75 per cent of the non-development social protection budget. When the development budget is considered along with the non-development budget, allocation to the 30 large programmes reduces to about 50 per cent.

The social protection budget is stable but low. Bangladesh has been spending about 2 per cent of GDP on social safety nets (including social empowerment). The allocation is less than 2 per cent of GDP when schemes under the development budget component are excluded. Key government plans (i.e. the NSSS, Sixth and Seventh Five Year Plans and Sustainable Development Goal Financing Strategy) have called to scale up the social protection budget to around 2.5–3 per cent of GDP.

The estimated average transfer is about Tk. 595 per month in FY2019 in nominal terms. When compared with the national poverty line of Tk. 2,035 in 2018, this constitutes only 31 per cent of the needs of a poor or vulnerable person—inadequate to have an impact on their poverty situation.

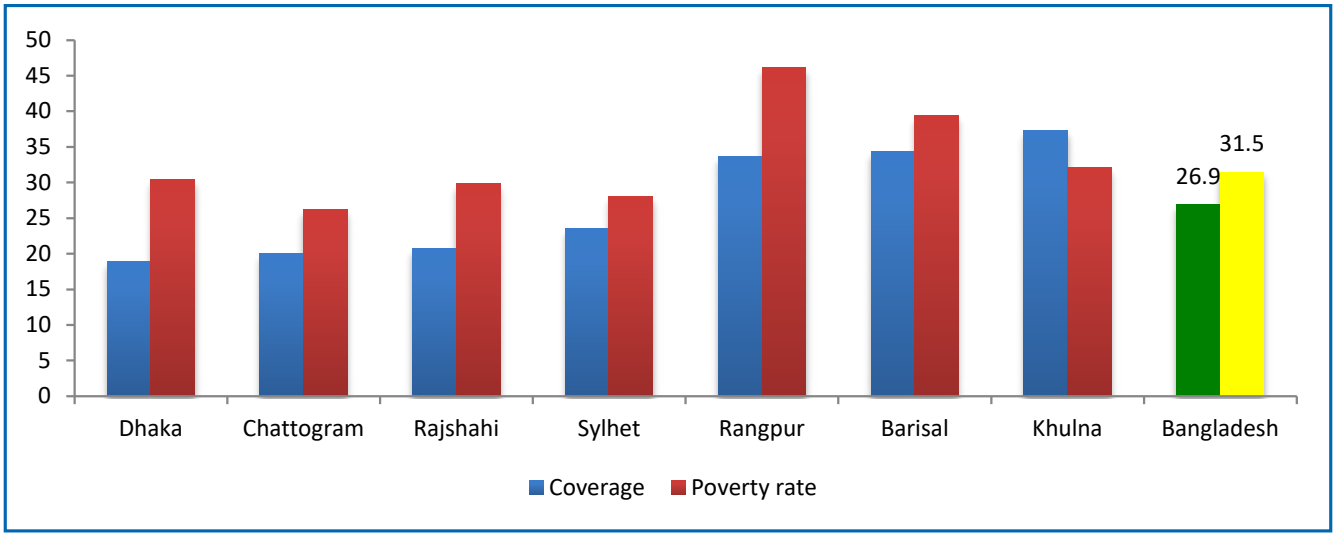
Beneficiary coverage refers to coverage under the non-development component or the social safety net component where predominantly cash is transferred directly from the GOB budget. Beneficiaries as a percentage of the total population have hovered between 32 and 34 per cent during FY2015 and FY2018. In FY2019, coverage is projected to increase to around 39 per cent of the total population.

One important observation is that beneficiary coverage here is higher than the prevailing poverty rate, implying that all poor and vulnerable populations are covered. The HIES 2016 headcount poverty rate in 2016 has been estimated at 24.3 per cent (BBS, 2017c).

HIES 2010 data on poverty rates and social protection coverage contradict the administrative data finding on beneficiary coverage. Figure 7.1 plots poverty rates against social protection coverage (i.e. the number of individuals receiving benefits under various social protection schemes). It is clear that, except for in Khulna division, coverage in all divisions is less than the poverty rate. For Bangladesh, the gap is about 4 percentage points. These differences are primarily attributable to either one poor person receiving benefits from more than one source or many non-poor persons/households receiving benefits from these programmes.[68]

68 According to the HIES 2010, only 35 per cent of deserving beneficiaries have been identified accurately. This finding is also consistent with the theory of beneficiary selection that, at a lower level of coverage, the likelihood of exclusion of deserving beneficiaries is high. This implies that, when target selection efficiency is low, the social protection system may not be efficient in reducing poverty—one of the main objectives of the social protection system in Bangladesh.

Figure 7.1. Poverty rates and social protection coverage in Bangladesh, 2010 (%)



Source: Calculation using HIES 2010 (BBS, 2011a).

In terms of the impact of the Rohingya crisis on national social safety net programmes: extended beneficiary coverage; higher allocations to the social safety net budget; and an increased average transfer amount during the post-Rohingya period (i.e. during FY2018 and FY2019) compared with the pre-Rohingya period (i.e. FY2015–FY2017) reflect that the Rohingya crisis has not exerted any deleterious impact on the social safety net system in Bangladesh. This is expected, given that the hosting of Rohingya refugees is being covered using international aid.

7.2. Key features of the Cox's Bazar district social protection system

The social protection system in Cox's Bazar district is implemented by DSS, under the Ministry of Social Welfare, and the Ministry of Women and Children Affairs (MOWCA). DSS has been implementing eight schemes: 1) a stipend for disabled students; 2) a disability allowance; 3) an old age allowance; 4) an allowance for destitute women and widows; 5) a scheme for Dalit; 6) a scheme for Hizra; 7) a stipend for Dalit students; and 8) a stipend for Hizra students. MOWCA is entrusted with the implementation of three programmes focusing primarily on women: 1) VGD; 2) an allowance for pregnant women; and 3) an allowance for lactating mothers.

Table 7.3. Current status of social protection in Teknaf and Ukhiya under DSS and MOWCA

	Ukhiya	Teknaf		Ukhiya	Teknaf
Schemes under DSS and other agencies				Schemes under MOWCA	
1. Stipend for disabled students				9. VGD	
Beneficiary	112	112		3,461	2,924
Total amount (Tk.)	708,000	708,000		37,378,800	31,579,200
Monthly amount (Tk.)	527	527		900	900
2. Disability allowance				10. Allowance for pregnant women	
Beneficiaries	1,054	1,424		798	660
Total amount (Tk.)	8,853,600	11,961,600		4,788,000	3,960,000
Monthly amount (Tk.)	700	700		500	500
3. Old age allowance				11. Allowance for lactating mothers	
Beneficiaries	4,716	6,444		350	0
Total amount (Tk.)	28,296,000	38,664,000		2,100,000	0
Monthly amount (Tk.)	500	500		500	0
4. Destitute women and widow allowance					
Beneficiaries	1,101	1,580			
Total amount (Tk.)	6,606,000	9,480,000			
Monthly amount (Tk.)	500	500			
5. Scheme for Dalit etc.					
Beneficiaries	30	24			
Total amount (Tk.)	180,000	144,000			
Monthly amount (Tk.)	500	500			
6. Scheme for Hizra (transgender)					
Beneficiaries	15	4			
Total amount (Tk.)	108,000	28,800			
Monthly amount (Tk.)	600	600			
7. Stipend Dalit students					
Beneficiaries	9	0			
Total amount (Tk.)	43,200	0			
Monthly amount (Tk.)	400	0			
8. Stipend Hizra students					
Beneficiaries	2	2			
Total amount (Tk.)	12,000	12,000			
Monthly amount (Tk.)	500	500			
Total beneficiaries	6,939	9,590		4,609	3,584
Total amount (Tk.)	44,803,800	60,995,400		44,266,800	35,539,200
Monthly amount (Tk.)	538	530		800	826
Total beneficiaries (DSS + MOWCA)				11,648	13,174
Total amount (Tk.) (DSS + MOWCA)				89,070,600	96,534,600
Monthly amount (Tk.) (DSS + MOWCA)				637	611
Beneficiaries as % of total Ukhiya/Teknaf population				5.9	3.6
Beneficiaries as % of total Ukhiya/Teknaf poor population				20.3	14.6

Source: Based on data provided by DSS and MOWCA.

The preliminary HIES 2016 has not released social protection data. Moreover, the number of samples in HIES 2010 is not sufficient to conduct a satisfactory assessment of the social protection systems in Teknaf and Ukhiya. Nevertheless, we can make some key observations.

According to DSS data, three of its eight schemes in operation in Teknaf and Ukhiya dominate the system (old age, disability and widow allowances). Together, these account for about 98 per cent of total social protection payments in these two *upazilas*. The estimated average monthly transfer is Tk. 530 per person per month—only 27.5 per cent of the 2018 poverty line (i.e. Tk. 1,928).

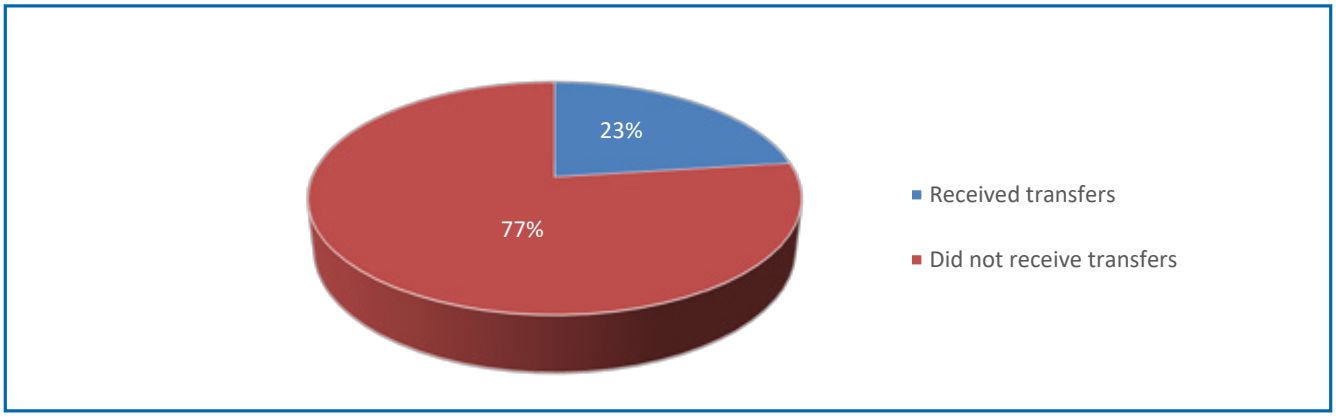
MOWCA's three major schemes in Teknaf and Ukhiya have been extending assistance to 8,913 beneficiaries, or about half the number (i.e. 15,694) covered under the DSS. However, the amount disbursed by MOWCA (i.e. Tk. 80 million) is much higher than that disbursed by DSS (i.e. Tk. 50 million). Thus, the estimated average monthly transfer payment in the MOWCA system is Tk. 811 per person per month—almost one and half times the amount (i.e. Tk. 500) reported in the DSS system.

In FY2018, beneficiaries totalled 7,039 in Ukhiya and 9,590 in Teknaf. Thus, coverage as a percentage of the total population is only 5.9 per cent and 3.6 per cent in Ukhiya and Teknaf, respectively.

Coverage of the poor population by the social protection system in the district as a whole is also low. In Ukhiya, only 20.3 per cent of the poor are covered, and the figure is even lower for the Teknaf poor, at only 14.6 per cent. The social safety net in Bangladesh has been designed around the "poor relief" approach and, given the higher incidence of poverty in northern and southern Bangladesh, the allocations may have been directed disproportionately to these regions, creating imbalances in beneficiary coverage. The system needs to reform to correct these imbalances.

The survey found that beneficiary coverage in Cox's Bazar district was around 23 per cent. This is significantly higher than the rate found in the social protection administrative data but almost 10 percentage points lower than the national coverage rate of 34 per cent. What explains such a large gap between our results and the administrative data rate? A closer review reveals that the higher coverage in our survey data owes to our inclusion of stipend schemes implemented by the Ministry of Education. Stipend schemes alone account for about 10 per cent.

Figure 7.2. Beneficiary coverage of social protection schemes in Cox's Bazar in past 12 months (% of all surveyed)



Source: UNDP household survey 2018.

Given the low coverage as a percentage both of the total population and of the poor population, and the inadequate transfer amount, coverage of social protection schemes should have been expanded in Teknaf and Ukhiya even under a normal situation. In principle, beneficiary coverage should be around 30–35 per cent of the total population.

Table 7.4 presents beneficiary coverage and funds disbursed for the eight social protection schemes across the ten *upazilas* during FY2016–2018. In FY2016, more than 70,000 beneficiaries were supported by the social protection schemes, disbursing Tk. 433 million. More than 75,000 beneficiaries were covered in FY2017, with total fund disbursement amounting to Tk. 466 million. These statistics imply growth in beneficiary coverage and fund disbursement between FY2017 and FY2016 at 7.3 per cent and 7.7 per cent, respectively.

More beneficiaries have been included in the Cox's Bazar social protection system in FY2018, or post-Rohingya influx. In particular, more than 85,000 beneficiaries have been covered in FY2018, compared with 75,000 beneficiaries in FY2017. This suggests a growth of 12.6 per cent in beneficiary coverage in Cox's Bazar between FY2018 and FY2017 or during the post-influx period. Similar positive growth is seen in the disbursed amount. Fund disbursement to social protection schemes increased to Tk. 535 million in FY2018 in comparison with Tk. 465 million disbursed in FY2017—a growth of 14.9 per cent between FY2018 and FY2017, or during the post-Rohingya period.

Positive development in beneficiary coverage and fund disbursement has also been found for Teknaf and Ukhiya—the two most affected *upazilas*. Growth rates in beneficiary coverage and fund disbursement in Ukhiya *upazila* during the post-Rohingya period are, respectively, 15.7 per cent and 20.3 per cent. The corresponding growth rates in Teknaf are 15.9 per cent and 19.0 per cent, respectively. On the basis of these positive developments, it may be safely concluded that the Rohingya crisis has not affected social safety net programmes in the host community.

Figure 7.3 shows the distribution of social protection schemes across households, according to the survey. As argued above, most households receive transfers in the form of education stipends (i.e. more than 10 per cent). Nearly 4.5 per cent of households receive the old age allowance and another 1 per cent receive the allowance for destitute widows/women. Among other major programmes, VGD/VGF covers about 1.2 per cent of households. If we adhere to a strict definition of social protection coverage (as that under the purview of DSS), it is around 7 per cent—closer to the coverage reported in the administrative data.

7.3. Designing social protection schemes for host communities

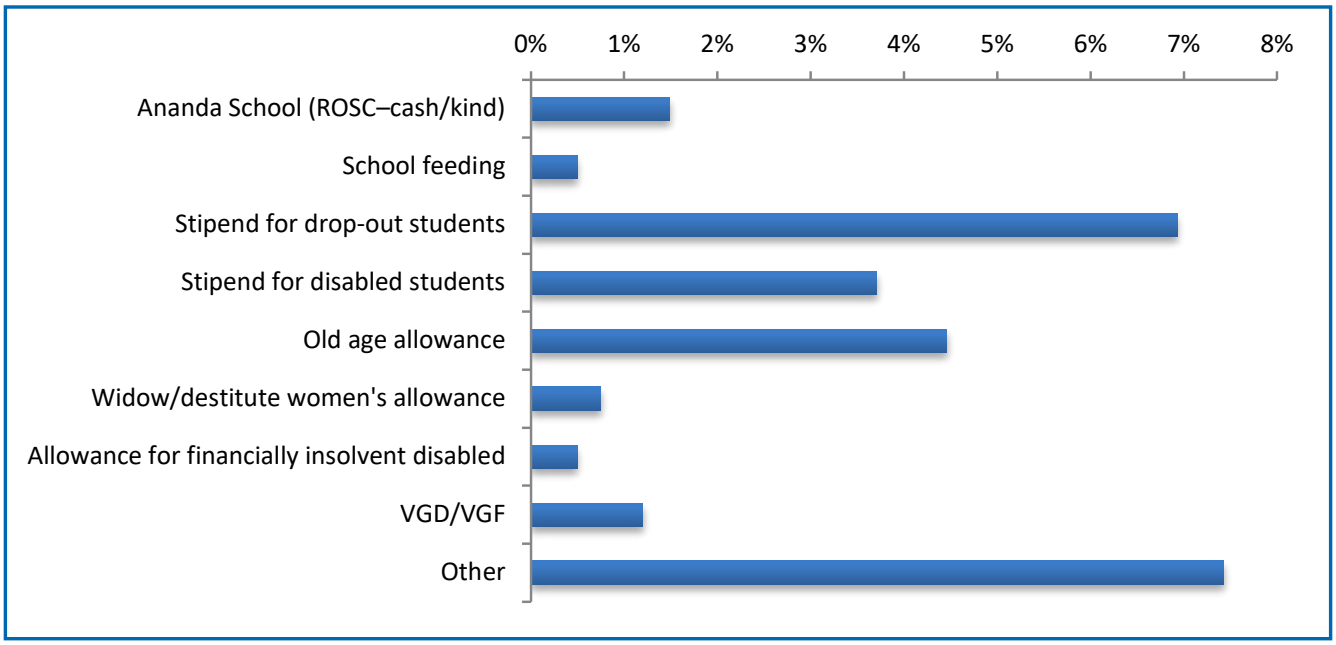
Designing an effective social protection scheme requires reflection on a number of elements. We look at these in turn below. Ideally, design should rely on assessment of the suitability of existing schemes for adoption in a new environment, since implementing agencies are familiar with these.

7.3.1. Beneficiary selection

Inefficient beneficiary selection leads to the exclusion of eligible persons and the inclusion of ineligible persons. Two main approaches are used for beneficiary selection: universal, where by definition the theoretical exclusion or inclusion errors are zero; and targeted,[69] where the extent of the theoretical exclusions or inclusions is non-zero and varies with the level of coverage. See Annex 6 for further discussion on the two selection approaches.

69 Usually based on the poverty rate, sometimes referred to as poverty-targeted selection.

Figure 7.3. Distribution of social protection schemes across beneficiary households in Cox's Bazar in the past 12 months (% of beneficiary households)



Source: UNDP household survey 2018.

Table 7.4. Social protection across Cox's Bazar upazilas pre- and post-Rohingya influx

	Pre-Rohingya influx						Post-Rohingya influx			
Cox's Bazar upazila	FY2016		FY2017				FY2018			
	Beneficiary	Amount (Tk.)	Beneficiary	% change	Amount (Tk.)	% change	Beneficiary	% change	Amount (Tk.)	% change
Sadar	10,016	61,578,000	10,772	7.55	66,473,400	7.95	11,841	9.92	75,543,000	13.64
Ramu	8,788	53,983,800	9,378	6.71	57,825,000	7.12	10,174	8.49	64,430,400	11.42
Maheshkhali	9,956	61,366,800	10,739	7.86	66,462,000	8.30	11,976	11.52	76,447,200	15.02
Chakaria	13,456	82,103,800	14,363	6.74	87,949,600	7.12	15,746	9.63	99,484,800	13.12
Pekua	7,543	46,506,600	8,094	7.30	49,914,600	7.33	9,957	23.02	57,240,000	14.68
Kutubdia	4,938	30,305,400	5,291	7.15	32,589,000	7.54	5,906	11.62	37,602,600	15.38
Ukhiya	5,566	34,400,400	6,000	7.80	37,233,600	8.24	6,939	15.65	44,803,800	20.33
Teknaf	7,700	47,492,400	8,276	7.48	51,259,200	7.93	9,590	15.88	60,986,400	18.98
Town Social Services Office	2,440	14,920,650	2,618	7.30	16,255,500	8.95	2,885	10.20	18,622,800	14.56
Total Cox's Bazar	70,403	432,657,850	75,531	7.28	465,961,900	7.70	85,014	12.56	535,161,000	14.85

Source: Estimate based data provided by DSS.

In a targeted approach, beneficiary selection is usually based on the poverty profile of the beneficiaries. For instance, if the poverty rate were 20 per cent, under this criterion only 20 per cent of the population would be selected for the scheme. Once the total number is ascertained, the next step is to identify eligible poor people for the system on the basis of poverty data. This is a tedious, complex, costly and yet error-prone approach. As an alternative, the World Bank has championed the Proxy Means Test (PMT)[70] approach, which is significantly superior to the approach based only on poverty. The World Bank is supporting BBS to develop a PMT database for Bangladesh. This, once available (expected in 2020), will be used for the selection of beneficiaries. See Annex 6 for a discussion of PMT.

PMT values estimated using HIES 2010 reveal that exclusion and inclusion rates would still be high if coverage were low. For instance, the exclusion or inclusion rate is 55 per cent when the coverage is in the 10th percentile. On the other hand, it reduces when coverage is high (i.e. 13 per cent with coverage in the 70th percentile). This tends to suggest that exclusion or inclusion problems lessen dramatically as one approaches full (or universal) coverage.

Proposed coverage for the host community (i.e. Teknaf and Ukhiya) may be either ***universal and/or the vulnerable population*** estimated under the HCR3 criterion. Under the HCR3 criterion, ***coverage for Teknaf and Ukhiya should be 32.1 per cent and 42.4 per cent,*** respectively.

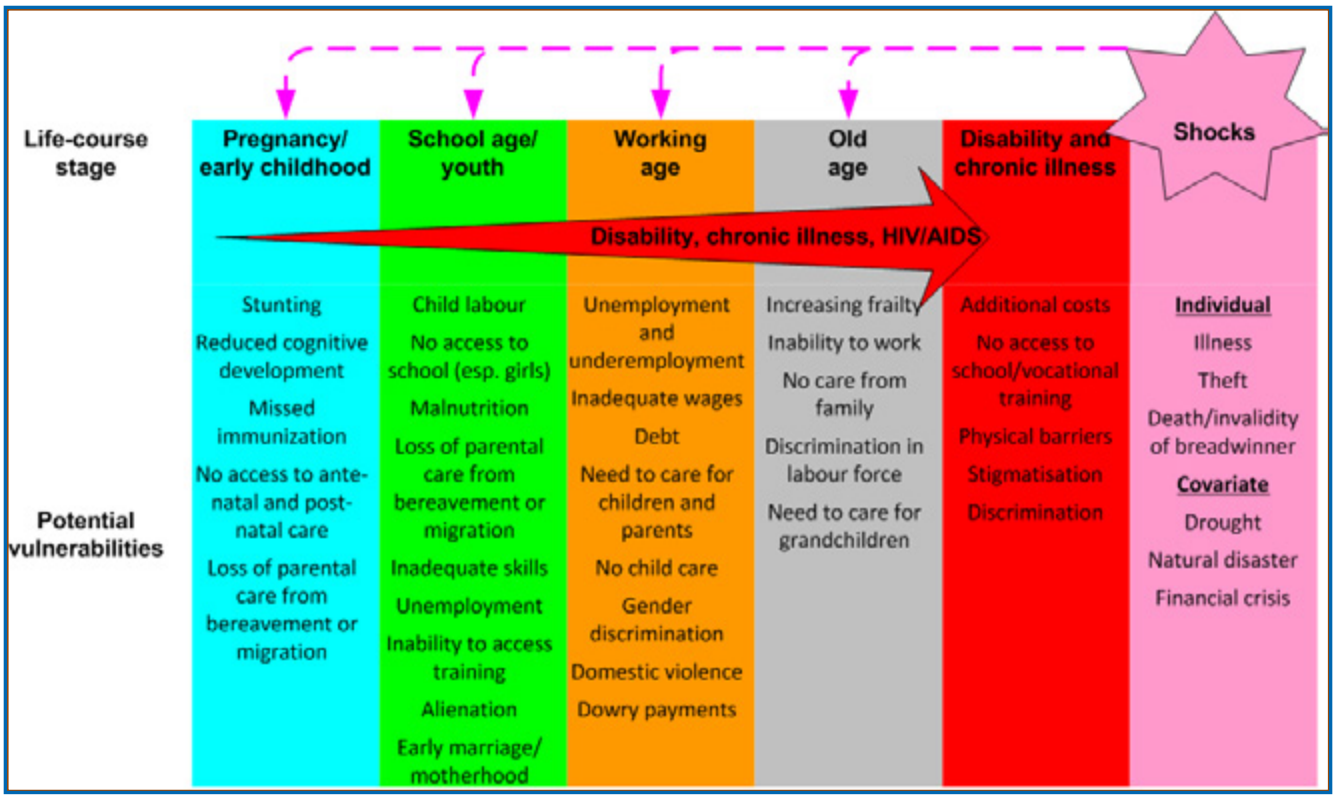
7.3.2. NSSS schemes and their suitability for the host community

An important feature of the NSSS is the adaption of schemes to address lifecycle risks[71] instead of using the current "poor relief" approach (the NSSS is still not being implemented fully so the system is still referred to in this way). Figure 7.4 shows life stages along with identified vulnerabilities.

70 A mechanism used to select recipients of social protection programmes or similar interventions, PMTs generate a score for each household based on easy-to-observe characteristics of the household that serve as proxies for income/consumption measurement under true means testing. Such proxies include quality of dwelling, ownership of durable goods, demographic structure of household and education and occupations of adult members, among others. The indicators used in calculating this score and their weights are derived from statistical analysis of data from detailed household surveys. Eligibility is determined by comparing the household's score with a predetermined cut-off line.

71 According to the NSSS, this is defined as "an individual being exposed to predictable or unexpected risks which vary in nature over the life course. Such risks can be irreversible stunting due to under-nutrition in early childhood, job loss and workplace accidents in economically active age, disability, divorce, poor health in old age, and so forth."

Figure 7.4. Lifecycle approach



Source: Freeland and Khondker (2014).

The NSSS proposes six core schemes for Bangladesh, to cover various identified risks at different stages of life of a typical person. These are briefly discussed in Figure 7.5.

Figure 7.5. Description of NSSS lifecycle schemes

Consolidated lifecycle-based core
1. Children's Programme (age <1–4)
• Child Benefit (Tk. 800/1600 per month; max. 2 persons) • Strengthen immunization, child health care, nutrition, WASH and outreach programmes
2. Programme for School-Age Children (age 5–18)
• Primary and secondary school stipend (Tk. 300/600 per month) • Primary school feeding • Orphans programme • Child maintenance payment for abandoned children
3a. Programmes for Working Age (age 19–59)
• Strengthen education and training • Develop legislation for unemployment, accident, sickness and maternity insurance • Consolidate workfare programmes
3b. Programmes for Women (age 19–59)
• Consolidate into one Vulnerable Women's Benefit programme on a cash basis (Tk. 800/1,600 per month) • Provision of childcare across all formal employment • Maternal Health Voucher Schemes • Maternity insurance for new mothers in employment
4. Comprehensive Pension System for the Elderly
• Citizens' pension (Tk. 800/1,600 per month; age 60 plus) • Government service pension (unchanged) • Introduce legislation for National Social Insurance Scheme (contributory/privately funded) • Explore option for private voluntary pensions • Freedom Fighters Programme
5. Programmes for People with Disabilities
• Child Disability Benefit (Tk. 800/1,600 per month; age <1–18) • Disability Benefit (Tk. 800/1,600 month; age 19–59)
Consolidate Risk Mitigation Social Security Programmes
6. Strengthen Programmes for Managing Covariate Risks
• Strengthen Open Market Sales to serve food security needs • Align disaster management with social security

Source: Planning Commission (2015).

The shocks encountered by our host communities (i.e. depletion of natural resources, price increase and wage reduction, loss of employment opportunities) are different from the risks covered under the proposed core NSSS schemes. Hence, these schemes may not be applicable for our use.

The following three schemes are thus proposed for the host communities. The transfer amounts should ideally be set at amounts that would lift them (affected communities or individuals) to the pre-crisis level. These are discussed here considering the three schemes for the host communities.

1. ***UT natural resource depletion scheme.*** This scheme will mitigate monetary losses incurred by the host communities owing to depletion of natural resources.
2. ***UT family income support scheme.*** This scheme will provide relief to families of the host communities

whose incomes have been affected by the price increase and wage rate reduction.

3. ***Teknaf fishers income support scheme.*** This scheme will provide relief to fishers in Teknaf upazila who are temporarily unable to carry out their main occupation, leading to a loss of income and a rise in income vulnerability.

7.3.3. Intervention period

It is difficult to determine the intervention period for the social security schemes proposed for the host communities. Ideally, they should be provided with support until the crisis is over (i.e. complete repatriation of the refugees to Myanmar). Repatriation has not yet started and hence determining an intervention period is not possible. However, a pragmatic approach may be to design schemes for the host community for a period of a year with provision for an in-depth review after six months to determine programme continuation. For instance, assuming that a programme starts in February 2019, a review should be conducted in August–September 2019 to design the programme for the next cycle, starting in February 2020.

7.4. Designing social protection schemes for Rohingya adults

According to the UNHCR Bangladesh Refugee Emergency Population Fact Sheet (as of 15 August 2018), 375,000 Rohingya refugees belong to the working-age group, which covers the ages between 18 and 59. The working-age adult group accounts for 42 per cent of the total Rohingya refugee population.

An assessment of NPM data reveals sources of income of Rohingya refugees. Less than a fifth of the total refugee population are engaged as wage labourers (see Table 7.5). About 13.6 per cent reported small trading as one of their main sources of income while 21 per cent identified selling of humanitarian aid as another key earning source. However, more than two thirds had no permanent source of earnings.

Table 7.5. Main source of income for the Rohingya refugees (%)

Main source of income	Share of total respondents
Unskilled wage labour	12.2
Gathering and selling of firewood or other	2.8
Skilled wage labour	2.3
Zakat	0.1
Sale of humanitarian assistance	20.8
Casual day labour	18.9
Remittances from abroad	1.0
Basic needs assistance (cash/in kind)	4.6
No income source	73.2
Fishing	0.3
Petty trade/street vending/small business	13.6
Agricultural production and sales	0.3
Other	0.0

Note: The distribution does not add to 100 since multiple responses were allowed for every individual.
Source: Calculation based on NPM Round 11.

This large group of unemployed Rohingya refugees needs to be employed by providing suitable opportunities within the camps. One plausible approach could be to provide the refugees with cash for work (CFW) programmes.[72] CFW may be an attractive solution from both the security and the earnings perspectives. While designing CFW interventions, the spill-over effects on local workers should be noted with caution. Since the mobility of the refugees has been restricted, interventions should be focused on community-based works—like improving roads/dwelling places, construction/reconstruction of infrastructure, loading and off-loading of goods; delivery of essential services, etc.[73]

Four variants of employment schemes are proposed for the Rohingya adult population. Implementation of these employment schemes is likely to enhance their welfare as well as lessen supply pressure on the local labour market by the unskilled daily labourers. We thus estimate the resource implications of providing jobs considering four scenarios based on coverage and number of employment days.

The full details of all our schemes are included in Chapter 10.4, as part of Chapter 10 on suggested programming for host communities.

72 Currently, CFW is being implemented inside the camp at a smaller scale, which appears inadequate given the needs.
73 35.8 per cent of refugees reported encountering restrictions on going to their workplace (NPM Round 11).

Chapter 8
Impacts on social cohesion

Initially, the host community was very sympathetic to the Rohingya and provided shelter and cash or in-kind assistance to the refugees. But over time discontent has grown. There have been many factors in this, as referred to particularly in FGDs as part of the survey.

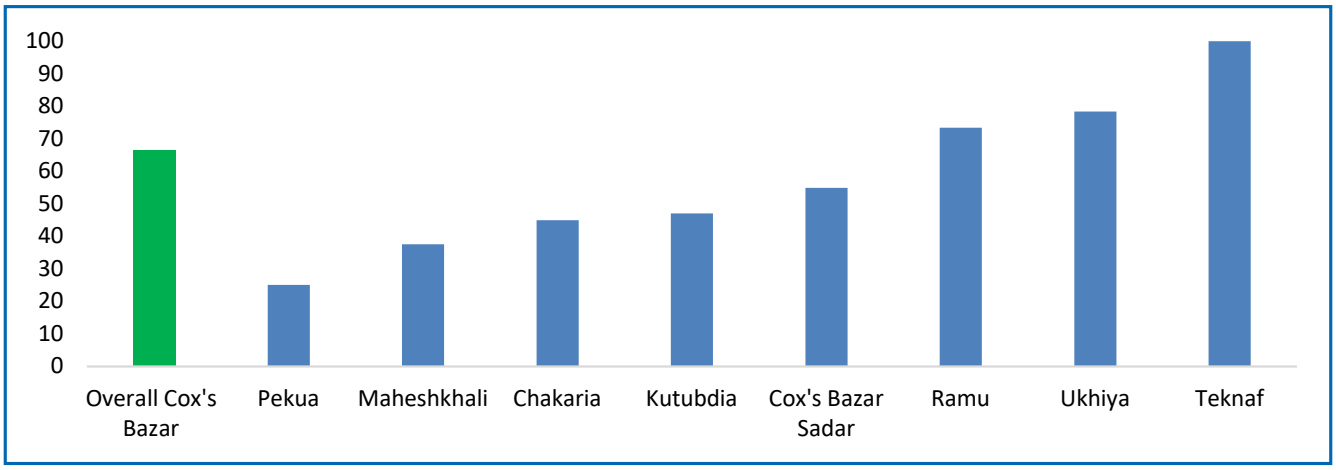
Tensions between the host communities and refugees were inevitable. In Teknaf and Ukhiya, the refugees now outnumber the local population by three times. The refugee influx has created a number of challenges, spread over a number of fronts—economic, social, housing, health and sanitation, environment, education and governance. Many stress factors already existed well before the refugee influx. The sudden arrival of such a huge number of refugees exacerbated a pre-existing crisis-ridden situation in Cox's Bazar, where the margin of tolerance for stress was already very thin for the majority at the best of times.

8.1. Impacts of the influx as perceived by host communities

The survey asked households about their perceptions on various issues related to the Rohingya refugee crisis. As many as two thirds of respondents in Cox's Bazar thought they had been directly affected by the refugee influx, with the most affected areas again being Teknaf and Ukhiya. All of the Teknaf respondents surveyed and 80 per cent in Ukhiya said they had been directly affected by the crisis (Figure 8.1). Apart from Ramu, the response rates for other *upazilas* were significantly lower.[74]

74 Ramu is close to refugee camps in Teknaf and Ukhiya and has some refugee presence (ISCG, 2018d).

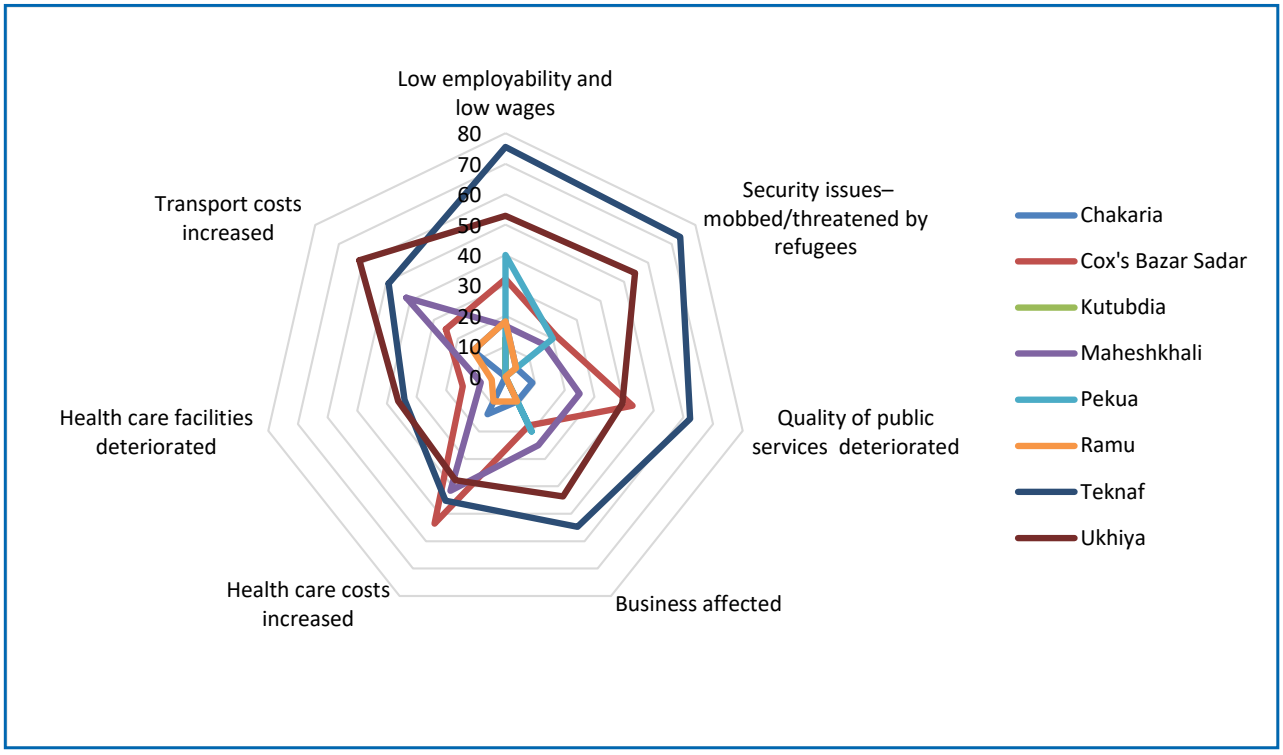
Figure 8.1. Households that reported being affected by the Rohingya influx, by *upazila* (%)



Source: UNDP household survey 2018.

Falling wages are a major issue, especially among poor households. Some community members also observed that more and more Rohingya were becoming involved in trade and running small shops in market places adjacent to the camps, which was seen as increasing competition.[75] In Teknaf and Ukhiya, households feel threatened by the Rohingya sharing scarce natural resources such as groundwater and forests. Meanwhile, many households have lost their crops as a result of the influx.

Figure 8.2. Reasons households gave for having been affected, by *upazila* (% of households)



Source: UNDP household survey 2018.

75 This was discussed particularly in FGDs around Kutupalong camp area.

Chapter 6 reports on perceived impacts on public services but it is worth revisiting this here as a way of looking into factors affecting social cohesion. More than 70 per cent of respondents in Teknaf and 50 per cent in Ukhiya reported falling wages as the principal way in which they had been affected (Figure 8.2). Similarly, 70 per cent of Teknaf respondents and 50 per cent in Ukhiya mentioned security concerns. Some households in Cox's Bazar Sadar said they had been affected through higher health costs.

More than 60 per cent of Ukhiya respondents reported higher transportation costs in the aftermath of the Rohingya influx, while about 70 per cent of respondents in the same *upazila* thought road conditions were deteriorating. About 45 per cent of households in Teknaf and 62 per cent in Ukhiya reported higher traffic congestion. Teknaf and Ukhiya respondents also thought more time was required to obtain general services from their union *parishad* office.

8.2. Tensions related to security, crime and conflict

The host community almost universally has negative views of the Rohingya even though they are sympathetic to their plight in Rakhine: many see them as uneducated, coarse and potentially criminal (UNDP and UN Women, 2017b). There is also a rising concern and anxiety among locals of being outnumbered.

The local community complained about the increased number of checkpoints in the area, leading to mobility restrictions and safety concerns. Most checkpoints do not have women police officers, which is exposing women from the host communities to sexual harassment.

There is also a widespread perception among local inhabitants that kidnappings, thefts and robberies have increased since the influx. Whether or not this is true, this general perception has an impact on social cohesion. Findings from elsewhere show local people often have a tendency to blame refugees for insecurity and crimes (UNHCR, 1997). There have also been reports of clashes between host communities and refugees and between refugees and law enforcement authorities. Refugee outrage and violence at food distribution centres have also exacerbated tensions. FGD respondents reported a perceptible decline in law and order, with young girls not feeling safe to walk around and also people living in fear of theft and robbery. Young boys were said to be getting into the use of drugs.

There is a growing perception in the local community that drug trafficking, addiction and smuggling have increased in Cox's Bazar since the refugee crisis began, even though the district has long been a hub for such organized crime. Its location near India and Myanmar, with easy access to the sea and lax border control, has made it ideal for such activities. High unemployment and widespread poverty have contributed significantly to the growth of this underground local economy. It is also believed that transnational organized crime syndicates are involved in these criminal activities. Nevertheless, there is a strong likelihood that such a huge influx of refugees, the existing large-scale poverty among the local population and the pressure on local authorities, including law enforcement and border control agencies, have created an environment where such illegal activities might increase.

There is also a very strong perception in the local community that the moral standards of youth have declined, and people attribute this to increased interaction with foreign aid workers. It is also felt within the local community that youth are sacrificing their long-term career prospects for short-term financial gains by taking up employment with NGOs instead of continuing to attend school or college. This will

have adverse impacts on human capital development in the region. Also, young school-going children are getting involved in selling daily necessities at refugee camps to supplement their parents' income rather than focusing on their studies.

Other on-going social issues include human trafficking, child labour, child marriage and domestic violence. While there are laws and conventions to deal with human trafficking, these are very lax, and enforcement of laws on child labour and child marriage is very rare. There are no laws that clearly address issues relating to domestic violence in Bangladesh.

Meanwhile, many host community households believe that all assistance is being provided to the refugees and because of this their own problems are not receiving priority. Locals in FGDs, particularly in Teknaf and Ukhiya, indicated a feeling of being ignored by humanitarian organizations and feeling under constant threat owing to rising labour competition, deforestation, price increases and damage to physical and natural resources (ACAPS and NPM, 2018). Sympathy is fading fast, which means urgent action is needed to assist a mostly impoverished host community that is bearing an excessive burden as a result of the crisis. In FGDs, respondents claimed that the repatriation agreement would not work and thus said they felt the refugees would be there for a very long time.

Chapter 9
A broad overview of support to host communities

UNDP (2018a) emphasizes that the stress resulting from such a huge influx means an increased focus on host communities is needed. The report advances a case for integrating humanitarian efforts into a longer-term development perspective for the whole district that will benefit the local community as well as the refugees, who in most likelihood will stay in the area for a protracted period.

9.1. Programmes currently underway in the target area

Currently, over a hundred NGOs and INGOs are implementing several dozen initiatives for the host community. Assessing the coverage, depth and effectiveness of all these goes beyond the scope of this study. Rather, the aim here is to provide a snapshot of the support measures undertaken for use in discussions on the types of interventions initiated and what more needs to be done.

To do this, we have looked at documents from ISCG, which collects and provides sector-specific information on current and planned interventions, and other secondary documentation, as well as drawing on interviews and FGDs conducted as part of this study. The mapping exercise broadly follows the ISCG framework, which divides programmes into the following sectors, among others: livelihoods, WASH, health, nutrition, protection, education, risk management and communication with communities. Table 9.1 presents a detailed sector-specific mapping of support measures.

9.1.1. Livelihoods (including food security and the environment)

GoB and UN agencies are undertaking income-generating initiatives with a special focus on agriculture, fisheries and livestock, along with some vocational training. Among the main objectives are to revitalize employment and income-generating opportunities, enhance productivity, increase agricultural production, improve market capacity and link local production to the value chain.

Assistance to host communities includes in-cash and/or in-kind transfers, skills development and direct employment opportunities. Many such interventions target marginalized groups, women from the poorest households and those who have been directly affected in Teknaf and Ukhiya. At present,

more than 14 humanitarian agencies and development partners are working in this sector, including the Food and Agricultural Organization (FAO), WFP, IOM, the United Nations Population Fund (UNFPA) and UNHCR, together with government agencies (e.g. DoAE and the Forest Department).

The JRP has targeted close to 30,000 host community families with livelihood support. As part of this, since March 2018 FAO has provided training to 500 farmers in Teknaf and Ukhiya and modern farming tools such as power tillers and high efficiency water pumps and sprayers, together with high-nutrient vegetable seeds (FAO, 2018). In addition, 25,000 host families have been targeted for the distribution of micro-gardening kits, and 4,300 households have received them.

Trainers from Cox's Bazar DoAE have received training on high-value crop production and climate-resilient agricultural technologies. To optimize agricultural operations, identify areas for interventions and assess agricultural supply chains, FAO, Oxfam and Bangladesh Agricultural University on behalf of DoAE have commissioned in-depth studies.

For rural women in affected areas, BRAC, in collaboration with UN Women, has initiated training in employment and leadership skills under its Palli Shamaj programme (BRAC, 2018).[76] In this effort, half of trainees receive loans to set up small businesses.

The Cox's Bazar DSS has allocated Tk. 1 crore (US$118,340) to distribute as interest-free loans among the poorest households of Teknaf and Ukhiya to help them with their small businesses.[77]

Among other major interventions, various organizations are providing CFW options for vulnerable groups. As of May 2018, about 26,000 people have benefited. UNHCR and BRAC have implemented an "in-kind self-resilience package", training 250 households on skills and business plan development, followed by distribution of seeds and fertilizers. An additional 2,000 severely affected host community households living near refugee camps have been chosen for support under the programme Targeting Ultra Poor Graduation Model, to help them graduate out of poverty.

FAO is continuing its support to 24 farmer groups to produce for the refugee market and will expand this to an additional 24 groups in coordination with DoAE and RRRC. Efforts are also being made to scale up livelihood programmes for those who are most in need.

In terms of the environment, the JRP has taken a broad-based (short-term) response to the degradation. The Environment and Ecosystem Rehabilitation programme aims to address deforestation and fuel-wood depletion through reforestation and forest management system support, including planting of fast-growing tree nurseries and seedling production. It will also undertake environmental outreach and education, conservation and biodiversity protection and strengthen ago-forestry and collaborative forest management farming systems.

To reduce the use of firewood in both communities, RRRC began to distribute LPG gas to 23,000 households, including 4,300 host families, for six months (ISCG, 2018b). A joint programme of IOM, FAO, WFP, UNHCR and the International Federation of Red Cross and Red Crescent Societies (IFRC) has also started supplying LPG cooking stoves kits. Other agencies working on cooking fuel alternatives include Safe Access to Fuel and Energy (SAFE).

76 Palli Shamaj is made up of ward-level groups consisting of members of female-dominated organizations established in 7,568 rural villages, who participate in local government, access government resources and engage in social development.

77 Interview with Office of the Deputy Director, DSS, Cox's Bazar.

The EETWG is providing 100,000 households, both refugees and the local population, with alternative clean fuel for cooking in the form of LPG cook sets and cylinders, as part of the Clean Energy Programme. This project entails the expansion of other cooking fuel alternatives.

Other on-going projects of the EETWG include:

- **Longer-term environmental planning**—a longer-term rehabilitation strategy for restoring degraded lands, watershed management, water resource mapping and efficient and clean energy use planning for agriculture and domestic consumption, to be managed by GOB;
- ***Soil stabilization***—grass and tree plantation, planned/supervised by the Forest Department;
- ***Wildlife habitat restoration***—restoring the habitat for wild Asian elephants and ensuring the local environment remains viable for eco-tourism, in collaboration with the International Union for Conservation of Nature (IUCN).

Planned EETWG activities relate to sustainable fishing and the promotion of off-season livelihood alternatives; promotion of green technologies in activity design and implementation; and community awareness-raising and capacity-building of local institutions.

FAO and IOM in partnership with local NGOs and the Forest Department are to establish and expand nurseries for the production of planting materials for land stabilization work.
The RIVNA's medium- to longer-term objectives include:

Stopping forest-clearing activities and promoting clean cooking;
Reforestation of deforested land/hills in early Rohingya settlement areas;
Greening of deforested hills within camp areas;
Introducing pollution control measures to reduce air, water and soil pollution.

A detailed study has been commissioned to assess the impact of the influx on the environment (UNDP et al., 2018). This maps habitats of local endangered species and has led to the launch of a programme of awareness-building. Management of watersheds and comprehensive water resource mapping for longer-term planning to restore degraded lands have also been undertaken.

9.1.2. WASH and solid waste management

The JRP has made provisions that will support the local community directly to effectively deal with solid waste disposal and where possible to recycle it. Some host communities are being supported with pure drinking water, sanitary latrines and improved hygiene facilities. Construction and management of multiple waste treatment systems (solid waste and faecal sludge treatment) and marketing of treated products are a strategic goal.

At present, seven organizations are working in this sector in collaboration with DPHE, which provides technical advice and design approval for WASH facilities. A comprehensive water resource assessment of the affected area (Teknaf and Ukhiya) and a water resource mapping of Cox's Bazar district are currently being undertaken by the sector partners.

The target is 290,300 host community members from Teknaf and Ukhiya. About 2,700 households from the nearby host communities have been provided with sanitary latrines. Several schools in the affected

areas have received WASH facilities installed by DPHE. A central water quality testing laboratory has also been established for the district. A coalition of humanitarian organizations (UNICEF, UNHCR, IOM, Solidarités International and Oxfam) is providing water supplies on a contingency basis in Teknaf to benefit both refugees and host communities during the dry season.

ActionAid and UNDP have undertaken a pilot project at Ukhiya market in consultation with the *upazila* administration, the local market committee and the relevant union council to deploy people to clean the market and establish temporary pits and a solid waste collection and disposal system (ISCG, 2018b). UNDP has implemented another such pilot project in Teknaf municipality.

In the area of faecal sludge management, UNICEF and Solidarités International are operating several treatment plants using lime stabilization and upthrow filtration in Palong Khali, Nhilla and Whykong. Other plants are currently underway as per the JRP.

Collaboration between UNICEF and WaterAid has led to an immediate action programme covering all refugee camps. This programme includes a waste clean-up campaign; installing a solid waste management system for both the camps and the host community; awareness-raising on waste separation; and composting to reduce waste (ISCG, 2018m).

Other programmes planned for 2018 include:

- **Water supply:** Construction and rehabilitation of hand pumps (tube wells) and a production well pipeline water network with treatment plants; regular operations and maintenance (O&M) of water points; creation and training of water management committees; and capacity-building for DPHE, the private sector and others;
- **Sanitation:** Construction and rehabilitation/upgrading of latrines and bathing facilities; regular O&M of sanitation facilities; special attention to host communities through a modified Community-Led Total Sanitation approach; construction of multiple various-sized sludge treatment management units; hygiene promotion through outreach workers; and developing and supporting a common platform for hygiene promotion.

Priority issues have been incorporated into a WASH Strategy (ISCG, 2018c), whose strategic objectives are to ensure:

- Effective, sufficient and continuous provision of life-saving WASH services;
- All in need have the means and are encouraged to adopt individual and collective measures to improve health-seeking behaviours and mitigate health risks;
- All WASH assistance promotes the protection, safety and dignity of targeted people.

The strategy has been able to achieve many of its targets but there remain gaps with respect to clean water access for drinking and water supply to latrines and sludge management.

The RIVNA will take up from where the JRP will leave off and is designed to build on current and planned coverage of humanitarian needs extending to two years and beyond the early recovery phase. The estimated outlay under the RIVNA is US$1.15 billion, with 4.2 per cent earmarked for WASH, of which about 30 per cent is for the local community.

9.1.3. Health

The JRP aims to reach 1.3 million people with improved access to life-saving and comprehensive primary and secondary health care services, with an estimated allocation of US$131.1 million as a short-term response. The RIVNA has allocated US$185 million to achieve the same objective on a medium- to long-term basis. Of this allocation, 46 per cent is earmarked for the local people.

Support is being provided through medical supplies, health awareness campaigns, capacity and technical enhancements and logistics. More than 100 organizations are partnering with GOB, with the district Civil Surgeon coordinating the support mechanisms for the host and refugees.

Several field hospitals have been established in and around the camps in Teknaf and Ukhiya, where both refugees and host community households can seek health care services. However, in cases of serious illness, both refugees and host community members are using Cox's Bazar General Hospital, Cox's Bazar Medical College and *upazila* health complexes in Teknaf and Ukhiya. To cope with the crisis, the district hospital and Teknaf and Ukhiya health complexes are being upgraded to meet the additional demand. The capacity of these public hospitals has been increased by 878 beds.[78]

Multiple rounds of vaccination campaigns have been completed to prevent outbreaks of diphtheria, cholera and typhoid. The testing and laboratory facilities of Cox's Bazar Medical College have also been upgraded (ISCG, 2018a). UNFPA has distributed 89,000 reproductive health kits to underprivileged women and adolescent girls in both host and refugee communities (Daily Sun, 2018).

9.1.4. Nutrition

To address the general situation of nutrition in Teknaf/Ukhiya, several initiatives have been introduced, including screening for treatment of acute malnutrition, distribution of micronutrient supplements, nutritional counselling and promotion of appropriate child-feeding practices.

Seven agencies, including Action Contre la Faim, WFP, UNICEF, Social Assistance and Rehabilitation for the Physically Vulnerable and the Society for Health Extension and Development, are working with GoB to tackle the challenges of malnutrition. More than 50 outpatient therapeutic care centres have been established, which have screened about 21,000 children for acute malnutrition. These centres also provide treatment for rickets and vitamin deficiency. Pregnant women and lactating mothers receive ante-natal care and nutrition support with micronutrient supplements.

WFP provides 75 mg fortified biscuits to about 144,000 students in 137 primary schools every day to mitigate hunger and malnutrition among children of the district. According to an ISCG estimate, the number of host community beneficiaries in this sector will be around 68,500 (ISCG, 2018e).

9.1.5. Protection

The protection sector targets 54,000 women and children from the host community (ISCG, 2018f). Together with DSS and RRRC, six organizations are working in the sector, including UNICEF and Save the Children. A number of social workers and local adults have received advanced training on dealing with

78 Information obtained from Civil Surgeon's Office, Cox's Bazar.

child protection issues. With the help of DSS, around 30 child-friendly spaces have been established to provide psycho-social support to host community children. These spaces, according to one estimate, had benefited over 25,000 host community children as of mid-May 2018 (ibid.).

In addition, more than 80 adolescent clubs have been established to provide educational and psychological support to teenagers from affected areas. As part of the initiative, 820 adults have been made aware of the clubs in 30 community-based sessions. Among local NGOs, Mukti is conducting a programme for the elderly and for handicapped children in the host communities. Another Mukti initiative addresses the exploitation of host community children in the internet, travel and tourism industry (ISCG and CCNF, 2018).

A number of women and girls have benefited from gender-based violence (GBV) response and prevention services. Three female help desks have been set up at the local police stations for the host community. About 12 per cent of targeted host communities are now receiving additional support on GBV case management, risk mitigation and community mobilization. Despite these activities, of the nine Bangladeshi communities that are hosting refugees, to date only one has received such support. Key obstacles in the protection sector include poor access to the justice system, lack of GBV awareness and inadequate support from police or other responsible authorities.

9.1.6. Education

The JRP targets 0.5 million people out of 0.6 million in need to provide immediate access to equitable learning opportunities in a safe and protective environment (both refugees and host community children and youth). Other objectives include improved quality of education and vocational outcomes and increased refugee and host community engagement in children's education. The short-term allocation is US$47.3 million, with 22 per cent of this targeted to the local community.

Educational support is planned for an estimated 30,400 students in the affected areas (ISCG, 2018g). They will receive school supplies, sports equipment and reading materials. All 137 primary schools in Teknaf and Ukhiya have been nominated for grants to help improve infrastructure and educational facilities. Six schools that were used as makeshift camps during the initial influx have already been supported with infrastructural renovations. Another six have been assisted with libraries and computer labs. As part of the adolescent education plan, 15 distant learning centres have been established to teach reproductive health and life skills via smartphones. This will continue until 2019.

Partners in the education sector are working closely with the Ministry of Primary and Mass Education (MOPME) and the Directorate of Primary Education to support host community education services through vocational and teacher training, distribution of teaching and learning supplies and upgrading classrooms and WASH facilities.

The RIVNA has allocated US$280.5 million to ensure the right to education for every child in all situations and the distribution of educational materials. This includes improving host community schools, with 40 per cent of the funds earmarked for the local community.

9.1.7. Disaster risk management

Under disaster mitigation activities, which aim to reduce long-term risks that result from the refugee crisis, more than 40 km of roads in Ukhiya and Teknaf have been reconstructed, 20 public shelters have been repaired and a number of bridges and footpaths have been newly installed. In addition, 10 km of canal have been dredged adjacent to the Kutupalong–Balukhali mega-camp (ISCG, 2018a).

Under risk assessment and preparedness, four primary schools and eighteen ward disaster management committees have been supplied with early warning systems.[79] More than 600 volunteers have been trained under GoB's Cyclone Preparedness Programme in Haldia Palong, Ratna Palong, Jalia Palong, Raja Palong and Palong Khali unions of Ukhiya *upazila*.

Relevant partners and government agencies have conducted a public infrastructure mapping of 337 buildings in Teknaf and Ukhiya to identify cyclone sheltering capacity and access by communities (ISCG, 2018h). UNDP has conducted a special impact assessment to identify the effect of drainage outlets on downstream host communities of the Kutupalong–Balukhali mega-camp (ISCG, 2018g).

9.1.8. Communication with communities

This sector emphasizes management and provision of information and addressing communication gaps between communities and humanitarian agencies. In particular, this component in the JRP exclusively aims to build social cohesion between hosts and the refugees. The JRP has targeted 0.9 million people, with an estimated outlay of US$71.8 million, to focus on both child protection and domestic violence and engendering social cohesion in refugee and local communities, among others.

Special radio programmes (Raido Shanglap, by BBC Media Action Plan) are being implemented so host communities can raise issues with local government and humanitarian partners. There are 12 thematic and 5 call-in radio shows on health, WASH and nutrition. Call centres have been established to receive instant listener feedback. Separate radio shows are promoting adolescent engagement in community efforts and other educational programmes through folk songs and other entertainment.

Journalists from Bangladesh Betar and Radio Naf have been trained in peace and conflict reporting and promoting peace in the affected areas. Joint emergency training on risk preparedness has taken place with members of both communities. Agency-led community-based volunteers are promoting community engagement, while facilitation of community dialogues, courtyard sessions and household visits by union-level functionaries and partner organizations are in progress (ISCG, 2018i).

The RIVNA has allocated US$12.5 million to social development and another US$259.5 million to social protection. Overall, combined allocations for social protection and social development constitute 24 per cent (US$272 million) of the RIVNA budget, of which US$72 million is allocated to the local community. The agenda for social protection and development incorporates food security, vocational training and development of a community-based justice system, among other things.

Meanwhile, police security has received top priority from UN agencies, with UNDP allocating US$20 million for enhanced capacity-building for governance, rule of law and public service delivery.

79 These are notably in Baharchhara, Nhilla, Sabrang and Teknaf unions of Teknaf upazila.

Table 9.1. Broad sector-wide interventions for the host community (in process and completed)

Sectors	Broad interventions	Implementing partners	Coverage
Livelihoods	• Cash for work • Cash for food and nutrition • Technical support • Heavy machinery for agriculture • Seed and fertilizer distribution • Micro-gardening kits • Training farmers, capacity-building authorities • Microcredit support • Interest-free loans • Skills development projects • Job market-oriented training • Enhancing resources and increasing capacities of poor households • Graduation from ultra-poor	14 humanitarian agencies and development partners, including FAO, WFP, IOM, UNPFA, Oxfam GB, Action Contre la Faim, BRAC and Mukti GOB partners are DoAE and Forest Department	• About 30,000 families in Teknaf and Ukhiya have received various types of livelihood support • 26,083 people have received cash for work • 6,230 people have received monetary support for food and nutrition • 524 farmers have received technical group support • 25,000 families are to receive micro-gardening kits • 50 trainers have received preparation • 2,150 farmers have received skills development training • 4,200 families have received microcredit support • 30,000 households will receive interest free loans • 2,000 families are being supported through the initiative to graduate from ultra-poverty Total: 350,000 members of host communities and the budget requirement is US$35 million
WASH	• Central water testing facilities • Comprehensive water resource mapping • Solid waste collection and disposal • WASH blocks at schools • Latrines, water points and hygiene kits • Faecal sludge management units • Contingency water supply	7 organizations working with DPHE, including BRAC, Friends in Village Development Bangladesh, Oxfam GB, UNICEF and World Vision International	• Central water testing facilities will benefit entire district • Water resource mapping will help 1.2 million from both communities • UNDP pilot solid waste collection projects • Latrine, water points and hygiene kits provided in Teknaf/Ukhiya • WASH blocks in seven schools • Faecal sludge management units in Palong Khali, Nhilla and Whykong Total: 290,293 direct beneficiaries in the host community from WASH sector initiatives

Sectors	Broad interventions	Implementing partners	Coverage
Health	• Capacity enhancement of public hospitals • Testing and diagnostic facilities • Provision of medical supplies • Surveillance for infectious diseases • Vaccination campaigns • Multi-purpose health centre, eye care hospital • Reproductive health kits • Ante-natal care support • Awareness against HIV/AIDS	17 partners, including MSF, WHO, UNHCR, BRAC, Ganasasthya Kendro, ACT alliance, CARE international and (from GOB) Office of the Civil Surgeon, MOHFW and IEDCR	• Capacity of public hospitals increased by 878 beds • Cox's Bazar Medical College laboratory and testing improved • 8 tons of medical supplies provided • Reproductive health kits given to 89,000 underprivileged women and adolescent girls • Multiple rounds of vaccination to prevent typhoid, cholera and diphtheria outbreaks • Special treatment and care facilities for diphtheria and tuberculosis Total: 1.3 million targeted beneficiaries
Nutrition	• Outpatient therapeutic care units • Identifying and eradicating malnutrition • Treatment for vitamin deficiency • Ante-natal care • Nutrient supplements to pregnant and lactating mothers • Nutrition counselling under the Improved Maternal and Child Nutrition project • Fortified biscuits	7 organizations, including UNICEF, WFP, Ganasasthya Kendro and BRAC	• 52 outpatient therapeutic care centres working to eradicate malnutrition • 20,841 children screened for acute malnutrition, 524 treated • Supplementary feeding for 623 lactating and pregnant women • Nutrition counselling for 7,123 mothers • Fortified biscuits to 137 primary schools in the district Total: Targeted beneficiaries: 68,500
Protection	• Child protection • Child-friendly spaces • Awareness on child marriage • Training of teenagers • Victim support centre for women and children • Community dialogues on GBV • Leadership training • Training on rights • Women's help desk at police stations • Women-friendly hospitals • Dignity and hygiene kits • Promotion of human rights for disabled • Protection committees	7 partnering organizations, including UNICF, Save the Children, BRAC, Mukti and GOB DSS	• 54,000 children benefited from child protection measures • Psycho-social support to 26,321 children in child-friendly spaces • 50 social workers and 71 community members trained on child protection • 820 adults reached in dialogue on child exploitation and other risks • 3 women help desks at police stations of Teknaf/Ukhiya • 5 women-friendly hospitals in Teknaf/Ukhiya • 800 persons trained on GBV • 1,200 women trained on legal rights • 625 administrative staff trained on protection • 321 women receiving leadership training by BRAC • 2,731 cases of GBV support to women and adolescent girls • 50 community protection committees Total coverage of 64,103 host community members

Sectors	Broad interventions	Implementing partners	Coverage
Education	• Educational support to host primary schools • Improved infrastructure • Library and computer support • Distance learning • Pre-primary education • Informal primary education • Education for disabled children • Midday meal and school nutrition • Teenage skill development • Adolescent support groups	9 organizations working for host communities, including UNICEF, Save the Children, BRAC, Friends in Village Development Bangladesh, Sida, UNHCR, MOPME and Directorate of Primary Education	• 30,400 students will receive support through December 2020 • Library and computer facilities enhanced in 6 schools • Classroom and infrastructure development in 6 schools • 15 distance learning centres • 3,697 children supported in 100 pre-primary schools • 50 informal primary education centres • 7 primary schools offer midday meal nutrition • 107 adolescent support groups created by BRAC Total: 115,000 direct beneficiaries within the host community
Disaster risk management/ site management	• Rebuilding roads, bridges, footpaths • Drainage system, dredging canals • Logistics and human resources support to local government • Capacity enhancement of disaster risk management authorities • Community groups, warning systems and disaster management committees • Assessment and repair of public buildings and cyclone shelters • Identification of impact on host community by camp activities	RRRC, IOM, UNHCR, UNDP and UNPFA with LGED	• 40 km roads, 10 bamboo footbridges and 6 footpaths in Teknaf and Ukhiya • Repair of drainage system of Teknaf municipality • 10 km of canal dredged at Kutupalong–Balukhali • 20 public shelters repaired, 337 potential shelters reassessed • Early warning system for disasters in 4 schools • 18 ward disaster management committees together with four union disaster management committees • Training of 615 Cyclone Preparedness Programme volunteers • Technical and logistics support to UNO of Teknaf and Ukhiya • Capacity enhancement of public authorities with logistic, human resources and training • Assessment of health hazards to host communities owing to drainage outlets of camps

Sectors	Broad interventions	Implementing partners	Coverage
Communication with communities	• Radio shows to address host community problems • of radio journalists on conflict reporting • Capacity enhancement of Bangladesh Radio staff • Road theatre shows to promote peace and cohesion • Joint training on emergency preparedness • Social cohesion and conflict resolution through community engagement • Awareness against extremism	BBC Media Action, Bangladesh Betar, Radio Naf, Oxfam GB, COAST, Mukti, YPSA, Jago Nari foundation, and local government	• 12 themed and 5 call-in radio shows on health, WASH and nutrition • Promotion of educational themes through folk songs and other entertainments • Special shows aimed at adolescent listeners • 47 road shows on social cohesion, attended by 10,615 • Community engagement against extremism, Torun Alo and OBIRODH youth forums against religious extremism • Para-development committees to achieve conflict resolution • Biweekly community dialogue, courtyard sessions in every ward to mitigate tension between communities

Note: The interventions include both current on-going and completed initiatives.

Source: Primary source of information is ISCG (2018j). However, important information was also obtained from ISCG (2018a, 2018k); ISCG and CCNF (2018); and BRAC (2018), as well as by the study team from the Cox's Bazar DC Office, RRRC, Office of the Civil Surgeon, DoAE, Department of Women's Affairs, DSS, DPHE and LGED.

Table 9.2 details the activities being directed to provide support to the host communities along with the number of people benefiting from these services.

Table 9.2. Response to the host community

Response as of 31 July 2018			Host community response								
			Education	Food security	Health	Non-food items/shelter	Nutrition	WASH	Protection		
Upazila	Union	Total population								Child Protection	GBV
Teknaf	Baharchhara	33,499	-	1,290	-	9,864	439	1,831	14	-	-
	Nhilla	54,465	210	-	-	12,810	785	4,800	4	-	-
	Sabrang	67,876	-	-	6,288	980	1,197	3,290	-	-	4,869
	Teknaf	55,475	-	-	-	15	677	14,535	-	-	-
	Teknaf municipality	29,070	-	-	-	-	848	4,090	13	-	-
	Whykong	59,153	-	1,240	1,093	-	1,776	2,500	18	1,496	-
Ukhiya	Haldia Palong	55,200	-	1,034	-	-	757	-	-	-	-
	Jalia Palong	55,369	210	1,420	18,544	-	899	8,000	-	204	-
	Palong Khali	38,199	-	-	11,974	23,280	154	32,500	-	198	350
	Raja Palong	66,174	-	1,900	-	12,960	863	-	-	104	-
	Ratna Palong	26,197	-	-	1,120	-	393	2,500	-	859	-
		540,677	420	6,884	39,019	59,909	8,788	74,046	49	2,861	5,219

Source: ISCG (2018k).

Note: Activities shown include only those that have been completed or are on-going. This table was prepared with 4W input by sectors as of 31 July 2018 and is intended only as a representation of available data. The actual number of partners and activity in the field could be different than reported. The food security sector reports only activity where the distribution points are positioned; actual operational coverage is wider.

9.2. Cost implications

So far, much of the cost of dealing with the influx has been met out of the international humanitarian aid being funnelled in under the JRP. This arrangement has minimized the need for GoB budgetary resources—for the time being. It is estimated that, at the current stage, humanitarian assistance covers half of the costs. GoB bears the cost of the salaries of civil servants assigned to RRRC, but all supporting costs of housing and logistics, including allowances of civil servants deputed to the Rohingya camps, are defrayed from international aid managed by ISCG. GoB bears the costs of extra protection by the local police and the armed forces.

While the international humanitarian assistance poured in at the initial stage of the crisis, and still continues to arrive, such inflows will slowly taper off. Over the next two to three years this assistance will decline to 30 per cent, reaching 15 per cent of total needs.

It estimated that it will cost GoB US$1 billion a year to deal with the refugee crisis alone without taking into account public outlays for the local population. The inflow of international humanitarian relief has relieved this huge financial burden on Bangladesh. However, this estimated cost does not cover all economic cost implications for Bangladesh, which may not be apparent for some time.

The JRP and RIVNA have already outlined total outlays (Table 9.3). The RIVNA quotes the JRP and provides an estimate for humanitarian agencies to fulfil all needs from March to December 2018 of US$950.8 million. While the RIVNA has added an estimate of US$1.15 billion for another two years of Rohingya presence beyond 2018, the stipulation of a most optimistic scenario of repatriation in Chapter 3 is five years. Therefore, conservatively, an additional US$1.15 billion should be required for Rohingya management till 2023.

Table 9.3. Allocations by sector (US$ million, rounded)

Sector	Cost	Cost breakdown		
		Host	Rohingya	Both/non-separable
Education	280.5	113.5	159.0	8.0
Social protection	259.6	70.7	188.8	-
Health	185.4	84.6	85.1	15.7
Shelter	130.9	-	130.9	-
Environment	91.2	22.2	57.1	11.9
Transport	82.2	-	40.4	41.8
WASH	48.3	13.2	34.6	0.5
Disaster risk management	36.9	3.3	21.8	11.8
Urban development	26.8	1.6	24.2	0.06
Social development	12.5	1.4	3.6	7.5
Total	**1,154.3**	**310.5**	**746.5**	**97.2**

Source: Adapted from World Bank (2018).

The RIVNA further highlights that interventions such as food assistance, health and education services and shelter improvement are covered under the JRP for the first year and are assumed to transition gradually into a more sustainable model. The RIVNA further points out that the JRP does not cover capital investment for infrastructure, human resource capacity enhancement and technical assistance activities.

According to UNDP (2018a), the resource mobilization target is US$87.5 million for 2018–2020, to deal with Environmental Sustainability and Disaster Risk Management (US$32.3 million), Inclusive Recovery and Development (US$27.9 million), Governance, Public Service Delivery and Rule of Law (US$20 million) and Co-Community Cohesion and Conflict Prevention (US$7.3 million).

9.3. Current and planned public development projects in Cox's Bazar

In addition to initiatives adopted under the JRP, the on-going development programmes being implemented by GoB in Cox's Bazar district should have positive spill-over effects for the host community. Some major projects are already underway and in the long term may complement many interventions specified in the JRP.[80] These projects have the potential to generate additional livelihood opportunities, improved transportation systems and enhanced trade and investment links within the economy and the rest of the world. Although these programmes are not driven by the refugee influx, their timely and effective completion could be an important contribution to overall capacity development in dealing with the consequences of the crisis in the medium to long term.

Among the mega-development projects, there are plans to build multiple power plants capable of producing an additional 13,000 MW of electricity in Cox's Bazar alone by 2025. At present, four power supply stations are being constructed in Cox's Bazar Sadar, Teknaf and Ukhiya *upazilas*. A land-based LNG terminal is being constructed in Kutubdia. A total of 27 km of approach roads and bridges have already been constructed. A number of connecting inter- and intra-city roads will be widened or reconstructed. The Dohazari–Ramu–Cox's Bazar single-track metre-gauge line is currently being built while another route is planned to connect Ramu with Ghumdum land port.

The Bangladesh Economic Zone Authority is building tourism parks at Sabrang and Jaliwardwip, both in Teknaf. Development of four other SEZs in Maheshkhali upazila is also in progress (BEZA, 2018). Modernization of Cox's Bazar Airport is currently underway. Moreover, several special educational institutes, including technical schools in Kutubdia and Teknaf and a sports academy, are currently being constructed.[81]

Cox's Bazar Development Authority (CoxDA) was established in 2009 with the goal of modernizing Cox's Bazar district. CoxDA programmes include modernization of the transport sector, development of roads and highways to link tourist spots and construction of a central sewage treatment plant.[82] It is expected that these programmes will boost tourism and trade, and revitalize industrial opportunities, thereby benefiting the refugee-affected areas as well.

80 Table A8.2 in Annex 8 provides a detailed list of on-going and planned development projects in Cox's Bazar.
81 Information provided by the Land Records Division, Office of the Deputy Collector, Cox's Bazar.
82 Information provided by CoxDA.

Chapter 10
Suggested programming for host communities

10.1. Learning from current programming

Chapter 9 presents a wide range of initiatives to help the host community mitigate adverse consequences. It is important to note that these are far from sufficient. To prepare a comprehensive strategy for this community, we need to learn from continuing and completed interventions to understand their depth, coverage and effectiveness. Some may need greater coverage; others may benefit from more efficiently designed implementation. Targeting is also important, especially when universal coverage cannot be assured. Errors in targeting can have grave consequences, since resources are then misallocated and programmes fail to support the poorest and most vulnerable.

A closer look at the current host community support programmes overall also suggests a lack of support for affected communities in Bandarban district. Naikhongchhari Sadar and Ghumdum unions in Bandarban have also been heavily affected by the refugee influx, particularly in the initial stages. The socio-economic conditions of the communities there are also very difficult. Therefore, it would be appropriate to bring affected Bandarban district households within any support programmes.

Most of the programmes addressed through the JRP come with a limited timeline, and the current ones have been planned to the end of 2018, subject to availability of funding. Socio-economic impacts for many affected population groups are going to be long-lasting in nature and thus continuation of support for affected and vulnerable groups will be critical. It would thus be wise now to consider a medium-term framework to help host communities (as well as refugees).

Coordination and collaboration will need to be established to upgrade functioning interventions and to improve project designs by drawing on the experiences of existing operations. Discussions on proposed interventions below cover, among other things, targeting and coverage and approximate costs.[83]

83 Where possible, some alternative scenarios are proposed. Given the nature of this study, and time and resource constraints, the costing of individual interventions is based on rapid assessments using information from various secondary sources (noted where appropriate). Actual implementation will require in-depth feasibility exercises by specialists.

10.2. Suggested programming in response to socio-economic impacts

On socio-economic impacts, this study suggests several possible interventions in response to the challenges we have identified. Rather than numerous small-scale initiatives, we concentrate on a few comprehensive interventions that have different levels of coverage for alternative scenarios. These include livelihood support programmes for daily wage workers, fishers and women. Our list is not exhaustive. The host community's needs are diverse, partly because even their own initial socio-economic situations, prior to the refugee influx, were unfavourable.

We also include specific recommendations to facilitate, monitor and analyse evolving issues on a continual basis to enable the effective design of policy recommendations for practical action. We provide an initial M&E framework for these interventions as a starting point.

10.2.1. Widening livelihood support programmes for the host community

Support for daily wage labourers

CFW programmes that target wage labourers in Teknaf and Ukhiya could be an appropriate intervention in the short to medium term. Several NGOs and INGOs and development agencies are operating such programmes for host communities, including UNDP, under its Community Recovery and Resilience Programme (UNDP, 2018b). These programmes hire labourers at a daily rate of Tk. 300–350 (ISCG, 2017). However, work in most cases lasts at best a few weeks, ending with the completion of a given small infrastructure development project.

More sustained support could be achieved through a scaled-up initiative that provides increased wages for the host community day labourers. Labourers can be hired for such strategically important projects as infrastructure development, plantations and environmental rehabilitation and promotion, which can also have a lasting positive impact on the greater community. There is likely to be greater need for CFW coverage during lean seasons when employment opportunities are more limited.

Table 10.1. Distribution of wage labourers in Cox's Bazar

	Total labour force participation	Proportion of day labourers	Number of day labourers
Teknaf	168,046	57.4%	48,219
Ukhiya	264,393	24.2%	31,964
Cox's Bazar	709,572	31.7%	224,863

Source: Analysis using BBS data (2018).

The LFS 2016–2017 (BBS, 2018) reveals that about 57 per cent of labour force participants in Teknaf are day labourers; in Ukhiya, the figure is about 24 per cent. With a guaranteed five days of work each week and a wage of Tk. 400 per day, each recipient could earn Tk. 8,000 per month (approximately US$95).

The actual cost of the intervention would depend on the number of beneficiaries. With an estimated target group of 40,092 (50 per cent of daily wage workers in Teknaf and Ukhiya), the monthly total would be US$3.8 million. The same programme covering only 35 per cent of the target (28,064) would cost $2.6 million per month. Coverage at 20 per cent (16,037) would cost US$1.5 million.
Such programmes are highly resource-intensive. Managing and sustaining them could also be very

difficult, especially given the possibility of the Rohingya crisis lingering for several years. A more pragmatic option could be to offer cash support. The idea is to make some contribution towards compensating for the loss of income owing to declining market wage rates.

Under the same scenarios described above, for Tk. 200 cash compensation per day, 50 per cent coverage would require about US$2.1 million per month, 35 per cent coverage US$1.4 million and 20 per cent around US$0.84 million. At a rate of Tk. 100 a day, 50 per cent coverage would require about US$1.05 million, 35 per cent US$0.74 million a month and 20 per cent US$0.42 million.

A combination of CFW and cash compensation schemes would be ideal but with the proviso that no worker can benefit from both simultaneously. Effective management would be challenging, but Bangladesh has considerable experience at maintaining very elaborate social protection measures. It is critical to minimize targeting errors in such programmes to assure successful interventions.[84]

Table 10.2. Monthly cost for cash compensation (Tk. 200/person/day) in three coverage scenarios

	Scenario 1		Scenario 2		Scenario 3	
	50% coverage	Total cost (US$)	35% coverage	Total cost (US$)	20% coverage	Total cost (US$)
Teknaf	24,110	1,262,881	16,877	884,033	9,644	505,162
Ukhiya	15,982	837,164	11,188	586,038	6,393	334,865
Total	40,092	2,100,045	28,065	1,470,071	16,037	837,027

Source: UNDP estimates.

Extending livelihood support for fishers

Most fishers in Teknaf and Ukhiya are from very poor households and do not have adequate coping mechanisms. Since the ban on fishing in the River Naf, they have had very few livelihood alternatives. They thus require special attention.

Inadequate skills and lack of equipment confront the Teknaf fishing community and prevent them from exploring deep sea options. They rely on locally built small trawlers for fishing in shallow waters (less than 40 m) along the coast.

As an immediate strategy, Teknaf fishers could be provided with cash support and training to carry out deep sea fishing using modern equipment.[85] Such training should be followed with financial assistance or credit facilities (for groups of beneficiaries) to support procurement of suitable deep sea fishing boats and modern equipment. Training could also be provided on farming seaweed, as an alternative livelihood support mechanism, particularly for lean seasons.

A cash transfer to cover all Teknaf fishers would cost US$1 million a year.[86] Targeting 5–20 per cent of fishers (approximately 1,500–5,000 beneficiaries) for training and support along with procurement

84 Type 1 (requires support but not included in intervention) and type 2 (does not require support but is included) targeting errors need to be minimized to implement any development project efficiently.
85 This particular recommendation came from local community members and some government officials during FGDs.
86 Based on daily cash support of Tk. 200 per fisher.

of boats and equipment could cost US$2.8–8.3 million.[87] Against these costs, the estimated yearly benefits could be in the range of US$5.3–12.3 million if support is provided to 5 per cent of fishers, and US$14.7 million if it is extended to 20 per cent of fishers.[88]

Supported by the World Bank, GoB plans to implement a major work programme on the expansion of coastal and marine fisheries, to develop an important pathway to sustainable economic development (World Bank, 2017). The intervention we propose could be integrated into this and given priority, considering the Rohingya refugee crisis that is affecting the fishers.

Empowering women through improved livelihood opportunities in refugee-affected areas

The conditions for women's employment and empowerment in Cox's Bazar were far from satisfactory even before the influx. Concerns about the personal security of women following the refugee influx have magnified this problem.

Since women have less exposure to job markets, interventions that target skills development for women and connect trainees with employers are likely to be more effective. Local NGOs such as BRAC, the Coastal Association for Social Transformation Trust (COAST) and Mukti currently have programmes that enrol women using their particular targeting criteria. The Department of Women's Affairs runs training programmes on sewing, beautification and block boutique (see Table 10.3).

Table 10.3. Current government interventions for women (numbers of trainees)

	Trainees per quarter			Trainees per year
	Teknaf	Ukhiya	Total	
Sewing/tailoring	20	30	50	200
Beautification	20	20	40	160
Block boutique	0	20	20	80
Total	40	70	110	440

Source: Department of Women's Affairs, Cox's Bazar.

One practical option would be to enhance current GOB programmes and, if necessary, upgrade the training modules and introduce new courses.

Initially, this could target those women who are seeking jobs and self-employment opportunities and who are likely to retain the skills they have acquired. Women in the 20–29 age group who are resident of Teknaf and Ukhiya and belong to low-income households number 19,735: 11,021 in Teknaf and 8,714 in Ukhiya. According to information obtained from the Department of Women's Affairs, the cost of training each woman would be approximately US$127.

With quarterly enrolment of 1,000 women, it would cost around US$500,000 per year to upgrade the GOB training. Addition of a credit support facility for self-employed women would increase the cost

87 Based on approximate costs associated with procurement of equipment and deep sea boats, credit support and training programmes. This information was obtained from discussions with key informants and a rapid review of online materials.

88 This benefit is calculated based on the assumption that the income of the recipient will increase in the range of 15–50 per cent. Details of the benefit estimation are provided in Annex 7.

of the intervention to US$1.7 million per year. A one-time seed investment of Tk. 25,000 would be provided to each member of the cooperative.

We could also consider expansion of UNDP's Strengthening Women's Ability for Productive New Opportunities (SWAPNO) initiative. This programme, implemented in collaboration with the GOB Local Government Division, is another social transfer that seeks to empower ultra-poor women by improving their livelihood abilities, socio-economic engagement and resilience. Women are provided with primary employment opportunities, vocational training and informal education. Currently, 65,000 women in 22 districts benefit.[89] Replication in this context would cost US$20–24 million.

10.2.2. Strengthening local agricultural production

To build resilience and enhanced capacity in the local farm sector, three approaches are possible.

Homestead gardening

Refugees are provided basic food rations but are dependent on local markets for vegetables and fruit. Teknaf and Ukhiya, and Naikhongchhari and Ghumdum unions of Bandarban, are net importers of these items. To tackle food shortages and help poor households diversify their livelihoods, support to household agricultural production could be effective.

IOM and FAO have already targeted 25,000 host community households to receive micro-gardening kits. At the time of our fieldwork (mid-June 2018), 4,300 host households had received them. Households receive high-yield seeds of low-maintenance crops, plus fertilizers and other basic equipment. Training on micro-gardening precedes distribution (IOM, 2018b).

One possibility is to increase the coverage of homestead gardening to all poor households. This will bring another 25,000 households, in addition to those currently targeted, in Teknaf, Ukhiya, Ghumdum and Naikhongchhari, under the project, and cost US$2.2–2.7 million.[90]

Amar Bari Amar Khamar (One House One Farm)

Amar Bari Amar Khamar is a GoB initiative sponsored by the Rural Development and Cooperative Division to eradicate poverty through family farming and by generating employment for the poor and underprivileged.[91] Extending coverage could increase livestock and milk production and contribute to the empowerment of women, who usually play a bigger role in raising livestock.

89 http://www.bd.undp.org/content/bangladesh/en/home/operations/projects/poverty_reduction/strengthening-womens-ability-for-productive-new-opportunities/home.html

90 Each micro-gardening kit will cost in the range of Tk. 7,000–7,500 (seeds Tk. 1,000, fertilizer and equipment Tk. 3,000 and training Tk. 3,000). This information was provided by officials of DoAE, Cox's Bazar.

91 See http://www.ebek-rdcd.gov.bd/

At present, 60 beneficiaries from each village, 50–70 per cent female, form Village Development Organizations (VDOs). Five members receive training on agriculture, nurseries, fisheries, poultry and livestock. They train the other members, who then receive funds for individual and group farming.[92]

Poor and female-headed households of the affected regions could be the main beneficiaries here. Given a target group of 30,000–40,000, the cost is estimated to be US$9–12 million. According to some estimates, proper implementation could generate profits as high as US$3.9 million per year, with the accumulated benefits outweighing the initial costs in less than five years.[93]

Technical support for farmers

Capital constraints, lack of information or simply low literacy are often big obstacles in farming. Since the crisis, agencies such as IOM and FAO have targeted some of these issues. Some farmers have received agricultural machinery and climate change-resistant high-yielding crop hybrids, for example.

Irrigation remains a significant issue. Many canals need to be dredged, and new ones constructed. Low-lift pumps, which cost about Tk. 30,000 each, can also be distributed to farmers, through the current DoAE mechanism of supporting farmer groups (in each union 1,080 farmers are divided into 36 groups of 30). Provision of pumps to 252 farmer groups in 7 unions will cost about US$90,000.

Another alternative is Farmer Field Schools (FFS). Farmers are introduced to new or high-yielding breeds, innovative farming techniques, modern machinery and practical solutions to identified needs.[94] They can also compare the outcome of different cultivation methods at demo shows. There are many versions of FFS, but DoAE suggests a more extensive version would ensure more sustainable results. To train a single group of 30 farmers for 6 weeks is estimated to cost around US$1,000.[95] To train 100 groups of farmers, the cost would be about US$100,000.

DoAE can provide the support needed to facilitate these programmes. This may require DoAE to expand its capacity. It can also provide proper evaluation through auditing and field visits. LGED can carry out canal dredging and expansion. If the technical support provided to farmers is properly utilized, annual crop production could increase by as much as 12–15 per cent (Feder et al., 2004).

10.2.3. Providing informed analysis through primary data collection

Issues for the host community in the throes of such a crisis are likely to evolve. It will be important to monitor developments, using credible data and analysis, to ensure interventions are appropriate. Many agencies are undertaking studies that use both quantitative and qualitative techniques, but consistent analysis over time that utilizes data that are comparable will remain a major challenge.

It is important to have one focal point collect specific information on a regular basis by using the same or comparable methodologies for groups with similar interests (e.g. women, female-headed households,

92 VDO funds are generated from members' individual savings, GOB incentives and a revolving fund as a grant. For each beneficiary, Tk. 7,500 is required in a year (Tk. 2,500 from personal savings + Tk. 2,500 in government grants + Tk. 2,500 as revolving funds). And in a year, the total accumulated funding for a group of 60 persons will be Tk. 450,000, with Tk. 150,000 coming from GOB to each of the VDOs as revolving capital and Tk. 150,000 added as incentives.

93 The annual income of households is said to increase by more than Tk. 11,000 a year (e.g. The New Nation, 2017).

94 According to the DoAE Chief Agricultural Officer in Cox's Bazar, FFS are the most cost-effective way to produce benefits.

95 This includes demo shows (Tk. 3,000/show), school expenses (Tk. 400/class), instructor salary (Tk. 1,000/day), food expenses (Tk. 2,000/day) and the Deputy Director's monitoring cost (Tk. 2,000/batch).

wage workers). A data panel developed through repeated surveys of a substantial sample of households (say, 10,000) drawn from both host communities and refugees could be one means to monitor the situation and perform policy analysis. The households selected can be rotated to address any sampling errors made at the initial stage. Such surveys should include market price data and can capture host communities' perceptions on basic needs, such as food security, health requirements and protection. The yearly cost of quarterly repeat surveys is estimated to be US$1.2–1.7 million.[96] An alternate approach would be to undertake such an exercise on a biannual basis, which would require the same estimated budget but cover a two-year period.

10.3. Suggested programming in response to impacts on public service delivery

Here, we look at the major areas of relevance to public service delivery, as we move into a medium-term approach of dealing with the refugee crisis in the context of overall development. Where appropriate, we emphasize priority interventions. In some cases, we provide projected costs of activities, in particular on infrastructure, the environment, WASH, education and social cohesion, with further information on potential interventions on risk management.

10.3.1. Civil administration

Strengthening the capacity of local government to deliver sector-specific responses to host communities is essential to all interventions. In general, there is a need to invest both technical and financial resources into the DC Office in order to improve coordination between GOB and ISCG in addressing Rohingya issues as well as providing service delivery to host communities. But DC Office staff cannot deal with the refugee crisis alone.

The District Administration, RRRC and ISCG should revamp their coordination procedures. Greater cooperation among local public agencies is also required to efficiently implement projects that use public goods and services. This is particularly the case with infrastructural development projects undertaken by government in the region. Since the responsibilities of concerned administrative agencies often overlap, an effective coordination mechanism can facilitate rapid implementation of projects, with substantial spill-over benefits across the region.

UNDP has been funding enhanced capacity-building in this area. In designing an effective operational public service delivery system, the following parameters are to be taken into account:

- The demographic features of the Rohingya, keeping in view the needs of the local community;
- A clear picture of needs and challenges;
- Resource mobilization;
- An institutional framework to operationalize the delivery of public services;
- Operational capacity and its limitations;
- Prioritizing activities relating to the delivery of services and preparedness to face newly emerging needs and challenges; and
- Timeliness and quality of public service delivery (i.e. eliminating bureaucratic delays).

96 This includes demo shows (Tk. 3,000/show), school expenses (Tk. 400/class), instructor salary (Tk. 1,000/day), food expenses (Tk. 2,000/day) and the Deputy Director's monitoring cost (Tk. 2,000/batch).

GoB budgetary resources are going primarily towards payment of salaries, transport logistics and some operational costs for the delivery of public services. Though GOB has not yet come out with any separate estimate of its outlays for Rohingya management, a reasonable estimate would put this at 5–10 per cent (US$50–100 million) of the annual cost of US$1 billion, much of it going towards equipment procurement and infrastructure reconstruction and expansion. It is unlikely that GoB will raise the personnel strength of the DC Office or sector departments.

The hope is that the international community will now be looking at the problem in a medium-term framework, with appropriate allocations to address the needs of the local communities, to minimize the budgetary onus on GoB—something it can ill afford.

Priority intervention: If budgetary allocations are unavailable, funding from the JRP/RIVNA must be allocated to cover the costs of logistics (e.g. transport) and special compensation for identified DC Office staff. The Office of the UNO Ukhiya needs more staff and logistics as it is at the forefront of the refugee rehabilitation challenge. UNO Teknaf comes next in order of priority. Assistant UNOs should be appointed to look after the extra demand for services. Even the DC Office needs a UNO-level official to assist the ADC (General), who spends 50 per cent of his time on Rohingya issues. Such capacity supplementation, with logistics and financial resources, will be needed in sector offices too. Salaries and logistics will add about 20 per cent to current expenditures—funds that could be raised from grants or concessional loans from multilateral institutions, or provided through the JRP or similar sources, as has been done for CiCs under RRRC.

Meanwhile, amounts disbursed as of 31 August 2018 are still under 50 per cent of the JRP planned budget of US$950 million (ISCG, 2018m). This suggests resources going to the host communities are falling below the target, though these services have reached over 540,000 people around the camps.

Other interventions:

- Given the complex demographic profile of the people in need, RRRC must ensure it has a holistic and sustainable programme. This means it needs to be adequately resourced through GoB and aid funding to reasonably undertake its workload and maintain flexibility in service provision.
- Organizations tendering for service delivery through RRRC or other relevant agencies must be able to demonstrate that they have deep understanding and experience of public service delivery to refugees and local communities. They must also have demonstrable experience with refugees in particular. Regular training and professional development related to the specific needs and experiences of refugees should form a part of the contract for service delivery under RRRC.

10.3.2. Governance

Priority interventions:

- An effective integrated and singularly focused mechanism needs to be established to serve as a one-stop public service delivery point in each camp. An integrated approach to service delivery for all refugees would enable them to settle better with less stress. Also, agencies will be able to better manage their workload. Stakeholders need to participate in decision-making at local level to identify gaps and suggest solutions, while taking into account local community needs.
- Local government representatives are to be consulted on a regular basis on community needs and

concerns. They need to be part of all decision-making bodies on current and future policies and programmes affecting their communities in the context of the on-going refugee crisis.

- The design and implementation of programmes must be sustainable. Implementing organizations need to be sufficiently resourced and able to maintain appropriate staffing levels and to invest in training and professional development, with a reasonable workload.
- Public service providers need to factor in issues relating to suffering, trauma and other long-term implications for refugees settling in the local community, as well as for host communities. Flexible programmes that can be tailored to individual needs are of utmost importance.
- Maintenance of law and order within and outside the camps is an absolute priority. There is an immediate need to substantially increase the number of police camps inside the refugee camps, as well as in neighbouring upazilas. Funds from UN agencies should be directed towards this.

Other interventions:

- The current Rohingya refugee settlement policy is based on a "temporary camp solution" pending the final outcome on repatriation. The focus of the public service delivery system needs to be simplified to focus holistically on those seeking support/protection.
- GoB needs to develop and adopt a comprehensive refugee policy, preferably in line with the International Refugee Convention of 1951. One positive outcome of such a policy will be that the relevant state apparatus will be aware of needs, including those related to public service delivery, and also will be prepared to deal with crisis as and when it occurs.
- At the international level, the time is now ripe to develop a "solidarity compact" in favour of Bangladesh, to encourage the international community to share the burden in sustaining needed interventions. Various options, such as trade concessions, preferential access for exports, labour mobility opportunities and foreign direct investment, could be explored to help the economy get through the crisis in the medium to longer term.
- A refugee advocacy group could be set up to represent views and interests, monitor compliance, receive complaints and respond to individual concerns. It must include refugee representatives.
- Meanwhile, instead of keeping the refugees wholly confined in the camps, efforts could be made to see how best to use these human resources until their repatriation, both to improve their own welfare and to contribute to the well-being of the host community. This proposal is fraught with challenges but the fact that refugees are now being registered electronically makes it easier for law-enforcing agencies to track down anyone straying from their designated area.

10.3.3. Infrastructure

Priority intervention: The current Cox's Bazar Development Plan has been rendered ineffectual in light of the influx and its impact on the availability of public goods and services. A revamped, upgraded and more comprehensive development plan is needed to address the new and evolving scenario, with at least a 50 per cent increase in the infrastructure investment budget. GOB resources will have to be adequately supplemented with resources allocated from the JRP/RIVNA or future programmes. The World Bank and Asian Development Bank (ADB) are coordinating with UN agencies to implement medium-term strategies for Teknaf and Ukhiya to ensure humanitarian aid to refugees is complemented by resources for the well-being and development of local communities.

Other interventions (with cost estimates):

Proposed development plan by LGED

LGED has provided a comprehensive proposal to build additional infrastructure in Cox's Bazar that will address the needs of both communities. The plan includes construction of roads, bridges and culverts, schools, cyclone shelters and market sheds, and expansion of market areas. The estimated cost of this project is US$100 million. LGED is seeking funds for this under special grants from the World Bank and ADB. UNDP should support this initiative and work closely with LGED in this regard.[97]

Table 10.4. Cost projection for the LGED development plan

Project	Length, number	Approximate cost per unit (Tk. million)	Approximate total cost (US$ million)
Roads (for the refugee community)	130 km	9	14
Roads (for the host community)	100 km	10	12
Widening current Teknaf–Cox's Bazar highway	97 km	7.5	8.7
Bridges	1 km	240 (total)	2.8
Culverts	1 km	160 (total)	2
Slope maintenance and road protection efforts	5 km	0.8	0.05
Drainage system	5 km	0.45	0.03
Market sheds and market areas	15	2	0.36
Primary schools and cyclone shelters	24	50	14.3
Training institutes and rest houses	1	40	0.48
Maintenance of existing roads	150 km	1	1.8

Source: LGED, Cox's Bazar.

Road infrastructure development for Bandarban

While much work has been completed or planned for Cox's Bazar, the influx also greatly affected Naikhongchhari and Ghumdum unions of Bandarban district, two sites that were already considered very remote and dilapidated. At least 6 km of brick roads and 4 km of paved roads in Naikhongchhari have been severely affected. Aid trucks have inflicted major damage to roads and bridges,[98] and a 4 km road from Ghumdum post office to Tumbru Bazar–Konapara needs immediate repair.

Ensuring sustainability is an important issue. Heavy rainfall is a natural characteristic here, so we recommend turning these brick and mud paths into paved asphalt roads. Such initiatives would cost about US$800,000 to US$1 million. Benefits could surge by as much as US$0.95–1.2 million.[99]

97 The development of infrastructure and establishment of other mega-projects could generate social benefits worth US$120–125 million, with a potential cost/benefit ratio of 1.2, according to ADB estimates (Lacsamana, 2006)

98 FGD in Ward 1, Naikhongchhari union parishad, Naikhongchhari Sadar union.

99 The cost/benefit ratio of building roads in the South Asian area may be as high as 1.2 (Lacsamana, 2006).

10.3.4. Environment

The sudden rise in population in Teknaf and Ukhiya is taking its toll on the environment, reflected in rapid deforestation, pollution of waterways and about a 10,000 tons of waste produced a month. These are formidable environmental challenges for the district.

Priority intervention: Some mitigation may be possible through reforestation. Alternative cooking fuel is imperative so refugees no longer need to cut down trees for firewood. A joint UN project SAFE PLUS is underway to address the urgent need for cooking fuel. This programme must be sustained.

Other interventions (with cost estimates):

Providing cooking fuel alternatives to communities

Both refugees and the host community need the means to acquire fuel alternatives. Several options are available and have already been tried. Some pilot initiatives, such as producing biogas from faecal treatment, are also underway. The use of LPG for cooking is one option.

Considering only the most affected and poorest host community households, in Teknaf, Ukhiya and Naikhongchhari, distribution of LPG gas would cost about US$9.7 million a year at the current market price. If each household gets one cylinder a month, adjusting for delivery and servicing will bring the cost of each cylinder to about Tk. 1,000. For refugees alone, the cost is estimated at US$22.6 million for the first year and a total of US$86.6 million through December 2022 (Table 10.5).

Table 10.5. Estimated cost of LPG provision (US$ million)

Timeline	LPG costs, host communities	LPG costs, refugees	Total cost (both communities)
July 2018–December 2018	4.7	12.6	17. 4
January 2019–December 2019	9.6	23.3	32.8
Total through December 2022	43.1	86.5	116.6

Source: UNDP estimates.

The yearly cost of this intervention will depend on the rate of repatriation of the refugees. With the realistic assumption of a repatriation rate of around 1,500 per week, the cost per month will be reduced from US$2.9 million to US$2.7 million by the end of the first year. Estimation of the approximate benefits from the intervention could be as high as US$98.6 million per year.[100]

The use of LPG has safety risks. When equipment is worn out or used incorrectly, LPG carries the risk of explosion. LPG cylinders are intended for use in well-ventilated outdoor areas. Thus, installing them safely within densely populated surroundings could be difficult, even though there exist modern improved safety features that can help diminish risk factors. A strategy of combining supervised community kitchens using LPG, expanded use of solar stoves, awareness-building campaigns on efficient fuel utilization, safe food storage, improved stoves and alternative fuel access could be a practical and safer option.

100 A minimum of 750,000 kg of timber will be saved each day valued at US$0.27 million. This indicates an annual saving of US$98.6 million if the forests are preserved.

Reforestation of Teknaf/Ukhiya peninsula through community forestation

Reforestation programmes need to be revitalized. Earlier social forestation programmes benefited households from the host community, who owned a 40–45 per cent share of each tree, as they nurtured these artificial forests and protected them. However, the entire 2,000 acres of this artificial forestation project was decimated within the first two months of the influx.[101] Reforestation of former natural forests together with the damaged artificial forests now demands high priority.[102]

Reforestation projects should cover at least the 5,530 acres of forest already destroyed, along with support to host community planters who have suffered damage to private or leased forest lands. At the initial stage, the programme should identify areas for intervention and the type of plantings suitable to the geography. Damaged and endangered plant species should also be identified. At the second stage, transplanting should commence in degraded and deforested hilly areas using the current year's seedlings. This should be followed by regular nurturing and monitoring.

The primary beneficiaries and target populations under this intervention will be the inhabitants of Teknaf, Ukhiya and Ghumdum. Ghumdum in Bandarban district has become one of the major firewood collection points for the nearby refugees of the Kutupalong–Balukhali mega-camp.

According to preliminary estimates, reforestation of 5,530 acres will cost about US$2.4–3.5 million (including nurturing costs).[103] In the next stage, it is essential to address the problem of on-going deforestation for firewood harvesting in the area. Because the yearly consumption of firewood now uses up about 2,000 acres of forestland, reforestation of equivalent areas will cost around US$1–1.5 million per year.[104] Against the cost, because of the reforestation, there will be an estimated gain of US$4.9 million owing to the reduction of CO2 by as much as 12,000 tons.[105]

Currently, the World Bank is implementing its major Sustainable Forests and Livelihood programme with an estimated budget of US$195 million, with particular emphasis on the Chittagong Hill Tracts districts. An expansion of the programme and/or collaboration with other development partners to cover Teknaf/Ukhiya/Ghumdum would be very timely.

10.3.5. Improving access to safe drinking water

Intervention (with cost estimate):
A viable and sustainable solution to the fresh water availability crisis could involve harvesting rainwater for the target population of host community households in Teknaf and Ukhiya of Cox's Bazar and Naikhongchhari Sadar and Ghumdum of Bandarban. Local studies show daily water consumption for a person in rural Bangladesh is about 83.2 litres, with a standard deviation of 12 litres (Amin et al., 2011). Taking this as our standard, the total water requirements for Teknaf, Ukhiya and Naikhongchhari Sadar turn out to be 25.6 million, 20 million and 32,000 litres per day, respectively (Table 10.6). Under an alternative scenario, with higher water consumption of 95 litres, the total requirement becomes close to 52.2 million litres. However, considering only drinking and cooking needs, daily essential water

101 Discussion with Cox's Bazar Forest Department.
102 Reforestation will be successful only if refugees and host communities are provided with alternative fuels for cooking.
103 Given 800–1,000 trees per acre, the cost per acre for timber replanting may vary from US$250 to US$600. Nurturing requires building protection teams that will be partial owners of the trees.
104 UNDP estimates.
105 12,000 tons of carbon emission is equivalent to burning 1,225,208 gallons of gasoline. The absorption saves as much as US$408 per ton (UNDP estimates).

requirements per household are about 25.1 litres (Alam et al., 2012), or up to 2.8 million litres for the target beneficiaries.

Table 10.6. Total water requirement for the affected areas (litres)

	Total population	Total water requirement	Essential water requirement
Teknaf	307,300	25,567,360	1,542,646
Ukhiya	241,100	20,059,520	1,210,322
Naikhongchhari Sadar	3,858	320,986	19,367

Source: UNDP estimates; population estimates taken from NPM Round 8.

Average yearly rainfall for Cox's Bazar and Bandarban is approximately 3,770 mm. For conservative estimates, consider a minimum catchment area of 5.3m3. Rainfall in the area will generate about 19,800 litres of water per year. Taking first flush into consideration, the water can supply up to 200 days if we include all water requirements.[106] On the other hand, considering only cooking and drinking needs, the water can supply 650 days. The construction costs for a particular household, depending on size, could be US$120–140, with some small yearly maintenance costs. The total cost of the intervention works out to be US$14–17 million for all of Teknaf, Ukhiya and Naikhongchhari Sadar.[107]

The programme in the affected areas can be replicated with effective utilization of prior experience under similar conditions. In Satkhira and Bagerhat, the United Nations Framework Convention on Climate Change (UNFCCC) provided a grant of US$33 million to provide a community-based rainwater harvesting system that is being implemented by UNDP. The programme will provide clean drinking water to 130,000 people in that locality (Reuters, 2017). Thus, a potential source of funding could be the Green Climate Fund of UNFCCC, since Teknaf and Ukhiya are reported to be among the areas most vulnerable to climate change (World Bank, 2018).

10.3.6. Sanitation and waste management

The refugee influx has thrown waste collection and management, already weak and inadequate, into complete disarray. Waste materials have become a source of massive environmental pollution and a health hazard for both host communities and refugees. Faecal sludge and solid waste management, along with improved sanitation, now constitute an urgent area for action.

Priority intervention: Proper solid waste disposal is another high priority service delivery component, which, if not addressed, will not only pollute neighbourhood rivers and canals but also eliminate fishing as a livelihood pursuit, thus creating further tensions between refugees and locals.

106 The first five to ten minutes of rainfall contains biological micro-particles and other pollutants that can contaminate the rainwater tank. This is why the first flush is necessary to maintain the purity of rainwater.

107 Preliminary estimates by UNDP.

Interventions (with cost estimates):

Ensuring improved toilet facilities

In Teknaf and Ukhiya, although 2,700 latrines have been provided to host community households since the influx, there is significant room to provide additional support (ISCG, 2018m). There are several types of conventional sanitary latrines. Of these, improved sanitary latrines with septic tanks are the preferred option. Pit latrines are not properly cleansed of sludge and are a cause of water pollution during the monsoon.

When we consider the 20 per cent of the population who do not have access to sanitary latrines, potentially 19,700 households require such latrines for complete coverage. Under an alternative scenario, if pit latrines should also be brought under this future intervention, the corresponding number rises to 68,950 households.

According to DPHE, for a single household, a toilet with septic tank costs about US$770. [108]Therefore, the cost of ensuring full coverage at the current market rate is estimated to be US$53 million. If assistance is to be offered to the 20 per cent of households that currently do not have sanitary latrines, the estimated cost is US$15.2 million. Under different circumstances, the yearly benefits from such an intervention can vary from US$35 million (in the case of 5 per cent of the host community households) to US$480 million (in the case of 70 per cent coverage).[109]

Table 10.7. Approximate cost for improving toilet access

Coverage	Total households	Total cost (Tk. million)
5% households	4,925	320.1
20% households	19,700	1,280.5
70% households	68,950	4,482.5
Naikhongchhari	2,000	130.0

Source: Estimates using information from DPHE, Cox's Bazar.

It should be noted that Bandarban district has very low access to sanitary latrines. About 2,000 households in the refugee-affected unions of Naikhongchhari and Ghumdum can also be provided with this support, which would cost about an additional US$1.5 million.[110]

Faecal sludge management

Faecal sludge management for host community populations alone will not be effective, since the main source of water contamination is the refugees. The JRP intends to establish 10–12 faecal sludge management facilities in the area or more. All households in Teknaf and Ukhiya should be brought under this programme. A detailed assessment of faecal sludge management should be undertaken to identify the potential scope for any extended coverage and resource requirements.

A faecal sludge treatment capacity analysis carried out by WASH sector partners in refugee-affected areas (Teknaf and Ukhiya) shows that the volume currently required is between 3,772m3 and 7,544m3 per month, with refugee and host households added together. This may increase to 9,600m3 per month

108 DPHE, Cox's Bazar, is providing design, advice and coordination support in the WASH sector in the Rohingya crisis.
109 WHO (2014) estimates suggest US1 spent on sanitation saves more than US$9 in the health care and medical expenditures of a household.
110 Findings from FGD in Naikhongchhari union show about 2,000 households require support to build sanitary toilets.

(or 23,102.7 tonnes) (ISCG, 2018m). Current capacity, according to an ISCG estimate, is only 6,497.6 tonnes per month (ISCG, 2018n)—that is, less than 30 per cent of what is required.

The framework for faecal sludge management implementation should be based on the sustainable sanitation value chain, including proper containment, emptying (cleansing of sludge), transportation, treatment and safe disposal. In discussions with the study team, Cox's Bazar DPHE officials suggested various ways of dealing with the sludge.

Once faecal matter is collected from latrines using vacuum pumps, it is transported in specialized vehicles to a sludge management site. There it is kept in a four-layer drying bed (sand, gravel, plastic, stones) for two weeks. At that time it is transferred to a maturation pond for further decomposition. The completely decomposed faecal matter can be mixed with agricultural waste residue and used as compost fertilizer. It can also be used for biogas and cooking fuel (Jahan, 2018).

Table 10.8 gives the approximate costs of bringing Teknaf and Ukhiya households under faecal sludge management. Under an alternate scenario, if part of the coverage could be obtained through the JRP, the cost would be lower. The cost of this programme will decline as the refugees begin to repatriate. In establishing faecal sludge management, experience can be drawn from Faridpur municipality, implemented by Practical Action, funded by the Bill and Melinda Gates Foundation, with support from the local government.[111] If properly implemented under the circumstances noted, the intervention will generate yearly benefits of US$5–6 million for the host community.

Table 10.8. Approximate amount of faecal waste and treatment costs

	Estimated population 2017–2018	Faecal waste per day (kg)	Faecal waste per month (kg)	Faecal waste per year (kg)	Annual operating cost (US$)
Teknaf	307,300	37,982	1,139,460	13,863,532	2,151,100
Ukhiya	241,100	29,800	894,000	10,876,985	1,687,700
Total	548,400	67,782	2,033,460	24,740,517	3,838,800

Source: Estimates using information on estimated population from NPM Round 8 and the average human waste disposal rate of 123.6 g per day (Muriel et al., 1980).

Solid waste management

GoB will need to put in place a long-term solution through establishment of a solid waste management system for Cox's Bazar district on a sustainable basis. This will require establishing a regional sanitary landfill as well as recycling facilities for recyclable solid waste. Solid waste management programmes will also generate employment for both the refugees and the local population and will stimulate the local economy and entrepreneurship.

Under an integrated framework, a combined intervention can be undertaken for solid waste management along with faecal sludge management. According to one available estimate, since the refugee influx, 100 tons of disposable solid wastes are being collected monthly by 20 waste dealers in Ukhiya *upazila* alone (COAST, 2018c). While some of the waste is being recycled, vast quantities of polythene and plastic

111 https://practicalaction.org/fsm-faridpur

materials are not disposed of in an environmentally friendly manner. These untreated biodegradable items are polluting the water and soil. UNDP has actually directed initiatives for solid waste collection in parts of Ukhiya union *parishad.*

Ideally, all households in Teknaf and Ukhiya should be brought under the coverage of this effort. According to World Bank estimates (Hoornweg and Bhada-Tata, 2012), daily waste production in South Asia is 0.45 kg/person per day. Under ideal circumstances, this estimate projects monthly waste of 3,250 tonnes in Ukhiya and 4,000 tonnes in Teknaf. We can approximate that, for the waste collection part of this programme, about 100 waste containers will be needed, several collection sites and about 20 rickshaw vans to collect rubbish, together with rubbish compactor trucks and other specialized vehicles in each *upazila*. Around 100 workers will be needed to sustain the operation. For proper solid waste management, one treatment facility with sorting, compression and recycling options that can handle 250 tonnes of waste per day for both the *upazilas* will be required.

To set up machinery for collection and treatment, the approximate cost could be in the range of US$150,000–200,000. Without the treatment facility, the cost would be reduced to US$40,000–60,000.[112] Solid waste collection and the treatment mechanism can be implemented through aid from private investors, as treatment will produce a wide range of reusable assets from fertilizers to recycled items. Effective implementation of solid waste management can generate an annual gain of US$3.7–9.5 million.[113] This benefit estimate assumes 50 per cent collection of generated solid waste and proper treatment of at least 80 per cent of the collected waste.

10.3.7. Reviving educational activities in the aftermath of the refugee crisis

Problems confronting the education sector since the crisis began, including damage to school infrastructure, increased absence rates of students and teachers and in some cases loss of human resources to teach and run educational institutes, need to be addressed immediately, especially as the overall level of attainment for the affected districts was already weak prior to the influx.

Interventions (with cost estimates):

Extension and renovation of educational institutions

While measures have been undertaken to repair institutions, these have generally been limited to basic work, such as fixing damaged walls and floors. However, this could be an opportunity for comprehensive renovation and modernization of schools to make the learning environment more attractive and effective for students.

Along with rebuilt conventional facilities, all affected schools should be provided with multimedia classrooms, computer lab facilities with a trained demonstrator, well-equipped libraries and administrative capacity. Currently, GoB is trying to establish information and communications technology-based interactive educational systems in public schools.[114] With a central monitoring hub, important indicators like attendance, participation and student performance can be evaluated. Well-targeted support from donors and development partners would supplement GoB's work here.

112 Wages and salaries of workers are not included in the cost estimate.
113 Benefits include potential monetary value from treated waste materials plus social gains.
114 See http://mmcm.gov.bd/

Installing these facilities in the 20 most affected primary schools in the area would cost about US$248,000. An alternative scenario that considers 50 schools would cost about US$520,000. Ideally, all schools should be brought under the modernization planning.[115]

Providing school meals

School feeding programmes have been demonstrated to be a powerful social fortification measure in mitigating hunger among children from households where food is insecure (WFP, 2011). Such schemes can have a profound positive impact on the host community. They not only provide an incentive for poor and vulnerable households to keep their children in school but also help confront child malnutrition problems in the host community.

While one WFP initiative provides a 75 mg biscuit packet each day to every child in primary school, to defeat malnutrition and make schools attractive there is a need to develop daily meal programmes.

Currently, students from 17 primary schools in Cox's Bazar district have access to the GoB midday meal initiative. Only one of those schools is in Ukhiya; none is in Teknaf. We recommend that the midday meal programme be started in all 145 primary schools in Teknaf, Ukhiya and Ghumdum. One such programme is run by Hope Worldwide Bangladesh. Under this initiative, students receive midday meals that include 200 g of *khichuri* or rice for five days a week, as well as 120 g of chicken, 110 g of fish or an egg every other day.[116] It may be possible to replicate this initiative.

The weekly cost per student under the Hope programme is about Tk. 75, hence the annual cost to implement midday meals in Teknaf/Ukhiya schools is estimated to be about US$2 million. However, if properly implemented and offered as an effective measure to address the malnutrition problem for children in the area, the intervention could save as much as US$21.75 million in funds.[117]

10.3.8. Community cohesion, confidence-building and conflict resolution approaches

Conflict sensitivity is a focal point in the JRP, which includes considerations of equity, harmony and coverage and is alert to opportunities to promote social cohesion among refugees and host communities. Other complementary measures should be undertaken to help ease tensions.

UNDP (2018a) recognizes that, in view of the likely protracted nature of the crisis, there are intensifying intra-Rohingya and inter-community tensions, arising primarily from livelihood related issues. Suggested measures include:

- Mapping the tensions and drivers of conflict;
- Helping GOB and the international community establish a performing early warning system;
- Strengthening social cohesion and implementing confidence-building initiatives; and
- Designing and implementing a comprehensive conflict prevention roadmap.

115 Estimates based on market research and costs collected from schools with similar systems. Estimated costs include computers, projectors, salaries and infrastructure.

116 See http://www.hopeww.org.bd/?page_id=32

117 According to the Global Panel (2017), providing midday meals at school may save up to US$500 per year per child, including the social costs of malnutrition.

In this context, issues identified relate to exclusion, discrimination and rights violation, in particular violation of women and girls' rights. Addressing all these issues will require working towards a conflict-sensitive short- and medium-term response.

Interventions (with cost estimates):

Supplying refugees with radios

One of the most significant challenges to reaching out to the Rohingya community is the language barrier. The high illiteracy rate among the refugee population means the only possible means of communicating with them is by word of mouth. Audio and video media could be helpful in building trust relationships between the host and refugee communities. One option could involve providing radios to refugees, to help deal with rumours in order to ease tensions. Currently, only a fifth of the refugees have access to radios (ISCR, 2018a), and they cannot legally obtain cellular connections. Bringing the entire refugee community under radio coverage would cost about US$650,000. A channel dedicated to news and entertainment could be created for US$200,000–500,000.

Strengthen community policing

One possible approach to address the security concerns of the host community is to strengthen community policing. Local law enforcement agencies are overstretched and community policing would benefit both refugees and host communities. It would also provide employment opportunities for both communities. For a force of 500 community police, the annual cost of this asset, including their training and support services, would be in the range of US$1.7–2.0 million.[118]

10.3.9. Developing a risk management system

UNDP has already put in place a Disaster Risk Management Project to be completed in two phases. Phase I will focus on immediate preparedness for the forthcoming cyclone and current monsoon season. Phase II is designed to contribute to the permanent establishment of local disaster management capacities throughout Cox's Bazar district.

Even if a repatriation agreement is reached sometime in the future, the return of the refugees is unlikely to be as speedy as was the exodus. As such, any plan for the future has to extend beyond the medium term. The good news is that current strategies under preparation take a realistic approach to addressing the challenges, looking at a longer time horizon. The overall approach being taken is to bolster community preparedness and strengthen institutional capacity, making possible an effective response to disasters, natural or man-made, and the implementation of recovery programmes.

10.4. An initial monitoring and evaluation framework for socio-economic and public service delivery programming

A monitoring and evaluation (M&E) framework should be an integral part of a results-based management (RBM) system. RBM brings together all relevant components of a programme to verify progress towards results. It uses short-term (or intermediate) outcomes as pathways to long-run impact. Clearly specified

118 This is based on estimates using salaries for 500 community members, uniform and gear costs, training costs and other support services.

and measurable outputs are then linked to short-term outcomes. Managers need to continually reflect on the extent to which implementation leads to the desired outcomes.

Monitoring is undertaken routinely, using indicators and associated information. Evaluations, on the other hand, can occur in phases, with an initial one to determine the baseline and further rounds at useful intervals, depending on the nature of the project. An end-of-programme evaluation can determine overall effectiveness and draw implications for future design and implementation.

Table 10.9 presents an initial M&E framework for our proposed interventions in the response to socio-economic and public service delivery impacts (Chapter 10.5 looks at the design of social safety net schemes in more detail). Although tentative in nature, this provides some potential specific parameters for M&E exercises. For each intervention, at least one broad goal is defined. In most cases, these are the desired outcomes the country is already striving to achieve. To keep these long-term goals in sight, short-term outcomes are suggested. Progress towards these can be made within a reasonable lifetime of the respective programme.

Outputs included under this M&E framework are products and services that achieve intermediate outcomes. These include, among others, mechanisms to be established and training and infrastructure to be developed. Then indicators are proposed as quantifiable or measurable units that will be able to concretely demonstrate the functional effectiveness of outputs.

Baselines and subsequent surveys must use the same methodologies. Often, data from credible secondary sources, such as national surveys, are available, but attention may be needed to any definitional changes or changes in the sampling framework. When similar interventions target the same population groups, we need to isolate what our programme has contributed.

It is often impossible to bring the entire population under programme coverage, so clear and realistic targets need to be set up. Our M&E framework proposes certain tentative targets but programme design will need to ensure careful scrutiny of these. The initial framework also hints at possible sources of information that can be used to verify progress. It may also be possible to generate specific information when implementation is underway. For example, for training-related interventions, the number of people enrolled may be a good indicator of outputs. However, enrolment in itself may not be a good indicator of effectiveness. When sourcing information, it is important to look for sex-disaggregated data and other group-specific information.

The framework also mentions stakeholders. Collaboration is important to create a bigger impact with fewer resources. It may be necessary in scaling up certain interventions, or when different development partners have expertise in separate areas. In a joint approach, development partners and government agencies could pool their resources and then all contribute, under integrated RBM, to achieving certain intermediate outcomes that lead to shared goals and objectives.

Annex 7 presents an overview of the costs and benefits of the proposed programming.

Table 10.9. Results-based M&E framework on various socio-economic programmes

Interventions	Goal(s)	Intermediate/short-term outcomes	Outputs	Indicators	Baseline (comments)	Targets	Sources of information	Stakeholders and partners
Livelihood support programmes –CFW that targets wage labourers –Livelihood support for fishers –Training and employment support for women	–Improved income and welfare –Reduced vulnerability –Enhanced employment opportunities of women and other vulnerable groups –Improved empowerment of women and eradication of extreme poverty through employment and skills development	–Improved safety net measures for most affected and vulnerable groups –Access to livelihood diversification support for poor and vulnerable –Improved access of poor and vulnerable women to training and employment opportunities	–Mechanisms established for providing livelihood support for wage labourers –Training infrastructure for women developed or scaled up –Training and livelihood support mechanism for fishers	–No. of wage workers in Teknaf and Ukhiya receiving cash support –No. of fishers with training and livelihood support –No. of women wage workers in Teknaf and Ukhiya receiving training and livelihood support	–0 (currently no CFW support available for wage labourers affected by refugees) –0 (currently no livelihood or training support available to fishers affected by refugees) —0 (no additional women trained or provided with livelihood support owing to refugee influx)	–Between 6,000 and 15,000 wage labourers from Teknaf and Ukhiya –Between 1,500 and 5,000 fishers –20,000 women in in Teknaf and Ukhiya	–Livelihood support register –Training enrolment and completion register –Regular reports prepared for programme intervention –Independent evaluation	Local government departments, MOWCA, UNDP, any other development partners interested
Expanding agriculture-based livelihood support –Homestead gardening –One Home One Farm –Technical support for farmers	–Extreme poverty eradicated and vulnerability reduced –Enhanced livelihood opportunities for women and other vulnerable groups –Reduced food price vulnerability –Improved “farming knowledge base”	–Effective safety net measure for affected and vulnerable groups –Enhanced diversification in livelihood opportunities for poor and vulnerable –Improved access of poor and vulnerable farmers to modern production technology	–Mechanisms established for providing support for farmers –Trained staff and farmers –Prepared and self-reliant households –Well-equipped and more productive farmers	–No. of households in Teknaf and Ukhiya receiving homestead gardening kit –No. of households participating in One Home On Farm programme –No. of farmers receiving technical support in Teknaf and Ukhiya	–25,000 micro-gardening kits (IOM and FAO already distributed kits to 4,300 host families through mid-June 2018) –Currently 60 beneficiaries from each village are considered for intervention –500 farmers in Teknaf and Ukhiya	–25,000 additional households in Teknaf, Ukhiya, Ghumdum and Naikhongchhari Sadar –30,000-40,000 additional households in Teknaf, Ukhiya and Naikhongchhari –30,000 farmers in Teknaf and Ukhiya	–Agricultural support register –Survey by relevant government departments –Regular reports prepared for programme intervention –Independent evaluation	DoAE, Rural Development and Cooperative Division, other local government departments, MOWCA, UNDP, any other development partners interested
Providing informed policy inputs through primary data and analysis	–Improved knowledge base –Reduced vulnerability of community, particularly of poor and other marginalized groups	–Informed policy-making and appropriate interventions for improved socio-economic conditions of poor and vulnerable groups	–Administered surveys –Analysis prepared –Informed policy recommendation developed	–Household and market surveys undertaken	–0 (currently no dedicated panel survey available for refugee-affected communities)	–To conduct quarterly/biannual household and market surveys	–Publication of survey results –Survey data made available	GOB, UNDP, organizations undertaking survey, other NGOs and development partners interested

Interventions	Goal(s)	Intermediate/short-term outcomes	Outputs	Indicators	Baseline (comments)	Targets	Sources of information	Stakeholders and partners
	–Adequate infrastructural capacity for development –Improved local infrastructure –Increased roads and highways	–Increased communication and connectivity –Improved living standard and livelihood opportunities –Reduced congestion	–Infrastructure constructed –Markets expanded and supply chain strengthened –Roads and highways constructed	–No. of infrastructure developed –No. of infrastructure renovated –Amount of local trade and transactions increased –No. of roads and highways constructed	–10 km of roads in Naikhongchhari were heavily damaged	–2 additional km of bridges and culverts; 5 km of drainage system; 24 primary schools and cyclone centres; 1 training centre + rest house; –15 km of market sheds and market area; –150 km maintenance of existing roads –97 km of roads widened; –230 km roads built (100 km for hosts and 130 km for Rohingya); 14 km roads built in Bandarban	–Project review report –LGED reports and LGED website –BBS and other surveys	–Ministry of Local Government, Rural Development & Cooperatives, LGED, UNDP, other NGOs and development partners interested
-Reforestation	–Achieve sustainable development to protect and promote natural environment	–Stop indiscriminate harvesting of timber as cooking fuel –Reforestation to recoup the damage of forest resources	–Methods in operation to supply alternatives to firewood for cooking fuel –Framework developed and plan designed for reforestation	–No. of households both in camps and in host community using alternative fuel for cooking –Amount of land (ha) used for reforestation	–More than 90% of refugees and host community households use firewood for cooking ¬Refugees are using about 700 tons of firewood per day –(Baseline to be created to determine any damaged area under reforestation programme)	–Provide 100% of refugee households with LPG –5,530 acres of forest area already destroyed	–Survey by ISCG and others on number of refugee households using firewood –Survey (including those by BBS) on number of host community households using firewood –Survey by GOB departments on reforestation	ISCG, Forest Department, UNDP and other development partners
	–Attain safe drinking water for all in a sustainable manner –Improved health outcomes for people without access to adequate safe drinking water	–Increased safe water capacity –Reduced dependence on groundwater	–Mechanisms developed for delivery –Trained staff and households –Prepared households	–% of people in Teknaf, Ukhiya and Naikhongchhari with access to pure drinking water –% of households participating in rainwater harvesting	–0 (currently no households use rainwater)	–2,500 families in Naikhongchhari –50,000 households in Cox's Bazar –25–50% refugee population	–Survey by GOB departments on sources of water –Specialized survey commissioned	DPHE, UNDP and other interested development partners

Interventions	Goal(s)	Intermediate/short-term outcomes	Outputs	Indicators	Baseline (comments)	Targets	Sources of information	Stakeholders and partners
–Faecal sludge management –Solid waste	–Improved sanitation and its sustainable management for all populations in host communities –Improved health outcomes –Increased productivity and incomes	–Teknaf and Ukhiya achieve improved de-sludging of all latrines using sustainable sanitation value chain (containment, emptying, transport will come under faecal sludge management coverage) –Improved solid waste disposal and recycling management	–Trained human resources for delivery –Infrastructure constructed –Legal and operational frameworks developed	–% of households in Teknaf and Ukhiya with improved latrines –% of toilets of Teknaf and Ukhiya covered by sanitary de-sludging –% of households under solid waste management facilities –% of drinking well containing E. coli bacteria	–86% of drinking wells contain E. coli from faecal contamination –(Rapid assessment needed to establish a proper baseline)	–100% of population in Teknaf and Ukhiya	National surveys as undertaken by BBS	DPHE, MOHFW, UNDP and other relevant development partners and NGOs
	–Enhanced educational opportunities –Improved education system and education outcomes –Human resources developed –Increased productivity and incomes	–Teknaf and Ukhiya have better educational infrastructure –Renovated educational institutes with multimedia classrooms –Attractive and effective learning environment –Increased child nutrition	–System developed for delivering improved education –Education infrastructures constructed	–No. of educational institutes renovated and restructured –% of school-age children attending school –No. of school children receiving midday meals	–0 affected schools –0 multimedia classrooms in Ukhiya, Teknaf and Ghumdum –1 school in Ukhiya; none in Teknaf or Naikhongchhari	–20 affected schools –50 schools in Ukhiya, Teknaf and Ghumdum with multimedia –145 primary schools in Ukhiya, Teknaf and Ghumdum with midday meal	– Independent evaluation by relevant department –Regular report prepared for the intervention programme –Annual education report	–MOPME, a2i, UNDP and other development partners who are interested
	–Enhanced support from host community in long-term crisis mitigating strategies	–Improved security for host and refugees –Reduced malicious deception about refugees –Improved interactions between host and refugees	–Increased number of community polices –Increased access to informative communication devices for refugees (e.g. radio) –Increased number of arranged cultural and social programmes	–No. of community police working –No. of refugee households who have obtained radio or other communication devices –No. of cultural and other social programmes	–0 (currently no community police service is available for affected areas) –21% of refugees currently have access to radio –47 road shows and 12 thematic radio programmes and five call-in FM channels organized (through mid-June, 2018)	–500 community police in Teknaf, Ukhiya and Naikhongchhari –100% of Rohingya families	–Programme register and evaluation report –Regular reports prepared for intervention programme –Independent evaluation	Ministry of Home Affairs, Bangladesh Police, UNDP and other development interested partners

Source: UNDP analysis.

10.5. Suggested schemes to respond to impacts on social safety nets

As introduced in Chapter 7, we suggest that new social safety net programmes can mitigate the negative impacts of the Rohingya crisis on host communities. Coverage, transfer amount and resource requirements are based on the estimated cost of the Rohingya influx on the host communities. We use different methods to assess this cost to host communities:

- Secondary data collected from the Ministry of Finance and Cox's Bazar DSS to assess the salient features of the national and district social protection systems;
- UNDP survey data on the prices of essential items and the wage rate of daily labourers; any changes are incorporated to assess poverty and vulnerability rates for the host communities;
- Local-level general equilibrium impacts of aid inflows (usually associated with a refugee crisis) and observed destruction of natural resources, simulated using the LEWIE method;
- A "heuristic" approach whereby the estimates of the UNO in Teknaf are considered an economic cost to the fishers in Teknaf;
- UNHCR and NPM datasets to assess the population structure of the Rohingya refugees and their income sources; these two sets of information are then used to design employment schemes for Rohingya adults.

Various social protection schemes have been proposed for the host communities. Effective implementation of these is expected to provide major relief to the host communities and thereby enhance their welfare.

10.5.1. Scheme 1: UT natural resource depletion scheme

The estimated loss for the host community is Tk. 7,732 million owing to the destruction of forestry resources and depletion of ground water. This translates into losses of Tk. 61,572 per household and Tk. 13,683 per capita for the immediate host community (Teknaf and Ukhiya). Thus, a transfer amount should be set at Tk. 82,910 per household and Tk. 14,097 per capita.

Scheme 1: UT natural resource depletion scheme

Coverage: Universal and eligibility for all households in Teknaf and Ukhiya
Transfer amount per household: Tk. 82,910 one time
Total transfer amount: Tk. 7,732 million
Administrative cost (5 per cent): Tk. 389 million
Total scheme budget: Tk. 8,121 million
Starting date: 1 February 2019

10.5.2. Scheme 2: UT family income support scheme

The estimated poverty gap is used to determine the transfer amounts needed under the family support scheme. The average income gap amounts of Tk. 370 and Tk. 300 may be considered. However, since income support schemes should be paid to the affected households (as they are administratively easier to select than individuals), the estimated transfer amount per household would be Tk. 2,035[119] per month (i.e. a transfer amount of Tk. 370 x 5.5 (members in a household)).

119 The estimated transfer amount of Tk. 2,035 is also close to the estimated poverty line of Tk. 1,928 for 2018.

As we have seen, beneficiary selection based only on poverty/vulnerability criteria is difficult and usually associated with large errors when coverage is low. We have found few new poor households post-crisis in Teknaf and Ukhiya—respectively, 1,348 and 1,154. Selecting these households accurately from among the large number of similar vulnerable households is challenging. Moreover, selection will inevitably be erroneous, leading to serious discontent among local residents.

The second-best approach would be to cover all poor households in Teknaf and Ukhiya—10,770 for Teknaf and 12,356 for Ukhiya. The best approach is to cover all households in Teknaf (49,360) and Ukhiya (43,896) following the universal approach.

Three variants may thus be considered, based on beneficiary coverage. In the first variant, coverage is lowest and includes only the identified new poor households. The main merit of this variant is the low resource need. However, beneficiary selection is very difficult. In the third variant, inclusion of all households is proposed. The main demerit of this variant is the large resource need, but beneficiary selection is almost perfect. The second variant can be viewed as a compromise.

Scheme 2 Variant 1 (2a): Family income support scheme (only for new poor households)

Coverage 1: *Targeted* and *only the new poor are eligible* (i.e. using HCR1 and HCR4 criteria). The estimated numbers of households eligible in Teknaf and Ukhiya are 1,348 and 1,154, respectively
Transfer amount per household: Tk. 2,035 per month
Total transfer amount per month: Tk. 5.1 million [Tk. 2,035 * 2,052 households (1,348 + 1,154)]
Total transfer amount per year: Tk. 61 million [Tk. 5.1 million * 12]
Administrative cost (15 per cent): Tk. 9.2 million per year
Total scheme budget (inclusive of administrative cost): Tk. 70.3 million

Scheme 2 Variant 2 (2b): Family income support scheme (only for all poor households)

Coverage 2: Coverage is still *targeted* but *a larger set of poor households is eligible* (i.e. HCR4). The estimated numbers of households eligible in Teknaf and Ukhiya are 12,118 and 12,510, respectively
Transfer amount per household: Tk. 2,035 per month
Total transfer amount per month: Tk. 50.1 million [Tk. 2,035 * 24,628 households (12,118 + 12,510)]
Total transfer amount per year: Tk. 601.4 million per year [Tk. 50.1 million * 12]
Administrative cost (15 per cent): Tk. 90.2 million per year
Total scheme budget (inclusive of administrative cost): Tk. 691.6 million

Scheme 2 Variant 3 (2c): Family income support scheme (only for all households)

Coverage 3: The coverage is *universal* and hence *all households are eligible*. The estimated numbers of households eligible in Teknaf and Ukhiya are 49,360 and 43,896, respectively
T**ransfer amount per household:** Tk. 2,035 per month
Total transfer amount per month: Tk. 190 million [Tk. 2,035 * 93,256 households (49,360 + 43,896)]
Total transfer amount per year: Tk. 2,277 million [Tk. 190 million * 12]
Administrative cost (5 per cent): Tk. 114 million per year (because of universal coverage, administrative cost will be lower in this case)
Total scheme budget (inclusive of administrative cost): Tk. 2,341 million

10.5.3. Other elements of Schemes 1 and 2

Duration: One time for February 2019–January 2020
Review: September 2019

Implementing agency: DC Office; DSS; UNO Teknaf and Ukhiya

Funding: International community; may be covered from the 25 per cent of the total international aid to the Rohingya refugees earmarked for the host community

Database preparation:

- Database preparation to create a central database for beneficiaries should commence by 30 November 2018, to be housed in Cox's Bazar DC Office.
- Involve all elected representatives of wards and union parishads of Teknaf and Ukhiya in preparing the beneficiary list by the second week of December 2018.
- The initial list of eligible households will be posted in various public places by 30 December 2018.
- The initial list will be modified on the basis of feedback.
- The beneficiary database will be finalized by 15 January 2019.

Disbursement: The first payment will be made on 1 February 2019 in various branches of Sonali Bank. All beneficiary households will be notified by mobile phone and the public address system by 30 January 2019. A system-generated payment record will be made available for review and perusal.

A grievance committee will be formed to review progress and to address the complaints of people of the host community. The committee may meet every month for review and corrective actions.

10.5.4. Scheme 3: Teknaf fishers income support scheme

The average monthly income of a fisher before the Rohingya crisis has been estimated at Tk. 8,000 per month. Although the monthly transfer amount may be set at Tk. 8,000 per month, in reality this may discourage them from finding alternative work or fishing in other water bodies. Thus, the monthly transfer amount may be set at Tk. 4,000 (i.e. 50 per cent below their pre-crisis income but above the amount of estimated poverty line of Tk. 1,928). A support package composed of a cash transfer and skills development may also be designed for these fishers. Chapter 5 on socio-economic impacts provides a detailed discussion on the skills development aspect along with cash transfers.

Scheme 3: Teknaf fishers income support scheme

Coverage: *Universal* and *eligibility for all fishers* in Teknaf (35,000 estimated but needs confirmation)
Transfer amount per household: Tk. 4,000 per month
Total transfer amount per month: Tk. 140 million per month [Tk. 4,000 * 35,000]
Total transfer amount per year: Tk. 1,680 million per year [Tk. 140 million * 12]
Administrative cost (15 per cent): Tk. 252 million
Total scheme budget: Tk. 1,932 million
Starting date: 1 February 2019
Duration: Initial 12 months from February 2019 to January 2020
Review: September 2019
Implementing agency: DC Office; DSS; UNO Teknaf
Funding: International community; may be covered from the 25 per cent of the total international aid to the Rohingya refugees earmarked for the host community

Database preparation:

- Database preparation to create a central database for beneficiaries should commence by 30 November 2018, to be housed in Cox's Bazar DC Office.
- Involve all elected representatives of wards and union parishads of Teknaf and Ukhiya in preparing the beneficiary list by the second week of December 2018.
- The initial list of eligible households will be posted in various public places by 30 December 2018.
- The initial list will be modified on the basis of feedback.
- The beneficiary database will be finalized by 15 January 2019. UNO Teknaf must certify the list.

Disbursement: The monthly transfer amount will be sent to beneficiary households through BKASH accounts by the seventh day of each month. The first payment will be made on 1 February 2019. A system-generated payment record will be made available for review and perusal.

A grievance committee will be formed to review progress and to address the complaints of people of the host community. The committee may meet every month for review and corrective actions.

10.5.5. Resource requirements

Table 10.10 presents estimated resource requirements for Schemes 1–3.

Table 10.10. Social protection schemes for the host community

Scheme	Coverage	Transfer amount	Frequency	Programme cost*	Administration cost	Welfare Impact
Scheme 1	Universal (All UT Households)	Tk. 82,910 US$987	One time	Tk. 7,732 million US$92 million	Tk. 389 million US$4.6 million	High
Scheme 2						
Scheme 2a	Targeted new poor (2,052 UT households)	Tk. 2,035 US$24.2	Monthly	Tk. 61 million US$0.73	Tk. 9.2 million US$0.11	Depends on accuracy of beneficiary selection
Scheme 2b	Targeted all poor (24,628 UT households)	Tk. 2,035 US$24.2	Monthly	Tk. 601.4 million US$7.2 million	Tk. 90.2 million US$1.1 million	Moderate to high 27% exclusion error
Scheme 2c	Universal (93,256 UT households)	Tk. 2,035 US$24.2	Monthly	Tk. 2,277 million US$27.1 million	Tk. 114 million US$1.4 million	High
Scheme 3	Universal (35,000 fishers in Teknaf)	Tk. 4,000 US$47.6	Monthly	Tk. 1,680 million US$20 million	Tk. 252 million US$3 million	High
A. Total (Scheme 1 + Scheme 2a + Scheme 3)				Tk. 9,473 million US$112.8 million	Tk. 650.2 million US$7.7 million	
B. Total (Scheme 1 + Scheme 2b + Scheme 3)				Tk. 10,013 million US$119.2 million	Tk. 731 million US$8.7 million	
C. Total (Scheme 1 + Scheme 2c + Scheme 3)				Tk. 11,689 million US$139.2 million	Tk. 755 million US$8.9 million	
Memorandum Items						
Total annual programme cost of Scheme B (Tk. million)				10,013		
Total annual programme cost (Tk. billion)				10.01		
Total annual programme cost (US$ billion)				0.119		
Total annual programme cost excluding scheme 1 (Tk. billion)				2.3		
Total annual programme cost excluding Scheme 1 (US$ billion)				0.027		

Source: Analysis based on costing model.

10.5.6. Expansion of existing schemes

Our review of the social protection system of Cox's Bazar district suggests very low beneficiary coverage—at around 6 per cent of the district population, compared with national coverage that is significantly higher, at around 34 per cent of the population. Thus, it may be logical to expand beneficiary coverage of the social protection system in Cox's Bazar at least to the level of national coverage (i.e. 34 per cent of Cox's Bazar population).

Moreover, the average monthly transfer amount per person at the national level is Tk. 596. This level of transfer amount is retained under Scheme 4. The benefits of such schemes include:

- Wider coverage of the vulnerable population in Cox's Bazar district;
- A reduction in inclusion of ineligible beneficiaries and exclusion of genuine beneficiaries;
- Increased effective demand, leading to further growth of the local economy;
- A reduction in poverty and inequality.

The estimated cost of implementing this scheme for Cox's Bazar district is Tk. 5,738 million, or US$68.3 million. For Teknaf and Ukhiya, the estimated costs are, respectively, Tk. 767 million or US$9.1 million and Tk. 602 million or US$7.2 million.

The estimated cost of implementing the scheme is provided in Table 10.11.

Table 10.11. Cost of expanded social protection in Cox's Bazar

	Estimated beneficiaries	Transfer amount/ month (Tk.)	Total cost/ month (Tk. million)	Total cost/year (Tk. million)	Total cost/year (US$ million)
Teknaf	107,567	594	63.9	766.7	9.1
Ukhiya	84,399	594	50.1	601.6	7.2
Cox's Bazar	805,000	594	478.2	5,738.0	68.3

Source: Analysis based on costing model.

10.6. Proposed employment schemes for Rohingya refugees

Four variants of employment schemes are proposed for the Rohingya adult population. Implementation of these employment schemes is likely to enhance their welfare as well as lessen supply pressure on the local labour market by the unskilled daily labourers.

The NPM Round 11 dataset reveals sources of income among Rohingya refugees. More than 73 per cent of respondents (asked to provide multiple responses) had no income source (see Chapter 7.4). Thus, creating jobs for adult population may be a high priority.

We estimate the resource implications of providing jobs considering four scenarios based on coverage and number of employment days.

Scenario 1: CFW covering all adult Rohingya population (i.e. 374,439) providing 22 work days a month with a Tk. 200 per day wage. The estimated cost is Tk. 19,700 million or US$235 million a year.

Scenario 2: Covering 50 per cent of adult Rohingya population (i.e. 187,220) providing 22 work days a month with a Tk. 200 per day wage. The estimated cost is Tk. 9,885 million or US$118 million a year.

Scenario 3: Covering all adult Rohingya population (i.e. 374,439) providing 12 work days a month with a Tk. 200 per day wage. The estimated cost is Tk. 10,784 million or US$128 million a year.

Scenario 4: Covering 50 per cent of adult Rohingya population (i.e. 187,220) providing 12 work days a month with a Tk. 200 per day wage. The estimated cost is Tk. 5,392 million or US$64 million a year.

Table 10.12. Total costs of four scenarios to provide employment to working-age Rohingya refugees

				Total cost	
	No. of adults	Wage rate (Tk./ day)	No. of work days/year	Tk. million	US$ million
Scenario 1	374,439	200	264	19,770	235
Scenario 2	187,220	200	264	9,885	118
Scenario 3	374,439	200	144	10,784	128
Scenario 4	187,220	200	144	5,392	64

Source: Analysis based on costing model.

10.7. Capacity assessment

Social safety net programmes are implemented by DSS under the Ministry of Social Welfare. Local-level implementation is the responsibility of social services officers at *upazila* level. Assessment of the capacity of the line ministries involved in implementation of social safety net programmes has been constrained by paucity of data and information. Although we were not able to obtain full staffing records to determine the amount of personnel resources devoted to programmes, it is clear these are relatively small. Moreover, in practice many of these posts remain vacant.[120] Human resources are thus very limited and widely stretched. It is important to remember that social services officers are not devoted solely to these programmes, but rather have a wide range of responsibilities both within the department and for other ministries and departments.

Table 10.13 clearly depicts the under-resourced state of social protection in Cox's Bazar as well as in Teknaf and Ukhiya.

120 DSS has approved staff strength of 11,723, with 1,513 vacant posts (http://www.msw.gov.bd/site/page/7f639993-bfc8-4d80-a563-3c7304420fe5/Human-Resource), implying almost 13 per cent vacancy. Moreover, it is important to note that the staff position of DSS was approved in 1984 when the number of beneficiaries was miniscule compared with the current number. Furthermore, lack of automation, out-dated systems and inadequate training have hampered DSS performance.

Table 10.13. Social security system capacity in Cox's Bazar

	Cox's Bazar	DSS	Teknaf	Ukhiya
Staff (officers + others)	89	7	6	6
Computers	15	3	1	1
Cars	1	0	0	0
Motorcycles	7	1	1	1
Staff/beneficiary ratio			2,112	1,868

Source: DSW office, Cox's Bazar.

The estimated beneficiary/staff ratio is more than 2,000 for Teknaf and slightly less than 2,000 for Ukhiya. These high ratios tend to suggest low monitoring and inadequate client support. Moreover, with only one motorcycle available, client support to remote areas seems impossible. Thus, capacity in Teknaf and Ukhiya needs vast improvement. It is proposed that ***staff strength in Teknaf and Ukhiya be increased to 20***. The number of motorcycles should be increased to five for Teknaf and Ukhiya. Teknaf and Ukhiya social services offices should also be equipped with six more computers (three each) and two heavy-duty printers (one each).

Chapter 11
Conclusions

The Rohingya refugee crisis has profoundly affected the livelihoods of host communities, particularly those who live in Teknaf and Ukhiya *upazilas* in Cox's Bazar and in some parts of the Bandarban district. The influx has placed on the host community an extraordinary burden, which is compounded by the fact that these areas of Bangladesh were already confronted with formidable challenges associated with relatively weak socio-economic development.

Impacts on the host community have been particularly related to price changes and a fall in daily wages for labourers. There have also been extremely adverse impacts on public services and the environment, among others. Simulations that use SAMs show that aid provided to refugees has a positive impact on the host economy. However, when the loss of forest resources and depletion of underground water are taken into consideration, the net impact for the immediate host community becomes negative—although more remote host communities maintain a positive effect that is a benefit of the spending push by the refugees. The simulation outcomes suggest that deleterious impacts are more localized than the impact of aid-induced refugee spending.

While several support programmes have been designed to help households in the host communities mitigate the consequences, long-term continual support is essential. The depth and coverage of current interventions vary and in many cases their future is uncertain. Given today's realities, it is now the wisest course to consider a medium-term framework to help host communities (and refugees), as it is likely that repatriation will take several years.

Many programmes underway do not cover the entire locality. Given the size of the influx and the weakness of socio-economic conditions in the affected areas, more in-depth and sustained interventions will be needed. Efforts need to be extended in particular in Bandarban district, which was also heavily affected by the influx but does not seem to be receiving as much support as Cox's Bazar district.

This study has presented current programmes and then suggested interventions to improve the situation for both the host communities and the refugees, with cost estimates where possible. It divides suggested programmes into those related to socio-economic and public service delivery challenges, alongside the design of relevant social safety nets, in line with the structure of the report as a whole.

Economic empowerment of vulnerable groups and women, improved sanitation, sustainable use of forest and water resources, modernized infrastructure and improved transport connections, among others, are vital. Some of the current major public sector projects, including development of SEZs, should also generate benefits for the region.

To conclude, it is worthwhile to emphasize the following issues:

- The socio-economic situation in the two most affected upazilas (Teknaf and Ukhiya) is evolving in nature, thus continual monitoring is essential. In particular, price movements and changes in wages and their impact are critical issues for future assessment.
- The impact on wages is likely to increase as refugee participation in the labour market rises.
- Several studies undertaken on other countries show that cash assistance to refugees can create significantly greater positive income spill-overs to host community businesses and households. While in-kind assistance was necessary at the initial stage of the crisis, giving more cash assistance to refugees may be an indirect way of supporting the host community.
- The heaviest toll of refugee inflows is on the environment. In some cases, these impacts present potential hazardous risks to health. This will require more in-depth assessment in the future.
- It is not possible to over-emphasize the importance of ensuring effective delivery of public services and expanded social protection schemes, especially for the most affected areas in Cox's Bazar and Bandarban districts. Bangladesh already has an elaborate social safety net programme. However, more in-depth and expanded coverage for the affected areas, with greater efficiency, will be critical to mitigate adverse consequences for the host community.

This study suggests that the refugee crisis can in fact represent an opportunity to address the issues that have hampered economic development in Cox's Bazar and Bandarban for many years—issues that have placed them among lagging districts in the country. While confronting the adverse impacts noted in this report, concerted efforts can be undertaken to transform the two districts. In this way, it will be possible not only to address the negative impacts of the refugee influx but also to put the two districts on an upward development trajectory based on the situation pre-influx. This can only be positive—not just for the host communities but also for the refugees.

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Annex 1
Survey respondents

Table A1.1. Sample distribution by upazila for host community household survey

	Number of households	% of sample households
Chakaria	49	12.1
Cox's Bazar Sadar	51	12.6
Kutubdia	17	4.2
Maheshkhali	32	7.9
Pekua	20	5.0
Ramu	30	7.4
Teknaf	53	13.1
Ukhiya	152	37.6
Total	404	100.0

Table A1.2. List of FGDs in Bandarban

Sl	Venue and no.	Key findings
1	Konapara, Ward 2, Ghumdum union, Bandarban #15 participants	• Decreased earnings for the workers in the forestry and day labourers • Increased income for businesspersons and traders • Crops ruined by Rohingya trampling • Drastically decreased class attendance in school at beginning of influx • Damaged education institutes • Excess pressure on health care services owing to Rohingya crowd • Increased price of essentials (except rice, lentil, oil) • Ban on production of agricultural products at border-adjacent areas • Deteriorated roads and infrastructure • Polluted water and contamination, water-borne disease • Quadrupled fuel price
2	Poshchimkul, Ward 1, Ghumdum union, Bandarban #11 participants	• Decreased earnings for workers in forestry and day labourers • Crops ruined by Rohingya trampling • Scarcity of jobs • Class presence decreased by a third during initial influx • Damaged education institutes • Deteriorated health care services owing to overcrowding • Breakout/increase of diseases • Income from businesses increased initially, but now decreasing • Increased price of essentials (except rice, lentil, oil) • Deteriorated infrastructure • Polluted water and contamination, water-borne diseases • Tripled fuel price • Increasing crime trend

Sl	Venue and no.	Key findings
3	North Bichamara, Naikhongchhari Sadar union, Bandarban #10 participants	• Decreased cultivable land • Decreased earnings of the day labourers • Scarcity of jobs • Increased income for businesspersons and traders • Damaged education institutes and reduced school presence at beginning • Increased medical expenses • Outbreak of water-borne diseases • Increased price of essentials • Polluted water • Increased transport cost • Doubled fuel price • Increased crime rates
4	Naikhongchhari union parishad, Naikhongchhari Sadar union #12 participants	• Decreased cultivable land and decreased earnings • Decreased price of day labourers • Increased income of business organizations • Damaged education institutes and reduced school attendance rate at beginning • Increased price of essentials • Increased transport and fuel price • Increased crime trends
5	Baishari union parishad, Ward 2 #12 participants	• Decreased wage rate for day labourers • Increased crime trends
6	Holdeshia Bazar, Ward 5, Baishari union #13 participants	• Decreased wage rate of labourers • Increased waiting time for medical services • NGOs no longer working in area (apart from microcredit services)
7	Bottoli Para, Ward 6, Sonaichori #12 participants	• No effect of Rohingya influx found • Reduced NGO activities (apart from microcredit services)
8	Poshchim Tulatili, Ward 5, Dochori #11 participants	• No effect of Rohingya influx was found • Reduced NGO activities (apart from microcredit services)
9	Tulatuli, Ward 5, Dochori #13 participants	• Increased competition of day labourers and falling wage levels • NGOs no longer working in area (apart from microcredit services)
10	Headmanpara, Ward 5, Sonaichori union #10 participants	• NGOS no longer operating in area (apart from microcredit services)

Table A1.3. List of FGDs in Cox's Bazar

Sl	FGD target group	Venue and no. of	Issues discussed
1	General Ukhiya residents	Ukhiya Bazar #7 participants	• Perceptions of local community on refugee influx • Impact on wages and commodity prices, especially vegetables, fish and meat • Security concerns • Falling water levels
2	Local traders of Ukhiya	Kutupalong market, Ukhiya #9 participants	• Impact on local markets and petty traders • Value chain, market structures and profitability • Perceptions on Rohingya refugees • Security issues
3	General Teknaf residents	Mouchoni Para, near Noapara refugee camp #7 participants	• Impact on local business • Perception of local communities on Rohingya • Community hygiene issues and degraded environment • Impact on wages and commodity prices, specifically beef and vegetables
4	Local traders of Teknaf	Teknaf Sadar, Teknaf #10 participants	• Impact on local markets and petty traders • Impact of reselling and leakages of in-kind assistance received by refugees on dealers • Impact on wages • Value chain, market structures and profitability • Perceptions on Rohingya refugees • Security issues
5	General refugees	Modhuchara, Kutupalong Rohingya refugee camp #5 Rohingya individuals	• Amount and types of aid support, (tentative) needs of families • Employment and income-earning opportunities • Average monthly expenditure, overall consumption patterns • Leakages from refugee camps and market transactions
6	Refugee traders (inside the camp)	Kutupalong Rohingya refugee camp #9 Rohingya individuals	• Amount and types of aid support received, tentative needs of families • Employment and income-earning opportunities • Average monthly income • Supply chains involving various products • Income-earning opportunities • Interactions with local traders and business communities

Table A1.4. Employment information of NGOs/INGOs

Sl	INGO/NGO	Contact person	Total salaried staff on FDMN	Staff in %	No. of volunteers	Volunteers in %
1	ACF	Mita Rani Chowdhury 01717075097 Mhcpcobd.mission@acf.org	700	25%	120	100%
2	BRAC	Khaled Morshed Programme Manager 01730321717 Khaled.m@brac.net	1,800	85%	3300	100%
3	CARE Bangladesh	Dr Nazmul Islam Programme Manager 01720398017	550	35%	100	100%
4	COAST	Shahinul Islam 01713367434 Focal Person, Rohingya Project	268	85%	50	100%
5	CRITAS	Pintu Williiam Gomes Sr Manager 01713384016	800	35%	120	100%
6	CZM	Sayeed Md. Anwar Hossain Project Coordinator 01818620520	25	75%	9	100%
7	Concern WW	Suzanne Fuhrman Suzanne.fuhrman@gmail.com 018472679793	250	20%	50	100%
8	DAM	Omar Faruk Omarfaruk1976@gmail.com 01718507400	65	0%	18	100%
9	Friendship	Aminul Islam Rony aminulislam@friendship.ngo 01867970716	220	45%	30	100%
10	Gonoshasthay Kendro	Md. Jonab Ali jonabgk@yahoo.com 01716037653	650	30%	100	100%
11	Handicap Intl	Ahsan Ud Daula ahsan@hibd.org 01914342250	150	55%	20	100%
12	HMBD Foundation	Dr Tarifur Rahman Dr.trifur13@gmail.com	30	100%	0	0
13	Hope Foundation	Dr Salimullah abululsalim@gmail.com 01935889513	1,000	20%	50	100%
14	Humanity First	Md. Daulat Azim humanityfirst@gmail.com 01873732525	15	45%	20	100%

Sl	INGO/NGO	Contact person	Total salaried staff on FDMN	Staff in %	No. of volunteers	Volunteers in %
15	ICDDRB	Dr Ashraful Islam Khan Muhammad.ashraful@icddrb.org 01713040941	75	20%	20	100%
16	PHD	Harunur Rahman Hr.hasan84@gmail.com 01701208862	133	70%	50	100%
17	Save the Children	Dr ZM Babar, Sr Manager 01711430594	800	25%	200	100%
18	World Vision Bd	Md. Ariful Islam mdariful_islam_kallol@wvi.org 01777702416	118	92.37%	300	100%
19	Mukti Cox's Bazar	Bimal Chandra Dey Sarker, ED mukticox@yahoo.com 01716056146	1,164	75%	100	100%
20	ASEAB	Jahangir Hossain Programme Manager 01852702097	25	75%	10	100%
21	AID	Sayedul Arefin 01720437547	15	20%	3	100%
22	Help Age Intl'	Md. Jahangir Alam Jahangir.alam@helpage.org 01712283772				
23	IEDCR	Dr ASM Alamgir Dr.alamgir@iedcr.gov.bd 01715087881	21	100%	0	0
24	ISDE Bangladesh	S M Nazer Hossain, ED Isde.bangladesh@gmail.com 01713110054	15	100%	12	100%
25	Malaysia Field Hospital	Dr Badrul Samad Deputy Team Leader malaysiafieldhospital@gmail.com 01855154480	120	25%	20	100%
26	MSF	Dr Mohammad Mussoke Msff-bangladesh-medeco@paris.msf.org 01844050130	630	25%	150	100%
27	Qatar Charity Foundation	Muhammad Islam 01677882288	20	100%	0	0
28	Relief Intl'	Dr Omar Faruk 01715151434	300	15%	200	100%
29	RTMI	Anisur Rahman/Atiqur Rahman dhraborain@gmail.com 01716789389/ 01715182120	198	35%	50	100%

Sl	INGO/NGO	Contact person	Total salaried staff on FDMN	Staff in %	No. of volunteers	Volunteers in %
30	SHED	Abul Kalam Kalam.azad16@gmail.com 01788871862	550	60%	100 (on average)	100%
31	BDRCS	Dr Md. Sikander Hayat Shojib bdrcshealthproject@gmail.com 01811458532	600 (+/-)	35%	50	100%
32	IOM	Dr Mohiuddin Khan NPO mhkhan@iom.net 01714165298	800	80%	300	100%
33	HAEFA	Md Saim saim.md@gmail.com 01912517515	14	100%	0	0
34	IRC	Fazle Rabbi fazle.rabbi@rescue.org 01761800186	50	76%	0	0
35	Agrajattra	Mohammad Helal Uddin agrajattra.helal@gmail.com 01822869660	55	100%	50	100%
36	FDSR – CARE	Md. Kamal Uddin riadahmed@gmail.com 01840326080	14	100%	4	100%
37	FKRF	Farzana Khan farzanakhan04@yahoo.com 01717311522	2	100%	0	0
38	GRC	Dr Md. Tariqul Islam Limon med.coordination@grc-bangladesh.org 01912517515	17	70.5%	150	100%
39	DGHS Coordination Cell	Dr Md Abdur Rahim abdurrahim213@gmail.com 01840022565	118	100%	0	0
40	ISCG	Naim Ahmed Field.coord5@iscgcxb.org 01716743294	25	10%	0	0
41	WaterAid					
42	NGO Forum for Public Health					
43	CARE					
44	Oxfam					
45	Plan Intl.					
46	CODEC					

Sl	INGO/NGO	Contact person	Total salaried staff on FDMN	Staff in %	No. of volunteers	Volunteers in %
47	UN Women	Simon Opolot Simon.opolot@unwomen.org Senior Gencap Adviser 01847182498	15			
48	UNFPA	Dr Coquelin Bernond coquelin@unfpa.org 01708367946	15			
49	UNAIDS	Dr Saima Khan khan@unaids.org Country Manager 01711821726	15			
50	UNHCR	Sushela Balasundaram balasund@unhcr.org 01709242407	50			
51	UNICEF	Dick Chamla dchamla@unicef.org 01701208908	25			
52	WFP	Shelley Thakral Shelley.thakral@wfp.org 01755642150	25			
53	WHO	Tony Stewart stewarta@who.int 017012029999	25			
54	WHO BAN	Catalin Bercaru sercaruc@who.int 01787693318				

Note: The figures are conservative estimates of staff numbers. Total NGO and INGO: 78; total staff: 12,572; total volunteers: 5,756. Estimated total employment: 20,000 approximately.

Table A1.5. Sector heads engaged in Rohingya activities

Sl	Name	Sector (all to be covered here + district admin)	Sector responsibility	Time spent on Rohingya issues	Engagement of supporting manpower (#)	Engaged manpower time
District administration						
1	Md. Kamal Hossain	Head of District	All sectors should be covered here	65%	15	60%-75%
2	Mahidur Rahman	Deputy Head	Chief Coordinator of Rohingya Affairs	50%		
3	Mr Nikaruzzaman	Upazila	All sectors should be covered here	85%	20	70%-90%
4	Mr Rabiul Hasan	Upazila	All sectors should be covered here	50%	12	65%-85%
5	Kazi Md. Abdur Rahman	Site management		60%	5	0.5
6	Akramul Siddique	Upazila	Site management	60%	5	0.75
7	Pronay Chakma	Upazila	Site management	45%	5	0.65
8	Mr Ritthik Chowdhury	WASH	DPHE	75%	12	75%-90%
9	Mr Ikbal Hossain	WASH	Ukhiya, DPHE	85%	220	80%-100%
10	Md. Ikbal Hossain	WASH	Teknaf, DPHE	65%	70	65%-80%
Health activities						
11	Dr Abdus Salam	Health	Civil Surgeon	50%	12	65%-85%
12	Dr Abdul Mannan	Health		75%	157	75%-100%
13	Dr Sumon Barua	Health		50%	80	50%-85%
14	Dr Abdus Salam	Nutrition	Civil Surgeon	50%		
15	Dr Pintu Kanti Bhartcharjee	Health		50%		
Education						
16	Md. Ashraf Hossain	Education	ADC, Education	50%-60%	150	0.75
17	Md. Mosleh Uddin Chy	Education		50%		
Protection						
18	Dr A K M Ikbal Hossain	Maintain district law and order	Police	75%		
19	**Chailaw Marma**		**Police**	**85%**	**950**	**85%-100%**
20	Md. Jahirul Islam Khan		Police	90%		
21	Ataur Rahmna Khondoker		Police	85%		
RRRC officials and their engagement*						
22	Md. Samsuddoha	Shelter/NFI	RRRC	100%	All CiC with the help of selected NGO's	100%

Sl	Name	Sector (all to be covered here + district admin)	Sector responsibility	Time spent on Rohingya issues	Engagement of supporting manpower (#)	Engaged manpower time
23	Mr Mizanur Rahman	Protection and food security	RRRC	100%	All CiC with the help of selected NGO's	100%
24	32 CiCs plus 8 supervisors	Management and supervision of Rohingya camps	RRRC with UNHCR/ ISCG support	100%		

Note: * GoB has deputed government officials, on a full-time basis, to manage and support the temporary settlement of Rohingyas through the RRRC

Table A1.6. Key informant interviews in Cox's Bazar

Sl	Name	Designation	Date
1	Md. Kamal Hossain	Deputy Commissioner, Cox's Bazar	6-5-18
2	Kazi Md. Abdur Rahman	ADC (Revenue), Cox's Bazar	12-5-2018
3	Pritam Kumar Chowdhury	Deputy Director, DSS	14-5-2018
4	Mijanur Rahman	AC, RRRC, Cox's Bazar	15-5-2018
5	Subrata Biswash	District Women Affairs Officer, Cox's Bazar	15-5-2018
6	Md. Abul Kalam, NDC	Commissioner (Additional Secretary), RRRC, Cox's Bazar	6-5-18
7	Mr Nikamuzzaman	UNO, Ukhiya, Cox's Bazar	6-5-18
8	Md. Rabiul Hasan	UNO, Teknaf, Cox's Bazar	5-5-18
9	Subhas Chandra	Site Manager, BRAC, Modhuchhara, Kutupalong camp	4-5-18
10	Shahidul Islam	District Primary Education Officer, Cox's Bazar	17-5-2018

Annex 2
Demographic data

Table A2.1. Production of agricultural items in Cox's Bazar, 2015-16

Item	Local		HYV		Hybrid		Total	
	Area (acres)	Production (tonnes)	Area (acres)	Production (tonnes)	Area (acre)	Production (tonnes)	Area (acres)	Production (tonnes)
Cox's Bazar								
Aus rice	22	13	1,560	1,544	0	0	1,582	1,557
Aman rice	11,963	8,712	176,641	180,004	0	0	188,604	18,8716
Boro rice	273	247	108,701	149,317	10,823	19,109	119,797	16,8672
Potato	1,888	6,758	243	1,283	0	0	1,940	7,656
Bandarban								
Aus rice	15,305	10,900	5,437	5,216	0	0	20,742	16,116
Aman rice	557	420	23,338	23,347	0	0	23,895	23,766
Boro rice	0	0	9,166	12,112	1,966	3,200	11,132	15,311
Potato	781	2,996	118	663	0	0	899	3,659

Source: BBS (2017a).

Table A2.2. Production of other agricultural items

	Cox's Bazar		Bandarban	
	Total area (acres)	Production (tonnes)	Total area (acres)	Production (tonnes)
Betel leaves	13,469	28,884	105	90
Betel nuts	3,639	26,670	61	197
Watermelons	1,814	16,772	123	456
Coconuts	862	17,858	82	1,054
Jackfruits	122	8,320	484	3585
Sugarcane	759	4,140	204	591
Other items	6,475	18,963	12,952	23,932

Source: BBS (2017a).

Table A2.3. Distribution of households and population in Cox's Bazar by upazila (sub-district)

Sub- District	No of Households	Population
Chakaria	102,807	567,084
Cox's Bazar Sadar	96,168	517,150
Kutubdia	26,271	145,232
Maheshkhali	67,665	372,379
Pekua	37,154	198,859
Ramu	55,717	309,120
Teknaf	53,884	307,300
Ukhiya	44,128	241,100
Total	483,794	2,658,224

Source: Estimated population data of Cox's Bazar district 2017–2018, updated by ISCG 4W 29-12-17; NPM Round 8. Household data on Cox's Bazar taken from BBS (2013a).

Table A2.4. Employed population aged 15 or above, by major industry

	Cox's Bazar	Teknaf	Ukhiya
Agriculture, forestry and fishing	44.74	81.54	63.03
Mining and quarrying	1.65	0	0
Manufacturing	12.91	1.44	2.71
Construction	6.01	2.82	4.05
Wholesale and retail trade	16.59	12.06	18.16
Transportation and storage	6.3	0.71	5.5
Accommodation and food service activities	2.41	0	0
Information and communication	0.13	0	0
Financial and insurance activities	0.08	0	0
Real estate activities	0.13	0	0
Professional, scientific and technical	0.75	0	0
Administrative and support service activities	0.57	0	0.44
Public administration and defense	0.87	0	1.4
Education	2.32	1.43	1.78
Human health and social work activities	0.49	0	0.22
Other service activities	3.15	0	2.52
Activities of households as employer	0.89	0	0.21
	100	100	100

Source: Analysis using BBS data (2018).

Table A2.5. Establishments and total persons engaged in Cox's Bazar by category

	Cottage	Micro	Small	Medium	Small and medium	Large	Total establishments	Total population engaged
Chakaria	23254	166	1,996	4	2,000	0	25,420	56,086
Cox's Bazar Sadar	15,147	212	4,102	61	4,163	7	19,529	66,618
Kutubdia	2,248	5	738	1	739	0	2,992	12,764
Maheshkhali	6,333	68	1,414	2	1,416	0	7,817	25,593
Pekua	3,537	111	850	1	851	0	4,499	15,287
Ramu	11,883	101	1,197	11	1,208	1	13,193	29,694
Teknaf	13,195	87	1,040	7	1,047	0	14,329	35,321
Ukhiya	6,966	51	817	1	818	0	7,835	18,715
District	82,563	801	12,154	88	12242	8	95,614	260,078

Source: BBS (2016a). Updated data are not available.

Table A2.6. Coverage of social protection schemes 2017–18

Social protection scheme	Cox's Bazar			Teknaf			Ukhiya		
	Beneficiary no.	Monthly amount paid (Tk./person)	Total amount (Tk.)	Beneficiary no.	Monthly amount paid (Tk./person)	Total amount (Tk.)	Beneficiary no.	Monthly amount paid (Tk./ person)	Total amount (Tk.)
Old age allowance	51,327	500	307,962,000	5,944	500	35,664,000	4,281	500	25,686,000
VGD	NA	NA	0	3,461	30 kg rice = 1,200	4,153,200	2,924	30 kg rice = 1,200	3,508,800
Widow benefit	16,668	500	100,008,000	1,580	500	9,480,000	1,101	500	660,600
Disability benefit	12,245	700	102,858,000	1,240	700	11,961,600	1,054	700	8,853,600
Stipends (minority and underdeveloped)	246	2,340	621,000	0	0	0	9	2,400	21,600
Stipends (transgender students)	33	Varying	132,600	2	4,500	9,000	2	4,500	9000
Lactating mothers	350	500	175,000	350	500	175,000	350	500	175,000
Rural ante-natal benefit loans*	1,410		3,983,750	0	0	0	0	0	0
Interest-free loan for burnt and disabled	1,408		13,879,664	154		1,529,037	167		1,549,970
Interest-free loan for rural social services	10,561		58,605,365	1,023		5,268,860	1,093		5,681,000
	94,248		588,225,379	13,754		68,240,697	10,981		46,145,570

Source: DSS and Department of Women Affairs, Cox's Bazar. Includes all department programmes in Cox's Bazar. * This programme is only for Maheshkhali, Pekua, Ramu and Chakaria.

Table A2.7. Summary of baseline indicators

Component	Indicators covered	Base year	Cox's Bazar	Teknaf	Ukhiya	Data sources
Geographic characteristics: resource endowments, land utilization and production	Uses of land area	2016	-Forest (34%) -Not available for cultivation (29%) -Single cropped area (12.2%) -Double cropped area (17.9%)	-Reserve forest (41.1%)	-Reserve forest (59.3%)	-District Statistics -Agricultural Statistics Yearbook 2016
	Distribution of operated land based on utilization		-Permanent cropped area (6%) -Temporary cropped area (65.4%) -Permanent fallow area (0.7%)	-Permanent cropped (5.9%) -Temporary cropped (62.5%) -Permanent fallow (1%)	-Permanent cropped (5.1%) -Temporary cropped (61.9%) -Permanent fallow (1%)	-District Statistics -Agriculture Census 2008
	Cropping intensity	2015/16	176.8%	N/A	N/A	-Agricultural Statistics Yearbook 2016
	Net cropped area	2015/16	211,000 acres	N/A	N/A	-Agricultural Statistics Yearbook 2016
Demographic situation	Distribution of population and households	2017/18	-Households (.5 million) -Population (2.7 million)	-Households (53,884) -Population (307,300)	-Households (44,128) -Population (241,100)	-District Statistics -ISCG, IOM NPM
	Population by age and sex	2016/17	-Male (51.03 %) -Female (48.97 %)	-Male (54.06) -Female (45.94)	-Male (47.79 %) -Female (52.21 %)	-LFS 2016–2017
	Population density	2016/17	1,067 (population/km2)	791 (population/km2)	921 (population/ sq. km)	-ISCG, IOM NPM -District Statistics
Labour market and employment	LFPR	2016/17	-LFPR (54.77%) -Female LFPR (25.95%)	-LFPR (59.01%) -Female LFPR (22.06%)	-LFPR (60.05%) -Female LFPR (34.94%)	-LFS 2016–2017
	Labour market and employment	2016/17	-Agriculture (44.74%) -Industry (20.57%) -Services (34.68%)	-Agriculture (81.54%) -Industry (4.26%) -Services (14.2%)	-Agriculture (63.03%) -Industry (6.75%) -Services (30.22%)	-LFS 2016–2017
	Daily agricultural wage	2016	-Male (Tk. 435) -Female (Tk. 350)	N/A	N/A	-Agricultural Statistics Yearbook 2016
	% of household reported migration	2010	10.3%	N/A	N/A	-HIES 2010
Income and consumption	Household income per capita	2016/17	Tk. 3,016.9	Tk. 3,183.2	Tk. 2,736.1	-HIES 2016
	Income and consumption	2016/17	Tk. 3,673.3	Tk. 2,760.2	Tk. 3,783.1	-HIES 2016
Health, education, sanitation, housing and basic services delivery	Underweight prevalence	2012/13	-Underweight prevalence 40.5%	N/A	N/A	-MICS 2012–2013 -BDHS 2014
	Health, education, sanitation, housing and basic services delivery	2012/13	-Stunting prevalence 49.5%	N/A	N/A	-MICS 2012–2013
	Wasting prevalence	2012/13	-Wasting prevalence 10.1%	N/A	N/A	-MICS 2012–2013
	Global acute malnutrition	2014	N/A	12.10%	9.40%	-BDHS 2014
	Severe acute malnutrition	2014	3 %	2.80%	1.30%	-MICS 2012–2013 -BDHS 2014
	Use of improved drinking water source	2012/13	99.8%	N/A	N/A	-MICS 2012–2013
	Use of improved sanitation which are not shared	2012/13	51.5%	N/A	N/A	-MICS 2012–2013
	Safe disposal of child's faeces	2012/13	12.5%	N/A	N/A	-MICS 2012–2013
			-Total (58.03%) -Male (62.4%) -Female (53.29%)	-Total (36.88%) -Male (43.03%) -Female (28.89%)	-Total (45.4%) -Male (50.85%) -Female (39.93%)	-LFS 2016–2017
Infrastructure	Electricity connectivity and other sources of lighting at home	2016/17	-Electricity (66.8%) -Solar panel (7.6%) -Kerosene (25.6%)	-Electricity (55.9%) -Solar panel (4.2%) -Kerosene (40%)	-Electricity (39.2%) -Solar panel (12.3%) -Kerosene (46.6%)	-LFS 2016–2017
	Length of road by sub-district		-Earthen road (2,482.4 km) -Paved road (1,743.32 lm)	- Earthen road (292.72 km) - Paved road (218.53 km)	-Earthen road (272.42 km) -Paved road (199.41 km)	LGED
	Uses of cooking fuel	2016/17	-Firewood (91.8%) -Gas/LPG (7.6%) -Dung/leaves/straw (0.5%	N/A	N/A	-LFS 2016–2017
Trade and investment	Number of establishments	2013	95,614	14,329	7,835	-Economic Census 2013
Headcount poverty	HCR	2016	16.6%	41.97%	4.81%	-HIES 2016
Social protection profiles	Coverage of all allowances	2017/18	-Beneficiaries (80,869) -Total amount (Tk. 511.7 million)	-Beneficiaries (12,577) -Total (Tk. 61.4 million)	-Beneficiaries (9,721) -Total (Tk. 38.91 million)	-DSS, Cox's Bazar -Department of Women Affairs, Cox's Bazar
		2017/18	-Beneficiaries (13,379) -Total amount (Tk. 76.5 million)	-Beneficiaries (1,177) -Total (Tk. 6.8 million)	-Beneficiaries (1,260) -Total (Tk. 7.2 million)	-DSS, Cox's Bazar

Source: UNDP compilation. N/A indicates information not available

Annex 3
Social account matrices and their construction for 2017

Input-output matrix and social accounting matrix

A SAM is an extension (or generalization) of the input-output matrix by incorporating other parts of the economy—namely, primary and secondary income distribution and institutions of an economy. More specifically, input-output analysis involves constructing a table in which each horizontal row describes how one industry's total product is divided among various production processes and final consumption. Each vertical column denotes the combination of productive resources used within one industry. A table of this type (Table A3.1) illustrates the dependence of each industry on the products of other industries: for example, an increase in manufacturing output is also seen to require an increase in the production of power.

Table A3.1. Input-output table

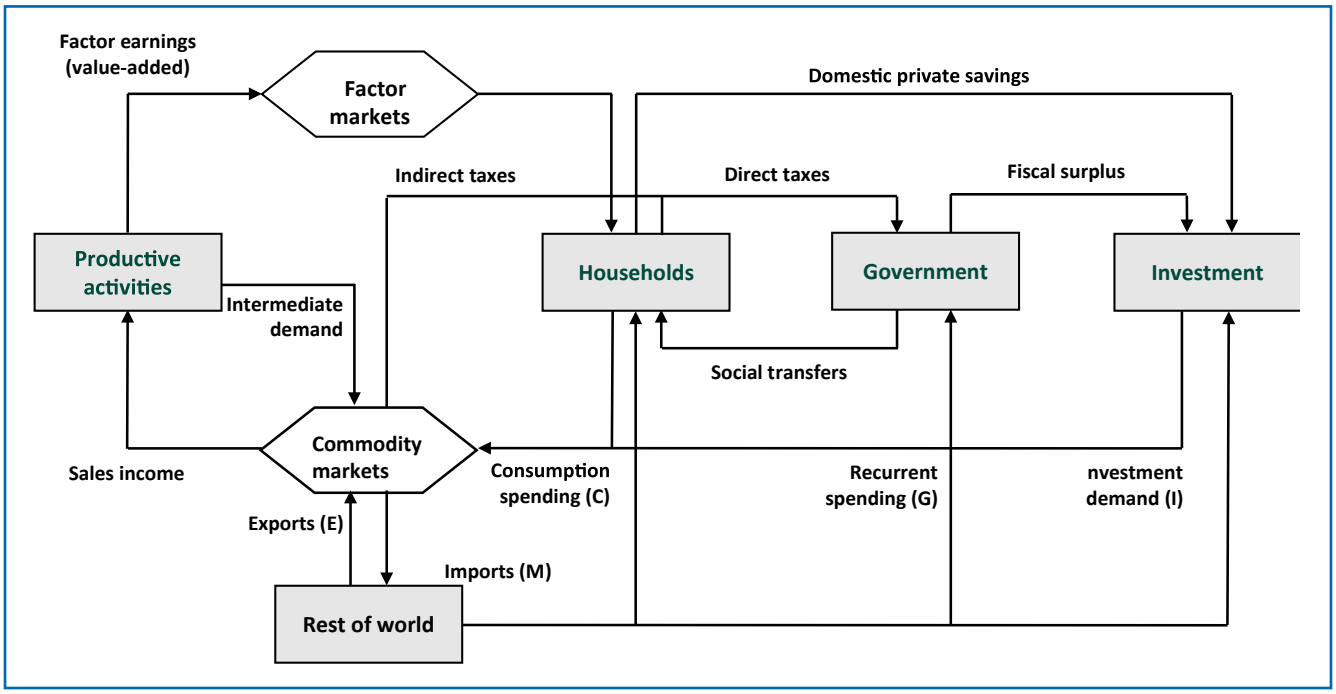
		Activity F					inal demand T				otal use
		A1 …	…	…	A	16 C	$_{p}$ C	$_{g}$ I	E	x	
Commodity	C1	Technology matrix (16 x 16)					Final demand				
	..										
	..										
	..										
	C16										
Value-added	Compensation	GDP (Income approach)					GDP (expenditure approach)				
	Operating surplus										
	Indirect taxes										
I	mport										
T	otal supply										

SAM is a square matrix that captures all the main circular flows (Figure A3.1) within an economy in a given period. A basic SAM is illustrated in Table A3.2.

Table A3.2. Basic structure of a SAM

		Expenditure columns							
		Activities C1	Commodity C2	Factors C3	Households C4	Government C5	Investment C6	Rest of world C7	Total
Income rows	Activities R1		Domestic Supply						Activity income
	Commodities R2	Intermediate demand			Consumption spending (C)	Recurrent spending (G)	Investment demand (I)	Export earnings (E)	Total demand
	Factors R3	Value-added							Total factor income
	Households R4			Factor payments to households		Social transfers		Foreign remittances	Total household income
	Government R5		Sales taxes and import tariffs		Direct taxes			Foreign grants and loans	Government income
	Savings R6				Private savings	Fiscal surplus		Current account balance	Total savings
	Rest of world R7		Import payments (M)						Foreign exchange outflow
	Total	Gross output	Total supply	Total factor spending	Total household spending	Government expenditure	Total investment spending	Foreign exchange inflow	

Figure A3.1. Circular flow in an economy



Source: Breisinger et al. (2009).

The input-output part of SAM captures production linkages between sectors that are determined by sectors' production technologies. These linkages can be differentiated into backward and forward linkages. Stronger forward and backward production linkages lead to larger multipliers.

Backward production linkages are the demand for additional inputs used by producers to supply additional goods or services. For example, when electricity production expands, it demands intermediate

goods like fuel, machinery and construction services. This demand then stimulates production in other sectors to supply these intermediate goods. The more input-intensive a sector's production technology is, the stronger its backward linkages are.

Forward production linkages account for the increased supply of inputs to upstream industries. For example, when electricity production expands, it can supply more power to the economy, which stimulates production in all the sectors that use power. Thus, the more important a sector is for upstream industries, the stronger its forward linkages will be. Forward linkages are particularly important for the energy sector as it provides a key input into the majority of other sectors in the economy.

Methodology: description of SAM model

The move from a SAM data framework to a SAM model (also known as multiplier framework) requires decomposing the SAM accounts into "exogenous" and "endogenous". Generally, accounts intended to be used as policy instruments (e.g. government expenditure including social protection, investment and exports) are made exogenous and accounts specified as objectives or targets must be made endogenous (e.g. output, commodity demand, factor return and household income or expenditure). For any given injection into the exogenous accounts of the SAM, influence is transmitted through the interdependent SAM system among the endogenous accounts. The interwoven nature of the system implies that the incomes of factors, households and production are all derived from exogenous injections into the economy via a multiplier process. The multiplier process is developed here on the assumption that, when an endogenous income account receives an exogenous expenditure injection, it spends it in the same proportions as shown in the matrix of average propensities to spend (APS). The elements of the APS matrix are calculated by dividing each cell by the sum total of its corresponding column.

The economy-wide impacts of the SAM have been examined by changing the total exogenous injection vector, especially government. More specifically, the total exogenous account is manipulated to estimate their effects on output (through an output multiplier), value-added or GDP (through the GDP multiplier), and household income (through the household income multiplier) and commodity demand (via commodity multipliers).

Table A3.3. Description of the endogenous and exogenous accounts and multiplier effects

Endogenous (y)	Exogenous (x)
The activity (gross output multipliers) indicates the total effect on the sectoral gross output of a unit-income increase in a given account, i in the SAM, and is obtained via the association with the commodity production activity account i	
The consumption commodity multipliers, which indicates the total effect on the sectoral commodity output of a unit-income increase in a given account i in the SAM, is obtained by adding the associated commodity elements in the matrix along the column for account i	Intervention into through activities (x = i + g + e), where I = GFC + ST (GFCF) Exports (e) Government Expenditure (g) Investment Demand (i) Inventory Demand (i)
The value-added, or GDP multiplier, giving the total increase in GDP resulting from the same unit-income injection, is derived by summing up the factor-payment elements along account i column	
Household income multiplier shows the total effect on household and enterprise income, and is obtained by adding the elements for the household groups along the account i column	Intervention via households (x = r + gt + ct), where Remittance (r) Government Transfers (gt): OAA will be injected into the SAM model via government transfer account linking households and the government Corporation Transfers (ct)

The shift from a "data" SAM structure to a SAM multiplier module requires the introduction of assumptions and the separation of the SAM accounts into exogenous and endogenous components.[121]

Table A3.4. General SAM modular structure

		1a-PA	1b-CM	2-FP	3a-HH-OI	4-KHH-OI	5-ROW	TDD
1a	PA		$T_{1a, 1b}$		0			Y_{1a}
1b	CM	$T_{1b, 1a}$			$T_{1b, 3}$	$T_{1b, 4}$	$T_{1b, 5}$	Y_{1b}
2	FP	$T_{2, 1a}$					$T_{2, 5}$	Y_2
3	HH-IO	$T_{3, 1a}$	$T_{3, 1b}$	$T_{3, 2}$	$T_{3, 3}$		$T_{3, 5}$	Y_3
4	KHH-OI	$T_{4, 1a}$			$T_{4, 3a}$		$T_{4, 5}$	Y_4
5	ROW		$T_{5, 1b}$	$T_{5\,2}$	$T_{5, 3}$	0	0	Y_5
	TSS	E_{1a}	E_{1b}	E_2	E_3	E_4	E_5	

Note: By definition Yi= Ej and 1 denotes Production (1a PA = Production Activities and 1b CM = Commodities); 2 FP = Factors of Production; 3 HH-IO = Households and Other Institutions (including Government); 4 KHH-OI = Capital Account Households and Other Institutions (including government); 5 ROW = Rest of the World (current and capital account). Blank entries indicate that there are no transactions by definition.

121 This methodology follows Pyatt and Round (1977, 1979), Pyatt and Roe (1987) and Alarcon (1991).

The separation is needed to gain entry into the system, allowing some variables within the SAM structure to be manipulated exogenously (via injection instruments) to assess the subsequent impacts on the endogenous accounts as well as on the exogenous accounts.

Generally, accounts intended to be used as policy instruments are classified as exogenous and accounts specified a priori as objectives (or targets) are classified as endogenous. Three accounts are designated as endogenous accounts: 1) production (production activities and commodities) account; 2) factors of production account; 3a) households and other institutions (excluding the government).

The exogenous accounts comprise 3b) government (expenditure, transfer, remittances); 4) capital account of institutions (savings and demand for houses, investment demand, infrastructure and machinery and equipment); and 5 ROW transfers, remittances, export demand and capital. The SAM flows and the categorization into endogenous and exogenous accounts are shown in Table A3.5.

Table A3.5. Endogenous and exogenous accounts

		1a-PA	1b-CM	2-FP	3a-HH-OI	3b-Gov	4-KHH-OI	5-ROW	TDD
1a	PA		$T_{1a, 1b}$		0				Y_{1a}
1b	CM	$T_{1b, 1a}$			$T_{1b, 3a}$	$T_{1b, 3b}$	$T_{1b, 4}$	$T_{1b,5}$	Y_{1b}
2	FP	$T_{2, 1a}$						$T_{2, 5}$	Y_2
3a	HH-OI			$T_{3a, 2}$	$T_{3a, 3a}$	$T_{3a, 3b}$		$T_{2, 5}$	Y_3
3b	Gov	$T_{3b, 1a}$	$T_{3b, 1b}$		$T_{3b, 3a}$	$T_{3b, 3b}$		$T_{3a, 5}$	
4	KHH-OI	$T_{4, 1a}$			$T_{4, 3}$			$T_{4, 5}$	Y_4
5	ROW		$T_{5, 1b}$	$T_{5, 2}$	$T_{5, 3a}$	$T_{5, 3b}$	$T_{5, 4}$	0	Y_5
	TSS	E_{1a}	E_{1b}	E_2	E_{3a}	E_{3b}	E_4	E_5	

Note: Endogenous: 1 Production (1a PA = Production Activities and 1b CM = Commodities); 2 FP = Factors of Production; 3a HH = Households and Other Institutions (excluding Government); Where Exogenous: 3b Government; 4 KHH-OI = Capital Account of Households and of Other Institutions (including Government); 5 ROW = Rest of the World (current and capital account). Blank entries indicate there are no transactions by definition.

Table A3.6. Endogenous and components of exogenous accounts

	PA	CM	FP	3a HH&OI	EXO	INCOME	Exogenous accounts (EXO) used as injections column vectors
1a PA		$T_{1a\ 1b}$		0	X_{1a}	Y_{1a}	$X_{1a} = 0$
1b CM	$T_{1b\ 1a}$			$T_{1b\ 3a}$	X_{1b}	Y_{1b}	X_{1b} = Government consumption subsidies - taxes + exports + gov. investment (capital formation in infrastructure and machinery and equipment) + gross capital stock formation
2 FP	$T_{2\ 1a}$				X_2	Y_2	X_2 =Factor remittances from ROW
3a HH&OI			$T_{3a\ 2}$	$T_{3a\ 3a}$	X_{3a}	Y_{3a}	X_{3a}= Transfers (OAA), remittance
3b-5 Leaks	L_{1a}	L_{1b}	L_2	L_{3a}	$L_{3b\text{-}5}$ = $X_{3b\text{-}5}$	$Y_{3b\text{-}5}$	3b =Aid to government from ROW
EXPN	E_{1a}	E_{1b}	E_2	E_{3a}	$E_{3b\text{-}5}$		Where $E_i = Y_j$
L_{1a} = Activity Tax					L_{3a} = Income tax + household savings + corporate savings		
L_{1b} = Commodity tax + import duty + imports					$L_{3b\text{-}5}$ $X_{3b\text{-}5}$ and $Y_{3b\text{-}5}$ falls out of the model		
L_2 = Factor remittances to ROW					Blank entries indicate that there are no transactions by definition.		

Note on Injection: For any given injection into the exogenous accounts Xi (i.e. instruments) of the SAM, influence is transmitted through the interdependent SAM system among the endogenous accounts. The interwoven nature of the system implies that the incomes of factors, institutions and production are all derived from exogenous injections into the economy via a multiplier process. Multiplier models may also be built on the input-output framewoWrks. The main shortcoming of the I-O model is that the feedback between factor income generation (value-added) and demand by private institutions (households) does not exist. In this case, the circular economic flow is truncated. The problem can be partly tackled by endogenizing household consumption within the I-O framework; this is typically referred to as a "closed I-O model". In this case, the circular economic flow is only partially truncated. A better solution is to extend the I-O to a SAM framework, which captures the full circular economic flow derivation of SAM multipliers.

SAM coefficients (Aij) are derived from payments flows by endogenous accounts to themselves (Tij) and other endogenous accounts as to the corresponding outlays (Ei = Yj); similarly, the leak coefficients (Bij) derived from flows reflecting payments from endogenous accounts to exogenous accounts. They are derived below.

Table A3.7. Coefficient matrices and vectors of the SAM model

Account	1a – PA	1b – CM	2 - FP	3a - HH&OI	3b … 5 EXO	Income
1a – PA		$A_{1a,1b} = T_{1a,1b}/ Y_{1b}$			X_{1a}	Y_{1a}
1b – CM	$A_{1b,1a} = T_{1b,1a}/ Y_{1a}$			$A_{1b,3a} = T_{1b,3a}/ Y_{3a}$	X_{1b}	Y_{1b}
2 – FP	$A_{2,1a} = T_{2,1a}/ Y_{1a}$				X_2	Y_2
3a - HH&OI			$A_{3a,2} = T_{3a,2}/ Y_2$	$A_{3a,3a} = T_{3a,3a}/ Y_{3a}$	X_{3a}	Y_{3a}
3b … 5 Leaks	$B_{1a} = L_{1a} / Y_{1a}$	$B_{1b} = L_{1b} / Y_{1b}$	$B_2 = L_2/ Y_2$	$B_{3a} = L_{3a} / Y_{3a}$		
Expenditure	$E_{1a} = Y_{1a}$	$E_{1b} = Y_{1b}$	$E_2 = Y_2$	$E_3 = Y_{3a}$		

The multiplier analysis using the SAM framework helps us understand the linkages between different sectors and the institutional agents at work within the economy. Multipliers have been calculated following standard formula for accounting (impact) multipliers as below:

$$Y(t) = A\,Y(t) + X(t) = (I - A)^{-1} X(t) = M_a X(t)$$

Where:

t is time
Y is a vector of incomes of endogenous variables
X is a vector of expenditures of exogenous variables
A is the matrix of average expenditure propensities for endogenous accounts
$M_a = (I - A)^{-1}$ is a matrix of aggregate accounting multipliers (generalized Leontief inverse).

The aggregate accounting multiplier (M_a) is further decomposed to separately examine the direct and induced effects. In order to generate the direct and induced effects, the M_a multiplier is decomposed in both multiplicative and additive forms.

From the above it logically follows that the SAM model mainly makes it possible to calculate or assess 10 basic issues:

1. The impacts on the endogenous and exogenous accounts in a clear and differentiated manner;
2. The technological structure of the sectors oriented towards the production of basic intermediate and final goods and services;
3. Expenditure structures of factors of production, institutions and demand for goods and services of domestic and foreign origin;
4. The identification of key sectors, commodities, factors of production, institutional accounts and basic needs in the economy and quantification of main linkages (total and partial);
5. The dynamics of the production structure, factorial and institutional income formation;
6. The effects of incomes of institutions and their impact on production via their corresponding demand;
7. The intra-, across or extra- and inter-circular group effects, in both additive and multiplicative manner;
8. Matching labour and investment requirement;
9. Price changes on endogenous accounts arising out of endogenous account price changes as well as

exogenous account price changes;
10. Design simulations and alternative scenario and perform analysis.

It also serves as the basis for development of computable general equilibrium models.

Construction of local-level data SAM for 2017

A Bangladesh SAM for 2012 was developed as an integral part of the technical framework of the 7th Five Year Plan. Since the Rohingya crisis happened in the last quarter of 2017, it seems reasonable to a use SAM for 2017 rather than the readily available 2012 SAM. Following steps have been undertaken to develop the 2017 SAM:

- The SAM 2012 was composed of 101 accounts including 86 activities, 3 factors of production, 8 households and 4 institutions. Owing to time and resource constraints, instead of developing a full-fledged (i.e. consisting 86 activity accounts) SAM, we modelled an abridged version of SAM for 2017. In particular, the activity and commodity accounts of the SAM 2017 have been constructed consisting of 15 sectors in line with the BBS standard System of National Account sector classification.
- A national SAM for 2017 has been constructed using the 2012 I-O matrix[122] along with national accounts data on value-added, gross fixed capital formation and public sector expenditure. Household consumption expenditure has been based on the HIES 2010[123] and macro control (i.e. total private consumption expenditure in 2017) from BBS. External sector data—imports, exports, remittances and current account balance—have been obtained from the National Board of Revenue and Bangladesh Bank. Fiscal statistics have been collected from the National Board of Revenue and the Ministry of Finance.
- In the following step, the SAM for Cox's Bazar has been constructed. District-level data (i.e. value-added and consumption expenditure, etc.) are not regularly published in Bangladesh. District-level statistics were produced during the 1999–2005 period under a special project of BBS that had been discontinued since 2005. Razzaque et al. (2018) constructed district-level GDP data for 2014 to assess impacts of SEZ investment on various regions in Bangladesh, which is the major source of information for the constructed Cox's Bazar SAM (CXB SAM). Regular discussions were also held with BBS and district-level officials to supplement as well as update data for 2017 CXB SAM. The macro control or total size of the CXB economy has been estimated using the World Bank per capita GDP for Cox's Bazar and the total Cox's Bazar population for 2017.[124] The SAM has been developed in Microsoft Excel in a manner such that the CXB SAM can be modified with new information.
- In the following step, another local-level SAM has been constructed for the combined Teknaf/Ukhiya region. The total size of the Teknaf/Ukhiya economy has been estimated assuming their population share in Cox's Bazar's total population. Subsequently, the size of the Teknaf/Ukhiya economy has been estimated to be around 22 per cent of the Cox's Bazar economy. Local-level perceptions, UNDP survey information and the HIES 2010 have been used to construct a SAM for Teknaf/Ukhiya for 2017 invoking similar account classifications adopted in the 2017 national SAM and the CXB SAM.
- Finally, in order to complete the local-level SAM, an economy for Rohingya refugees needs to be

122 SAM 2012 contains the I-O table for Bangladesh in 2012. From the I-O table of 2012, an aggregated 15-sector I-O table has been constructed for this purpose, which was later used in constructing the 15-sector 2017 SAM.

123 Since the data on expenditure by commodities from HIES 2016 are not available yet.

124 Given the known constraints in GDP estimation in developing countries including the South Asia region, such as lack of data on the informal sector (which accounts for a large part of GDP in these countries) and weak institutions, leading to unreliability of national account measures and paucity of disaggregated GDP data, World Bank (2018) has used high-frequency night-light data to measure GDP for South Asian countries. The data provide district-level GDP along with GDP data at the national level (which correlate quite strongly with estimated GDP by the national statistics offices).

developed. In doing so, information from various sources such as the UNDP survey, consultations with local stakeholders and in-depth on-the-spot assessments by the consultation team. The economy is a rudimentary one with no agriculture sector and is devoid of any industrial activities. It contains some trading and services activities such as shops, tea stalls and localized transportation (within the camp), etc. Interactions with the host community are mainly through reselling of rations and purchasing of food items—beef, chicken, fish, vegetables, etc. Although prohibited, there is evidence of Rohingya participation in the labour markets of Teknaf/Ukhiya and Cox's Bazar.

- Thus, the local-level SAM for 2017 is composed of three regions/economies: Rohingya; Teknaf/Ukhiya; and CXB. These regions are dependent on each other, albeit in a limited way. The interdependence has been captured through inserting a special account known as Zone of Interest (ZOI). ZOI captures the important interdependence between the three regions or economies through inflows and outflows of goods and services. The row of the ZOI account captures inflow into the respective regions from other regions. The column of the ZOI account captures outflow from the respective regions to the other regions.

Structure of local-level data SAM for 2017

Each of the three regional (or local) SAMs has 21 accounts. Table A3.8 provides the accounts specifications.

Table A3.8. Description of 2017 SAM accounts

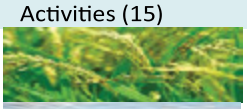
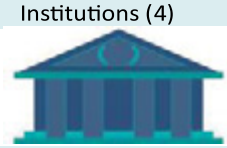
SAM accounts	Detailed sector classification
Activities (15)	
	Crop, Livestock, Forestry, Fishing (04)
	Manufacturing, Electricity and Water, Mining and Construction (04)
	Trade, Transport, Housing and Real Estate, Hotels and Restaurants, Social Services, Public Administration and Defence, Other Services (07)
Factors of production (2)	
	Labour Capital
Institutions (4)	
	Household Government ROW Consolidated Capital (Savings and Investment)
Regions (3)	
	Rohingya, Teknaf/Ukhiya, Cox's Bazar

Table A3.9 presents the schematic structure of the local-level SAM for 2017. Each of these regions has 21 accounts. Out of these 21 accounts, 19 form part of the endogenous accounts. They are the 15 activities, 2 factors of production, the household and the ZOI. The exogenous accounts include government, ROW and gross fixed capital formation.

Table A3.9. Structure of a local-level SAM 2017

		ENDOGENOUS																		Exogenous			
		Rohingya						Teknaf/Ukhiya						Cox's Bazar									
		A1	..	A15	Lab	Cap	HH	A1	..	A15	Lab	Cap	HH	A1	..	A15	Lab	Cap	HH	ZOI	Gov	ROW	GFCF	Total
Rohingya	A1							0	0	0	0	0	0	0	0	0	0	0	0					
	..							0	0	0	0	0	0	0	0	0	0	0	0					
	A15							0	0	0	0	0	0	0	0	0	0	0	0					
	Lab							0	0	0	0	0	0	0	0	0	0	0	0					
	Cap							0	0	0	0	0	0	0	0	0	0	0	0					
	HH							0	0	0	0	0	0	0	0	0	0	0	0			Sim1		
Teknaf- Ukhiya	A1	0	0	0	0	0	0							0	0	0	0	0	0					
	..	0	0	0	0	0	0							0	0	0	0	0	0				Sim 2	
	A15	0	0	0	0	0	0							0	0	0	0	0	0				Sim 3	
	Lab	0	0	0	0	0	0							0	0	0	0	0	0				Sim 4	
	Cap	0	0	0	0	0	0							0	0	0	0	0	0					
	HH	0	0	0	0	0	0							0	0	0	0	0	0					
Cox's Bazar	A1	0	0	0	0	0	0	0	0	0	0	0	0											
	..	0	0	0	0	0	0	0	0	0	0	0	0											
	A15	0	0	0	0	0	0	0	0	0	0	0	0											
	Lab	0	0	0	0	0	0	0	0	0	0	0	0											
	Cap	0	0	0	0	0	0	0	0	0	0	0	0											
	HH	0	0	0	0	0	0	0	0	0	0	0	0											
	ZOI																							
EXO	Gov																							
	ROW																							
	GFCF																							
Total																								

Simulation in a SAM model

It must be noted that a data SAM itself is not a model. In the case of Input-Output Model and SAM approaches, a data IOM or SAM can be converted into a multiplier model by designating SAM accounts into endogenous and exogenous accounts. Generally, accounts intended to be used as policy instruments (e.g. government expenditure, investment, exports, remittances and foreign aid) are made exogenous and accounts specified as objectives or targets must be made endogenous (e.g. output, commodity demand, factor return, and household income or expenditure). For any given injection into the exogenous accounts of the SAM, influence is transmitted through the interdependent SAM system among the endogenous accounts. The multiplier analysis using the SAM framework helps understand further the linkages between the different sectors and the institutional agents at work within the economy.

The simplest simulation model for impact evaluation is an unconstrained SAM accounting multiplier model for the ZOI.

Let Y denote a vector of total incomes and X a vector of final demands (in our example, ROW) for the endogenous accounts in the SAM. Both are of dimension (I X 1), where I is the number of endogenous accounts. A SAM coefficient matrix is derived for these endogenous accounts by dividing each internal element by its corresponding column total. Let A refer to this shared matrix. The relationship between Y and X, then, is:

$$Y= (1-A)^{-1}X = M_a X \qquad (i)$$

The change in income (dy) resulting from a change in final demand or intervention (dx) is given by:

$$dY= (1-A)^{-1} dX = M_a \ dX \qquad (ii)$$

The foremost advantage of a SAM multiplier model is its computational simplicity. The nested SAM flows matrix is easily converted into a SAM multiplier matrix in three steps: 1) the shares matrix is computed; 2) the shares matrix is subtracted from an identity matrix of the same dimensions; and then 3) the resulting matrix is inverted.

Table A3.10. Simulated impacts from our survey

Endogenous accounts	% change from 2017 values				Impact in Tk. million (change from 2017 values)			
	SIM 1	SIM 2	SIM 3	SIM 4	SIM 1	SIM 2	SIM 3	SIM 4
Ukhiya/Teknaf								
c_Crops	9.94	0.95	-1.30	-1.30	345	33	-45	-45
c_Livestock	11.23	2.24	0.30	-1.53	136	27	4	-19
c_Fishing	13.36	-99.91	-100.87	-0.70	505	-3,775	-3,811	-26
c_Forestry	11.37	9.52	8.90	-0.25	254	212	199	-5
c_Manufacturing	5.98	-2.64	-5.30	-0.57	435	-192	-386	-41
c_Construction	0.49	0.47	0.46	0.00	31	30	29	0
c_Utility	9.92	1.91	-167.24	-1.19	67	13	-1,122	-8
c_Mining	12.64	10.52	7.90	-0.08	544	453	340	-3
c_Trade	8.82	-7.30	-9.33	-0.72	266	-220	-281	-22
c_Transport	9.58	-6.01	-8.12	-1.06	286	-179	-243	-32
c_Housing and Real Estate Service	10.41	1.03	-1.08	-1.32	245	24	-25	-31
c_Social Service	9.02	2.11	0.55	-1.28	181	42	11	-26
c_Public Administration and Defence	5.38	1.43	0.54	-0.72	97	26	10	-13
c_Hotel and Restaurant	11.70	2.38	0.63	-1.05	104	21	6	-9
c_Services	8.19	0.18	-2.33	-0.85	388	9	-110	-41
Labour	10.23	-4.99	-6.97	-5.64	1,253	-610	-854	-691
Capital	9.90	-9.74	-15.48	-0.65	1,146	-1,127	-1,792	-76
Household	12.19	2.86	0.76	-1.72	5,443	1,278	340	-770
Cox's Bazar								
c_Crops	11.66	11.54	11.43	-0.01	2,409	2,386	2,363	-3
c_Livestock	11.67	11.56	11.45	-0.01	646	640	633	-1
c_Fishing	12.18	12.07	11.95	-0.01	1,395	1,382	1,368	-2
c_Forestry	9.41	9.32	9.23	-0.01	636	630	624	-1
c_Manufacturing	11.00	10.89	10.79	-0.01	6,770	6,706	6,640	-8
c_Construction	0.01	0.01	0.01	0.00	3	3	3	0
c_Utility	11.04	10.93	10.82	-0.01	389	386	382	0
c_Mining	11.13	11.03	10.92	-0.01	1,453	1,439	1,425	-2
c_Trade	10.97	10.86	10.76	-0.01	2,004	1,985	1,965	-2
c_Transport	11.37	11.26	11.15	-0.01	2,008	1,989	1,969	-2
c_Housing and Real Estate Service	11.18	11.07	10.96	-0.01	1,255	1,243	1,231	-1
c_Social Service	9.29	9.20	9.11	-0.01	845	837	829	-1
c_Public Administration and Defence	5.53	5.48	5.43	-0.01	455	450	446	-1
c_Hotel and Restaurant	12.49	12.37	12.25	-0.01	506	501	496	-1
c_Services	9.12	9.03	8.95	-0.01	2,033	2,014	1,994	-2
Labour	10.88	10.78	10.67	-0.01	6,055	5,998	5,939	-7
Capital	10.62	10.51	10.41	-0.01	5,585	5,532	5,478	-7
Household	12.55	12.43	12.31	-0.01	25,477	25,234	24,987	-30
Total (gain and loss UT) [Tk. million]					11,725	-3,936	-7,732	-1,857
Total (gain and loss CXB) [Tk. million]					59,925	59,354	58,773	-71

Source: CXB/UT LEWIE model.

Annex 4

Social protection schemes in Cox's Bazar

Table A4.1. Social security schemes under MOWCA

Sl no.	*Upazila*	Year	VGD beneficiaries	Maternity Allowance beneficiaries	Lactating Mother Allowance beneficiaries	Amount of allowance or other materials/ Comments
1	Teknaf	2016	2,911	666	300	VGD beneficiary women are provided 30 kg rice monthly Maternity and Lactating Mother Allowance beneficiaries are provided monthly Tk. 500 through their bank accounts as allowance
		2017	3,461	798	350	
		2018	3,461	798	350	
	Ukhiya	2016	2,424	555	0	
		2017	2,924	660	0	
			2,924	660	0	
2	Proposals for issuing 40,000 VGD cards for the local people of Teknaf and Ukhiya—20,000 for each—is under implementation					
3	Teknaf	2018	20	20	0	Training started in April 2018 for local women, duration 3 months, 160 people per year.
	Ukhiya	2016	30	0	0	Duration 3 months, 280 local women provided training per year
		2017	30	0	0	
			30	20	20	
4	In 8 upazilas of Cox's Bazar including Teknaf and Ukhiya, ground meetings and community meetings are being continued to stop GBV					

Source: Department of Women Affairs, Cox's Bazar.

Table A4.2. Stipend for students with disabilities (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	131	673,200	673,200	161	808,200	808,200	186	1,233,600	123,3600
3	Ramu	151	964,800	964,800	151	964,800	964,800	156	1,000,800	100,0800
4	Maheshkhali	180	1,234,800	1,234,800	232	1,546,800	1,546,800	245	1,630,800	163,0800
5	Chakaria	164	572,800	572,800	179	617,800	617,800	185	1,192,800	119,2800
6	Pekua	157	962,400	962,400	157	1,022,400	1,022,400	170	1,110,000	111,0000
7	Kutubdia	105	681,600	681,600	130	831,600	831,600	140	897,600	897,600
8	Ukhiya	79	508,800	508,800	107	676,800	676,800	112	708,000	708,000
9	Teknaf	87	552,000	552,000	99	624,000	624,000	112	708,000	708,000
10	Town Social Services Office, Cox's Bazar	40	50,850	50,850	44	231,300	231,300	52	362,400	362,400
	Total	1,094	6,201,250	6,201,250	1,260	7,323,700	7,323,700	1,358	8844000	884,4000

Source: DSS, Cox's Bazar.

Table A4.3. Allowance for financially insolvent persons with disabilities (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	1,350	9,720,000	9,720,000	1,687	12,146,400	12,146,400	1,838	15,439,200	15,439,200
3	Ramu	1,004	7,228,800	7,228,800	1,255	9,036,000	9,036,000	1,368	11,491,200	11,491,200
4	Maheshkhali	1,281	9,223,200	9,223,200	1,612	11,606,400	11,606,400	1,767	15,187,200	15,187,200
5	Chakaria	1,497	10,778,400	10,778,400	1,871	13,471,200	13,471,200	2,039	17,127,600	17,127,600
6	Pekua	1,047	7,538,400	7,538,400	1,307	9,410,400	9,410,400	1,445	12,138,000	12,138,000
7	Kutubdia	553	3,981,600	3,981,600	691	4,975,200	4,975,200	784	6,585,600	6,585,600
8	Ukhiya	767	5,522,400	5,522,400	958	6,897,600	6,897,600	1,054	8,853,600	8,853,600
9	Teknaf	1,048	7,545,600	7,545,600	1307	9,410,400	9,410,400	1,424	11,961,600	11,961,600
10	Town Social Services Office, Cox's Bazar	387	2,786,400	2,786,400	479	3,448,800	3,448,800	526	4,418,400	4,418,400
	Total	8,934	6,4324,800	64,324,800	1,1167	80,402,400	80,402,400	12,245	103,202,400	103,202,400

Source: DSS, Cox's Bazar.

Table A4.4. Old age allowance (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	6,545	39,270,000	39,270,000	6,873	41,238,000	41,238,000	7,559	45,354,000	45,354,000
3	Ramu	5,439	32,634,000	32,634,000	5,709	34,254,000	34,254,000	6,175	37,050,000	37,050,000
4	Maheshkhali	6,473	38,838,000	38,838,000	6,807	40,842,000	40,842,000	7,588	45,528,000	45,528,000
5	Chakaria	8,040	48,240,000	48,240,000	8,442	50,652,000	50,652,000	9,286	55,716,000	55,716,000
6	Pekua	4,921	29,526,000	29,526,000	5,167	31,002,000	31,002,000	6,708	34,248,000	34,248,000
7	Kutubdia	3,036	18,216,000	18,216,000	3,188	19,128,000	19,128,000	3,582	21,492,000	21,492,000
8	Ukhiya	3,707	22,242,000	22,242,000	3,892	23,352,000	23,352,000	4,716	28,296,000	28,296,000
9	Teknaf	5,145	30,870,000	30,870,000	5,403	32,418,000	32,418,000	6,444	38,664,000	38,664,000
10	Town Social Services Office, Cox's Bazar	1,639	9,834,000	9,834,000	1,711	10,266,000	10,266,000	1,882	11,292,000	11,292,000
	Total	44,945	269,670,000	269,670,000	47,192	283,152,000	283,152,000	5,3940	317,640,000	317,640,000

Source: DSS, Cox's Bazar.

Table A4.5. Allowance for widowed and women victims of domestic violence (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	1,876	11,256,000	11,256,000	1,937	11,622,000	11,622,000	2,121	12,726,000	12,726,000
3	Ramu	2,130	12,780,000	12,780,000	2,199	13,194,000	13,194,000	2,408	14,448,000	14,448,000
4	Maheshkhali	1,783	10,698,000	10,698,000	1,849	11,094,000	11,094,000	2,073	12,438,000	12,438,000
5	Chakaria	3,713	22,278,000	22,278,000	3,829	22,974,000	22,974,000	4,197	25,182,000	25,182,000
6	Pekua	1,358	8,148,000	8,148,000	1,403	8,148,000	8,148,000	1,556	9,336,000	9,336,000
7	Kutubdia	1,164	6,984,000	6,984,000	1,202	7,212,000	7,212,000	1,348	8,088,000	8,088,000
8	Ukhiya	964	5,826,000	5,826,000	1,001	6,006,000	6,006,000	1,101	6,606,000	6,606,000
9	Teknaf	1,396	8,376,000	8376000	1,443	8,658,000	8,658,000	1,580	9,480,000	9,480,000
10	Town Social Services Office, Cox's Bazar	292	1,752,000	1,752,000	302	1,812,000	1,812,000	330	1,980,000	1,980,000
	Total	14,683	88,098,000	88,098,000	15,165	90,990,000	90,990,000	16,714	100,284,000	100,284,000

Source: DSS, Cox's Bazar.

Table A4.6. Allowance for Dalit, Horijon, Bede, and marginalised population (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	80	480,000	480,000	80	480,000	480000	96	576,000	576,000
3	Ramu	40	240,000	240,000	40	240,000	240,000	48	288,000	288,000
4	Maheshkhali	140	840,000	840,000	140	840,000	840,000	168	1,008,000	1,008,000
5	Chakaria	25	150,000	150,000	25	150,000	150,000	30	180,000	180,000
6	Pekua	40	240,000	240,000	40	240,000	240,000	48	288,000	288,000
7	Kutubdia	50	300,000	300,000	50	300,000	300,000	60	360,000	360,000
8	Ukhiya	25	150,000	150,000	25	150,000	150,000	30	180,000	180,000
9	Teknaf	20	120,000	120,000	20	120,000	120,000	24	144,000	144,000
10	Town Social Services Office, Cox's Bazar	50	300,000	300,000	50	300,000	300,000	60	360,000	360,000
	Total	470	2820,000	2,820,000	470	2,820,000	2,820,000	564	3,384,000	3,384,000

Source: DSS, Cox's Bazar.

Table A4.7. Special allowance for trans-gender population (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	8	57,600	57,600	8	57,600	57,600	8	57,600	57,600
3	Ramu	8	57,600	57,600	8	57,600	57,600	8	57,600	57,600
4	Maheshkhali	0	0	0	0	0	0	0	0	0
5	Chakaria	2	14,400	14,400	2	14,400	14,400	2	14,400	14,400
6	Pekua	2	14,400	14,400	2	14,400	14,400	2	14,400	14,400
7	Kutubdia	3	21,600	21,600	3	21,600	21,600	3	21,600	21,600
8	Ukhiya	15	108,000	108,000	15	10,8000	10,8000	15	10,8000	10,8000
9	Teknaf	4	28,800	28,800	4	28,800	28,800	4	28,800	28,800
10	Town Social Services Office, Cox's Bazar	18	129,600	12,9600	18	129,600	129,600	18	129,600	129,600
	Total	60	432,000	432,000	60	432,000	432,000	60	432,000	432,000

Source: DSS, Cox's Bazar.

Table A4.8. Stipend for Dalit Horijon Bede and the backward population (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	21	91,200	91,200	21	91,200	91,200	27	126600	126600
3	Ramu	3	19,200	19,200	3	19,200	19,200	6	35,400	35,400
4	Maheshkhali	99	532,800	532,800	99	532,800	532,800	122	655,200	655,200
5	Chakaria	10	45,000	45,000	10	45,000	45,000	10	46,800	46,800
6	Pekua	18	77,400	77,400	18	77,400	77,400	23	105,600	105,600
7	Kutubdia	25	111,600	111,600	25	111,600	111,600	32	148,800	148,800
8	Ukhiya	7	34,200	34,200		34,200	34,200	9	43,200	43,200
9	Teknaf	0	0	0	0	0	0	0	0	0
10	Town Social Services Office, Cox's Bazar	14	67,800	67,800	14	67,800	67,800	17	80,400	80,400
	Total	197	979,200	979,200	197	979,200	979,200	246	1,242,000	1,242,000

Source: DSS, Cox's Bazar.

Table A4.9. Stipend for trans-gender population student (Tk.)

Sl no.	*Upazila*	Beneficiaries in FY2016			Beneficiaries in FY2017			Beneficiaries in FY2018		
		No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount	No.	Allocated amount	Distributed amount
1	2	3	4	5	6	7	8	9	10	11
2	Cox's Bazar Sadar	5	30,000	30,000	5	30,000	30,000	5	30,000	30,000
3	Ramu	13	59,400	59,400	13	59,400	59,400	13	59,400	59,400
4	Maheshkhali	0	0	0	0	0	0	0	0	0
5	Chakaria	5	25,200	25,200	5	25,200	25,200	5	25,200	25,200
6	Pekua	0	0	0	0	0	0	0	0	0
7	Kutubdia	2	9,000	9,000	2	9,000	9,000	2	9,000	9,000
8	Ukhiya	2	9,000	9,000	2	9,000	9,000	2	9,000	9,000
9	Teknaf	0	0	0	0	0	0	0	0	0
10	Town Social Services Office, Cox's Bazar	0	0	0	0	0	0	0	0	0
	Total	27	1,326,00	1,326,00	27	1,326,00	1,326,00	33	1,326,00	1,326,00

Source: DSS, Cox's Bazar.

Annex 5

Social safety net questions in the survey

Table A5.1. Survey questionnaire (portion containing social safety nets)

Q No.	Question	Code
29	Has any member of this household received any social safety net in the past 12 months? 1 Yes 2 No >>Q33	
30	If yes, how many members?	
31	What were the main programmes in which they have been Included **in the past 12 months? (Programme Code) (If more than one, write the main 4)**	
32	How much did they receive in total (in cash and in kind) **in the past 12 months? (In Tk.)**	

Code for Q31: Safety net programme code					
1	Ananda School (ROSC) [Cash/kind]	16	General Relief Activities	31	Urban Partnership for Poverty Reduction
2	School Feeding Programme	17	Gratuitous Relief—Food/ Cash	32	Shouhardo Programme
3	Stipend for Dropout Students	18	Allowance for Beneficiaries in Chittagong Hill Tracts	33	Nabojibon Programme (Save the Children)
4	Stipend for Disabled Students	19	Food Assistance in Chittagong Hill Tracts	34	Proshar Programme (ACDI VOCA)
5	Old Age Allowance	20	Employment Generation Programme for Ultra Poor	35	Allowance for Fisherman
6	Widow/Deserted/Destitute Women Allowances	21	Food/Cash For Work	36	Financial Support Programme for Cancer, Kidney and Liver Cirrhosis
7	Maternity Allowance for Poor Lactating Mothers	22	Test Relief Food (cash)	37	OMS
8	Maternal Health Voucher Scheme	23	Rural Employment Opportunity for Public Asset	38	Block Allocation for Disaster
9	Honorarium for Insolvent Freedom Fighters	24	Rural Employment and Roadv Maintenance Programme	39	Programme for Improving Livelihood of Bade and Disadvantaged common unit
10	Honorarium and Medical Allowances for Injured Freedom Fighters	25	Housing Support	40	Programme for Improving the Livelihood of Trans Gender (Hizra)
11	Ration for Shaheed Family and Injured Freedom Fighters	26	Agriculture Rehabilitation	41	Rural Livelihood Programme
12	Allowances for Distressed Cultural Personalities/Activists	27	One Household One Farm	42	Others (specify)

13	Allowances for Financially Insolvent Disabled	28	Targeted Ultra Poor (BRAC)		
14	VGD	29	Char Livelihood Project		
15	VGF	30	Economic Empowerment for the Poor/Shiree		

Annex 6
Social protection selection and targeting

Selection of beneficiaries

The topic of targeting generates significant debate. However, "targeting" is a term that needs to be understood, and Amartya Sen (1995) has wondered whether the term targeting is a useful analogy in social policy. In effect, a target is something to be fired at, effectively turning people into passive objects. Therefore, the term could be regarded as dehumanizing. In reality, targeting could be better explained as selection or identification processes: governments first establish the criteria for inclusion in a social protection scheme, which is followed by an identification process in which people are assessed against the eligibility criteria for the scheme.[125] Therefore, here, the term "selection process" will be used, rather than "targeting".

One of the key issues debated regarding selection processes is whether programmes should be accessible to everyone within the eligible category of the population or only to those living in poverty (often known as "poverty targeting"). One of the main arguments in favour of universal access—as against selection on the basis of poverty—is derived from discussions on the political economy of social protection: universal programmes provide both higher budgets and transfers for people living in poverty and, therefore, benefit them more than programmes selecting on the basis of poverty. However, one of the arguments often raised against universal access is that it is unfair that the more affluent benefit, since they do not need support. In effect, providing a transfer to the better-off is regarded by many as a misuse of government finance. However, a number of arguments can be offered in favour of the more affluent receiving a social protection benefit:

- In line with the theory—and practice—of political economy, if the more affluent receive a social protection benefit, they are more likely to support the programme and, importantly, are more willing to be taxed. This will benefit those living in poverty since they will receive a higher-quality programme, including a higher transfer.
- Given that the better-off pay the highest taxes and are the main financiers of a social protection system, it could be argued that it is only fair that they should also benefit.
- In fact, many universal schemes are entitlements—often backed up by constitutional dispositions (such as the right to social security in the Bangladesh Constitution)—meaning that all citizens, including the better-off, have a right to access the benefit.
- By enabling everyone of an eligible category—such as everyone over or under a certain age—to access a scheme, administration processes can be significantly simplified, which is important in countries with weak administrative systems.
- In reality, when transfer levels are low—as with many universal pensions—the rich do not bother to apply and, effectively, self-target themselves out of a scheme. This happens with the Nepal Senior Citizens' Allowance: many more affluent people in Kathmandu do not apply for the scheme since they do not need the US$5 per month that it offers.
- When effective tax regimes are in place, it is possible to provide social protection benefits to the

125 See Kidd (2013) for a more detailed explanation.

better-off and pull a proportion back through the tax system. So, while New Zealand's tax-financed pension is universal, older people continue to pay income tax in old age. As a result, the equivalent of around 0.7 per cent of GDP is clawed back from the pension scheme through taxation (Willmore, 2007). It needs to be recognized that, in industrialized countries, indirect taxes claw back a proportion of entitlements from everyone, with higher sums—in absolute (though not relative) terms—being paid by the rich.

Accuracy of selection processes

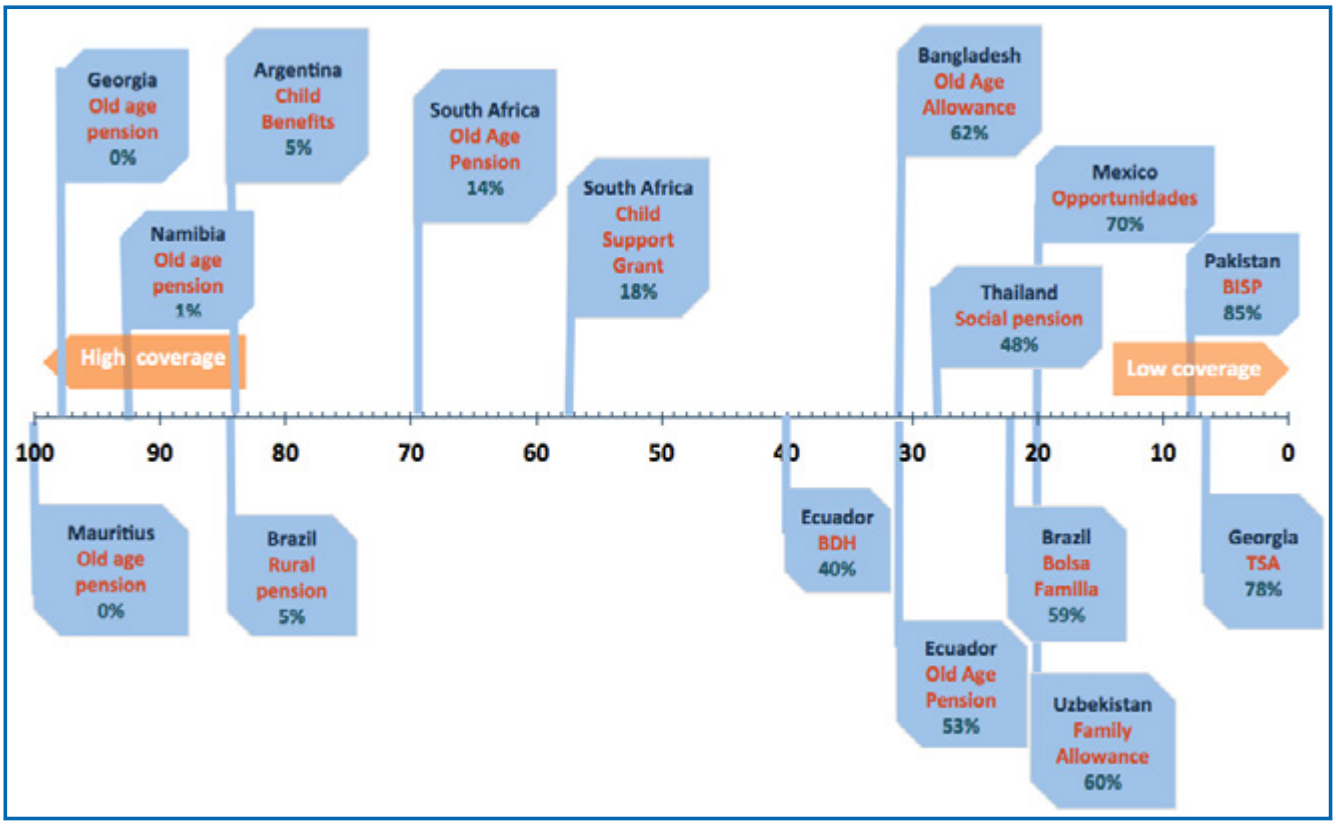
While it is commonly assumed "accuracy" is an appropriate means of assessing a selection process, little thought has been given to what this means. While inclusion and exclusion errors can be useful, they are often measured in different ways, meaning cross-country comparisons are difficult to do. Furthermore, the use of the term "error" when referring to a universal scheme is flawed: if a social transfer is intentionally given to the more affluent, it cannot be an error if they receive it.

In assessing selection processes, it is best to consider their main purpose, which is to ensure the inclusion of eligible people in a scheme. Given that social protection schemes have, as their priority, the inclusion of people living in poverty, it is best to assess their success by measuring how effectively they include such people.[126]

When universal access and selection on the basis of poverty are compared, it is evident that coverage is more important in determining the inclusion of people living in poverty than any particular mechanism for identifying them. Figure A6.1 illustrates this point by mapping a range of social protection schemes in industrialized countries along a scale indicating the coverage of the intended category of recipients. On the right-hand side of the scale, 0 indicates zero coverage; on the left, 100 indicates universal coverage. The number within the boxes indicates the proportion of the poorest 20 per cent of the selected category who are excluded from the scheme (with the poorest 20 per cent used as a proxy for the extreme poor).

126 Coady et al. (2004) attempt to assess the targeting success of schemes. However, their methodology includes a number of flaws and biases and necessarily gives results that favour programmes with small coverage (in other words, it emanates from a neoliberal philosophy). This source is thus not particularly useful as a means of assessing targeting success.

Figure A6.1. Relationship between coverage and effectiveness of a sample of social security schemes, measured as a percentage of the poorest 20 per cent of the selected category of recipients who are excluded



Note: Data on coverage and the exclusion of the poorest are taken from the following sources: Willmore (2003, 2007); Samson et al. (2007), Veras et al. (2007), Fiszbein and Schady (2009), World Bank (2009), Lucio Romero (2011), Mete (2011), Roca (2011), Jitsuchon et al. (2012), South African Social Security Agency (2012), UNICEF (2012) and Kidd and Khondker (2013). A few of the examples given—such as the Namibian Old Age Pension, the South African Child Support Grant and Argentina's child grants—provide the authors' estimates of the exclusion of the poorest 20 per cent and should be regarded as a ballpark figure.

Source: Derived from Kidd (2013)

The above figure demonstrates that—as would be expected—the higher the coverage, the lower the exclusion of people living in poverty from a scheme. So, for example, the universal Old Age Pension in Mauritius covers 100 per cent of the intended recipients—that is, all those over 60 years—and, logically, all older people with the lowest incomes. In contrast, Brazil's *Bolsa Família* programme covers just over 20 per cent of the population but excludes nearly two thirds of those living in extreme poverty. Schemes with intermediate coverage, such as Ecuador's *Bono de Desarrollo Humano*—which covers around 40 per cent of the population—tend to achieve intermediate coverage of those living in poverty (in this case around 40 per cent are excluded). Bangladesh's Old Age Allowance covers 32 per cent of older people but around 62 per cent of the poorest quintile is excluded.

When coverage is restricted to a relatively small proportion of those living in poverty, "poverty targeting" tends to function like a rationing mechanism, choosing a small proportion of people from among a much larger group who are "deserving". In contrast, universal access to a social protection scheme for those belonging to the eligible category of the population can, potentially, guarantee the inclusion of all those who are living in or vulnerable to poverty if registration mechanisms function well. There may, of course, be some exclusion of the eligible category but international experience would indicate that this is usually minimal (see Box A5.1). However, these errors do not owe to the design of the selection process but, rather, are administrative and apply to both universal and poverty-based selection mechanisms.

Box A6.1. Potential errors with universal schemes

No selection mechanism is perfect. While design errors in universal schemes are zero—and relatively high in selection mechanisms like proxy means testing—there may, however, be implementation errors. For example, in an old age pension, some eligible older people may be excluded because they do not have the right documentation while some younger people may be included—as currently happens in Bangladesh's Old Age Allowance—if they are able to falsify their age. However, in industrialized countries, the exclusion of eligible older people is usually minimal and is much easier to control in a simple universal programme than in a pension using "poverty targeting". An appeal process should be established to deal with these exclusion errors. The inclusion of younger people into old age pensions varies across countries, depending on the coverage and accuracy of birth certificates and identity cards. However, many low-income countries have had good success in excluding younger people even when identity card coverage is low; some use mechanisms such as age calendars and community verification.[127]

Of course, all the implementation errors in universal programmes are equally applicable to programmes that attempt to select people living in poverty. However, "poverty targeted" schemes have additional errors introduced through both design and implementation, which, as discussed earlier, can be considerable.

Proxy means testing

Many countries have adopted the proxy means test (PMT) as their preferred selection methodology—and, currently, it is being proposed for use in Bangladesh. However, it is not particularly accurate in identifying eligible poor households.

127 See McPherson (2011) for more information.

Box A6.2. Description of the proxy means test selection methodology

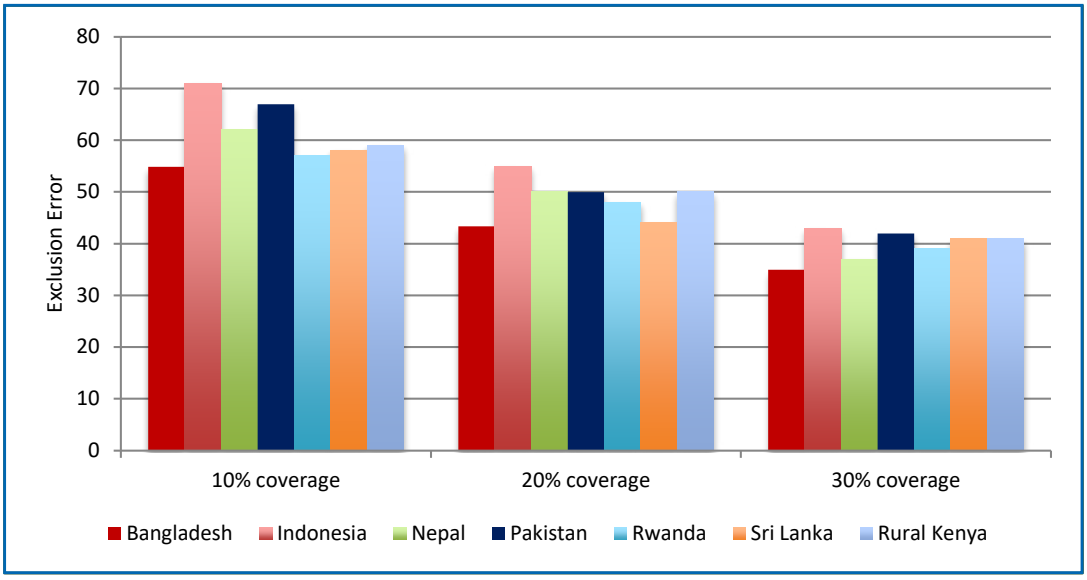
The PMT uses national household surveys as its basis. Its premise is that, since household income is hard to measure accurately during recipient selection—and detailed verified means tests are time-intensive and administratively costly—household income can be estimated by measuring assets and other variables (known as proxies for poverty). Proxies are identified by running regressions of potential proxies against poverty, using information from a national household survey. They usually cover aspects such as demographic characteristics (e.g. age of household members and size of household), characteristics of the house (e.g. type of roof or floor), durable goods (e.g. refrigerators, televisions or cars) and productive assets (e.g. land or animals).

Each proxy is given a specific weighting, which are calculated by the strength of a particular proxy in explaining poverty. While any one proxy may be relatively weakly correlated with welfare, correlations improve if multiple proxies are used. However, even the best multiple correlations are always relatively poor and the R-squared is usually in the range of 0.4 to 0.6 (a R-squared of 1 would be a perfect correlation). This weak correlation is a key explanation for selection errors.

Once a range of weightings is identified, a scorecard is developed, with usually around 10–30 proxies. Households are visited and assessed against possession of the particular proxies. Surveys are more challenging than often thought (see Kidd and Wylde, 2011)—and, as a result, more errors enter into the process at this point. Once the survey is finished, households are given a score. Those below a score corresponding to a putative poverty line are regarded as eligible.

Figure A6.2 indicates the statistical, minimum exclusion errors generated by the PMT, at a theoretical level (it needs to be borne in mind that further significant errors will be generated during the enumeration of households). It indicates that the exclusion errors for programmes with 10 per cent coverage are around 60 per cent, although this drops to around 40 per cent when coverage is 30 per cent. At very low coverage, errors increase: for example, in Bangladesh, at 5 per cent coverage, around 69 per cent of the eligible population would be excluded. The World Bank has found very similar errors for a PMT in Bangladesh, indicating its inappropriateness as an accurate "targeting" mechanism (Sharif, 2009).

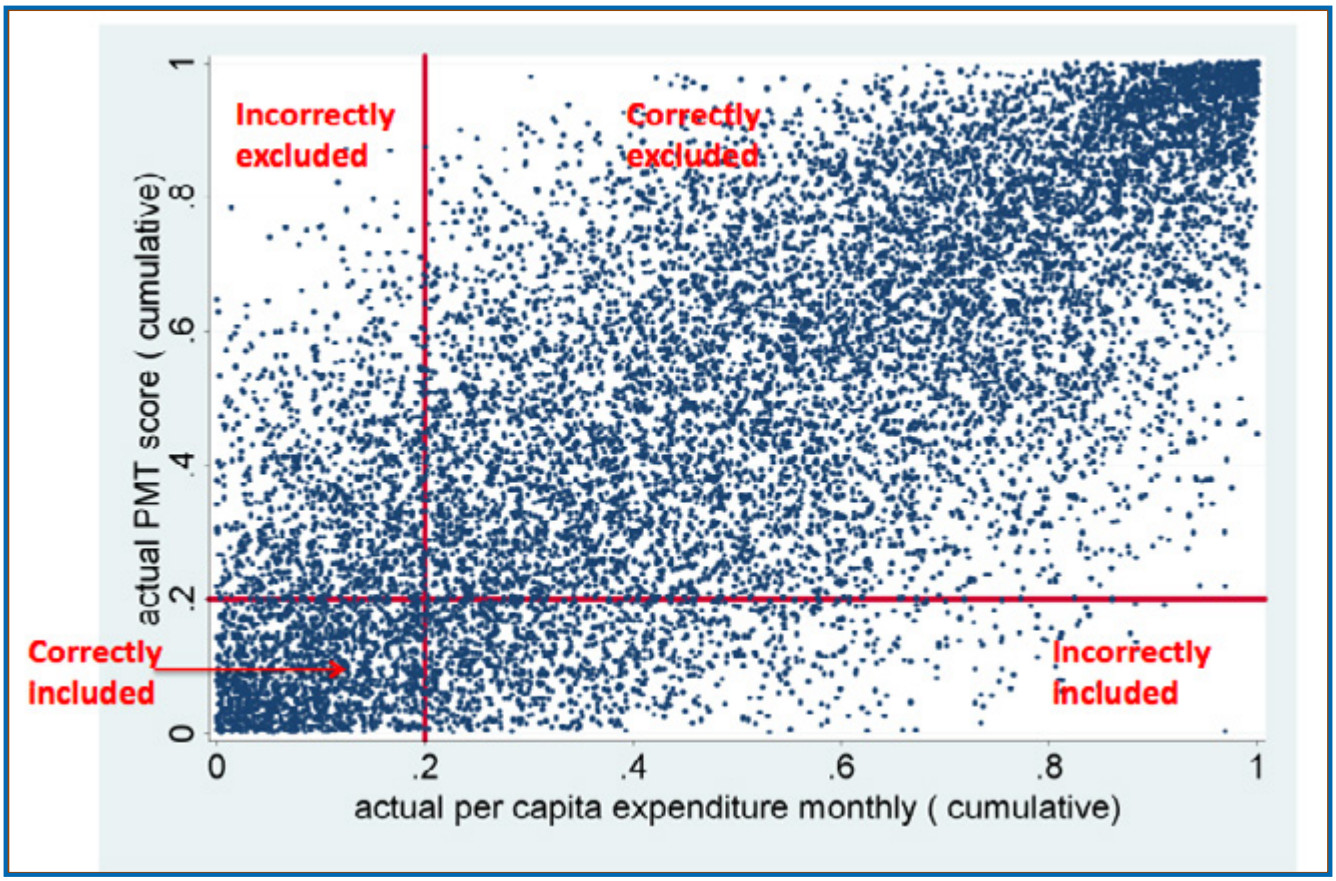
Figure A6.2. Theoretical statistical exclusion errors of the PMT, when assessed against different levels of coverage



Source: Kidd and Wylde (2011a).

The PMT can be seen as functioning as a form of lottery in which families with lower incomes have more lottery tickets than better-off families. But they still have a good chance of losing the lottery. The lottery element of the PMT is illustrated by Figure A6.3, in which individuals from the household survey in Bangladesh are mapped on a scatterplot, ranking them from poorest to richest (each dot is a household). The Y-axis shows the predicted income from the PMT and the X-axis the actual consumption measured by the household survey. The lines drawn on the scatterplot show the 20th percentile, on the assumption that the poorest 20 per cent of the population is meant to be selected.

Figure A6.3. Household income against consumption predicted by the PMT in Bangladesh



Source: Kidd and Khondker (2013).

The errors associated with the PMT, once implemented, tend to be higher than those predicted by using the household survey. For example, Mexico's Oportunidades programme has an exclusion error of 70 per cent with coverage of 20 per cent (Veras et al., 2007). Even, Georgia's Targeted Social Assistance programme—described by the World Bank (2009) as "among the best-performing similar programs in the world"—still excludes around 60 per cent of eligible beneficiaries, against coverage of 7 per cent (UNICEF, 2012).

Universal access, however, also means that the non-poor are included. As noted earlier, this should not be regarded as an error as it is intentional and can be justified for a range of reasons. However, it could also be argued that many non-poor people should, in reality, be regarded as living in or vulnerable to poverty. Family incomes are dynamic and it is normal for many families to move in and out of poverty

over a period of time. For example, in Indonesia—which has a poverty rate of around 12 per cent—the World Bank (2012b) estimated that, among the general population, more than half of those who were living in poverty in 2010 were classified as non-poor in 2009. Furthermore, 43 per cent of the population fell under the near poverty line at least once between 2008 and 2010, a graphic illustration of income volatility. In Pakistan, a similar study has indicated that, while the national poverty rate in 2009 was 17 per cent, 67 per cent of households were vulnerable to poverty over a five-year period (World Bank, 2009).

Annex 7

An overview on the costs and benefits of the suggested interventions in response to socio-economic and public service delivery impacts

Broad interventions	Specific proposal	Beneficiaries	Cost with alternative scenarios	Benefit with alternative scenarios	Assumptions
Livelihood support programmes	1) CEW targeting wage labourers 2) Cash support to day labourers	16,000–40,000 day labourers	$1.5 million $2.6 million $3.8 million $0.84 million $1.47 million $2.1 million	Increase in income by $1.3 million to $4.6 million 16,037–40,092 day labourers will be out of poverty	–20%, 30% and 50% of day labourers targeted respectively –No leakage in support provision mechanism –Poverty reduction by 5–8% (Soares, 2012) –Support is sustainable
	Livelihood support for fishers	1,500–5,000 fishers in Teknaf	$2.8 million $5.1 million $8.3 million	$1.2–1.5 million $5.3–12.3 million $7.6–14.7 million	–Cash support only –Cash support + training to 5% of fishers; income increased by 15% and 50%, respectively –Cash support + training to 20%; income increased by 15% and 50%, respectively
	Training and employment support for women–SWAPNO	19,735 women in Teknaf and Ukhiya	$2.1 million $20–24 million	$7.14–9.5 million Graduation from poverty for all the women under programme	–Self-employment and about 20,000 additional employment opportunities created –Minimum daily income of $5 per women –Ultra-poor reduced by 30 to 33 percent (http://www.brac.net/targeting-ultra-poor)
Agricultural livelihood support	Homestead gardening	25,000 households	$2.2–2.7 million	Yearly 1,400–1,500 tonnes of increased vegetable production Annual income worth $0.5–0.7 million	At minimum, each household will produce about 75–100 kg of vegetables per year through effective utilization of provided kits
	One-home one-farm	30,000 people 40,000 people	$9 million $12 million	Annual increase in income of $0.74 million to $1.04 million for covered group	–Households supported by initiative will be able to invest in primary seeding –Annual income per household will increase by Tk. 11,000 on average (Daily Star, 2017)
	Technical support for farmers	–Lift pump to 252 groups in 7 unions –FFS	$90,000 $100,000	12–15% increase in total crop production (Feder et al, 2004)	–All farmers in groups benefit through increased irrigation level –Farmers attending schools will effectively use their learnings in work
Providing informed analysis	Rotational panel survey	Will benefit 1.2 million refugees and host community	$1.2–$1.7 million	Targeting error minimized on social provisions	–Central database is maintained and additional resources not wasted on surveys –Survey is comprehensive and well conducted
Infrastructure development	LGED plans	1.2 million refugees and about 1 million Bangladeshis	$100 million	¬Increased connectivity, better employment and livelihood opportunities, higher degree of business and trade Social benefits worth $120–$125 million	- Improved infrastructure will benefit communities in the years to come.
	Road development	About 50,000	$0.8–$1 million	–Increased connectivity, better employment and livelihood opportunities, higher degree of business and trade –Social benefit of $0.95 million–$1.2 million	¬Paved asphalt roads to be provided –Cost/benefit ratio for rural infrastructure development is about 1.2 (Lacsamana, 2005)

Broad interventions	Specific proposal	Beneficiaries	Cost with alternative scenarios	Benefit with alternative scenarios	Assumptions
Environmental actions	Providing alternative cooking fuel	67,000 host community families and 183,000 refugee families; 267,000 families	$43.1 million for hosts and $86.5 million for refugees till 2022 $116.6 million till 2022	–Will save approximately $83 million to $298 million owing to reduced carbon emission per year –Minimum 750,000 kg timber saved each day, worth $0.27 million per day, which is equivalent to $98.6 million in a year	–Refugee repatriation rate of 1,500/week –An approximate family size of 5 members per households –No solid fuel is used after provision of LPG
	Reforestation project	About 1 million refugees and 0.52 million host community	$2.5–$3.4 million $1–$1.5 million per year	$12.25 million worth of social gain 12,000 tons of CO_2 gas absorbed per year, or approximately $4.9 million worth of social gain per year	–Reforested area properly protected –Yearly replantation of 2,000 acres --Reduction in costs by $408 per ton of CO_2
Improving access to drinking water	Rainwater harvesting	About 552,000	$14–$17 million	Reduced dependence on groundwater, daily 10 million to 22 million litres of groundwater saved	–Considering only drinking and cooking needs of 25.1 litres per household/per day –Considering all water needs of 83.2 litres per household/per day
Improved sanitation and waste management	Improved access to sanitary latrines	4,925 households 21,700 households 68,500 households	$ 3.8 million $17 million $53 million	$35 million $153 million $480 million	–Latrine with septic tanks provided with 5%, 20% and 70% coverage, respectively –$1 spent on sanitation saves $9 of health care and medical expenditure (Minh and Nguyen-Viet, 2011)
	Faecal sludge management	241,100 households in Ukhiya 307,300 households in Teknaf	$1.7 million $2.1 million	$5 million $5.9 million	–Toilets can be de-sludged following proper de-sludging methods –Cost/benefit ratio for successfully operating a plant is about 2.8 (Lacsamana, 2005)
	Solid waste management	About 0.5 million people of Teknaf and Ukhiya	$150,000 –$200,000	Yearly treated waste valued from $3.7 million to $9.5 million	–50% of waste generated will be collected –At least 80% of collected waste is treated properly –Per kg of treated waste will be valued at Tk. 1, while social benefits will exceed Tk. 3 (UNDP estimates)
Educational development initiatives	Extension and renovation of educational institutes	20 primary schools 50 primary schools	$248,000 $520,000	–Attendance rate dropped by 5% to 20% –Returns and costs saved by $265 million to $550 million	–Institutes get additional manpower or logistics support to manage the improved facilities –7.6% returns on educational investment in developing countries (Peet et al., 2015)
	Offering school meals	About 43,500 children provided with school meals	$2 million	$21.75 million saved per year on mitigating malnutrition problems.	–Midday meal provided 5 days per week –Yearly $500 saved per children (Global Panel, 2017)
Promoting social cohesion	Radio shows and radio sets	1.2 million refugees and about 1 million Bangladeshis	$0.8–$1 million	Crime rate to fall by about 50% to 57%	–Community policing will effectively curb violence and tension –Cost of conflicts is 4% of GDP in Bangladesh (WEF, 2018)
		1.2 million refugees and about 0.33 million Bangladeshis	$1.7–$2 million	Improved law and order situation saves about $8 million to $12.1 million	

Source: UNDP estimates.

Note: All cost and benefit figures are estimated.

Annex 8
Additional tables

Table A8.1. List of schools damaged as a result of the Rohingya influx

List of affected primary schools in Teknaf upazila							
	Name of school						
	Hoaikong Government Primary School						
	Katakhali Government Primary School						
	Kharangkhali Government Primary School						
	Hneela Adarsha Government Primary School						
	Uluchamri Government Primary School						
	Pollanpara Government Primary School						
	Maheshkhaliapara Government Primary School						
	Lengurbil Government Primary School						
	Rajarchhara Government Primary School						
	Sabrang Government Primary School						
	Jinjira Government Primary School						
	North Shilkhali Government Primary School						
	South Shilkhali Government Primary School						
	Bara Deil Government Primary School						
	Hajompara Government Primary School						
	Hamidia Government Primary School						
	Haji Mohd. Hossen Government Primary School						
	Ulubonia Government Primary School						
	List of affected primary schools in Ukhiya *upazila*						
	Name of school	Damage (Tk.)					
		Latrine	Bench	Extra electricity	Doors,* windows,* locks, handles	Tube well	Total
	Patabari Government Primary School	10,000	15,000	30,000	10,000	5,000	70,000
	Thaingkhali Government Primary School	10,000	15,000	25,000	10,000	5,000	65,000
	Balukhali Government Primary School	10,000	15,000	10,000	10,000	5,000	50,000
	Farirbil Government Primary School	10,000	15,000	10,000	10,000	5,000	50,000
	Kutupalong Government Primary School	5,000	15,000	20,000	15,000	5,000	60,000
	South Balukhali Lotifunnesa Government Primary School	10,000	20,000		20,000	5,000	55,000
	Anjumanpara Government Primary School	10,000	20,000		10,000	5,000	45,000

Note: * Doors and windows may not require work in all schools.
Source: District Primary Education Office, Cox's Bazar.

Table A8.2. List of on-going development projects in Cox's Bazar

	Name of project	Implementing department	Location
Oil and gas development initiatives			
1	Maheshkhali-Anowara gas supply pipeline project (first stage)	GTCL	13 mouza in Maheshkhali and Pekua
2	Maheshkhali-Anowara gas supply pipeline project (first stage)	GTCL	13 mouza in Maheshkhali and Pekua
3	Pipe line facilities development project (second stage)	GTCL	Panirchara
4	Maheshkhali-Anowara 42'' diameter 79 km parallel gas supply pipeline	GTCL	14 mouza in Maheshkhali, Pekua and Chakaria
5	Maheshkhali-Anowara 42'' diameter 79 km parallel gas supply pipeline	GTCL	14 mouza in Maheshkhali, Pekua and Chakaria
6	Instillation of single point mooring	Eastern Refineries Ltd	Dholghata, Kaligonj and Kalamarchara of Maheshkhali
Power development projects			
7	Instillation of single-point mooring with double pipeline	Eastern Refineries Ltd	Kalamarchara and Dholghata of Maheshkhali
8	1200 MW coal-generated power plant	CPGCBL	Matarbari and Dholghata of Maheshkhali
9	8320 MW LNG and coal-based power plant	Bangladesh Power Development Board	Hoanok, Hetalia, Kalamarchara, Panirchara and Horiachara of Maheshkhali:
10	1200 MW coal-generated power plant	Electric Generation Company Bangladesh	Karadia of Pekua
11	700 MW super ultra-critical coal-fired power plant	CPGCBL	Matarbari of Maheshkhali
12	Cox's Bazar 2, 33/11 KV, 10 MBA substation	Rural Electrification Board	Totokkhali of Sadar
13	Cox's Bazar 2, 33/11 KV, 10 MBA substation	Rural Electrification Board	Inani of Ukhiya
14	Extension of Matarbari 2*600 MW ultra super power plant	CPGCBL	Dholghata of Maheshkhali
15	Extension of Matarbari 2*600 MW ultra super critical coal-fired power plant development project	CPGCBL	Matarbari of Maheshkhali
16	33/10 KV, 10 MBA substation	Rural Electrification Board	Sabrang, Maheshkhali
17	Matarbari coal power plant substation (roads and highway part)	Executive Engineer, Roads and Highway	Maheshkhali and Chakaria
Road development projects			
18	Approach roads and bridges for Matarbari coal power plant	Project Management, Matarbari Coal Power Plant	Dholghata, Yunuskhali, Matarbari, Nolbila
19	Marine drive road, from Inani to Shilkhali (second stage)	Roads and Highways	Ukhiya and Teknaf
20	Marine Drive, Shilkhali–Teknaf (third stage)	Roads and Highways	Shilkhali, Bordeil, Lengurbeel, Teknaf and Sabrang
21	Bangladesh–Myanmar Friendship Road	Bangladesh Army	Ukhyiarghat of Ukhiya
22	Kasturighat bridge and approach road on Bakkhali River	LGED	Sadar and Khurushkul
23	Bridge on Bakkhali River on Kalghar Bazar: Bazarkul UP office road point	LGED	Ramu and Chakmarkul
24	Teknaf–Sahporirdwip highway widening project	LGED	Teknaf
25	Approach between Matarbari 1200 MW and 700 MW power plants	LGED	Matarbari of Maheshkhali
26	Dohajari to Cox's Bazar via Ramu and Ramu to Ghumdum–Myanmar border single-line metre-gauge track-building [Chakaria part]	Bangladesh Railway	Chakaria Mouza: Harbang, Dulahazra, Ringvong, Fulchori, Khutakhali, Medhakocchopia, Kahariaghona , Rampur, Koraiyaghona, Bethua, Chanda Pohor, Veola,VeolaManikchor

	Name of project	Implementing department	Location
27	Dohajari to Cox's Bazar via Ramu and Ramu to Ghumdum–Myanmar border single-line metre-gauge track-building [Ramu part]	Bangladesh Railway	Ramu Mouza: Dholirchor, Baruakhali, Nondakhali, Zoarinala, Nonachori, Uttar Mithachori, Meronglowa, Fotehkharkul, Rajarkul, Umkhali, Dokkhin Mithachori, Cheinda
28	Dohajari to Cox's Bazar via Ramu and Ramu to Ghumdum–Myanmar border single-line metre-gauge track-building	Bangladesh Railway	Cox's Bazar Sadar Jhilongjha, Napitkhali, Boalkhali, Choufoldondi, Machuakhali, Eidgah
Coastguard stations			
29	Handing over land to coast guard	Bangladesh Coastguard	Boroghop of Kutubdia
30	Establishing coastguard station	Bangladesh Coastguard	Thakurtala of Maheshkhali
Special economic zones			
31	Sabrang Tourism SEZ at Sabrang of Teknaf	BEZA	Sabrang of Teknaf
32	Maheshkhali Economic Zone, Dholghata	Bangladesh Development Bank Ltd	Dholghata of Maheskhali
Other development projects			
33	Technical school at island of Kutubdia	Bangladesh Technical Education Board	South Dhurung of Kutubdia
34	Technical school at Teknaf	Bangladesh Technical Education Board	Teknaf of Teknaf
35	Extending and modernization of Cox's Bazar Airport	Bangladesh Civil Aviation department	Cox's Bazar Sadar of Cox's Bazar
36	Sports institute under Bangladesh Krira Sikkhapratisthan	BKSP	Nonachori of Ramu
37	Muktijoddha complex-building project	Bangladesh Muktijoddha Sangsad	Uala Palong of Ukhiya
38	Submarine base construction project	Bangladesh Navy (MEO)	Mognama of Pekua
39	Reallocating the affected owing to power development project by CPGCBL	CPGCBL	Matarbari of Maheshkhali
40	Fire service and civil defence station at island of Kutubdia	Bangladesh Fire Service	Boroghop of Kutubdia
41	LOS tower construction project	-	Pekua of Pekua
42	Land-based re-gasification LNG terminal at island of Kutubdia	Re-Gasification Natural Gas Company Ltd	South Dhurung and Koiyarbill of Kutubdia
43	Marine Drive approach road from Sugandha point to Kalatoli Beach	16 ECB, Jhautala Army Camp, Cox's Bazar	Cox's Bazar Sadar of Cox's Bazar
44	Tax office construction project under tax zone Chattogram – 4	Tax Commissioner, Chattogram	Varamohuri of Chakaria
45	Extension of airforce base	Wing Commander, Bangladesh Airforce Base, Cox's Bazar	Cox's Bazar Sadar of Cox's Bazar
46	Land + river fire service station at Maheshkhali	Fire Service and Civil Defence	-
47	Widening of Marine Drive road (23 km) and realignment (6 km)	16 ECB, Jhautala Army Camp, Cox's Bazar	Pechardwip of Ramu and Jaliapalong of Ukhiya
48	Bridge on river Matamuhuri	JICA	Chiringa, Kakara, Lakkhachor of Chakaria
49	Highway police station, office and barrack	Highway police	Dulahazra of Chakaria
Planned and ongoing initiatives by CoxDA			
50	Structural Plan, Urban Plan, Detailed Area Plan	CoxDA	Cox's Bazar municipality
51	Detailed study on impact of climate change in local biodiversity	CoxDA, Ministry of Environment and Forests	Cox's Bazar district
52	Conservation and modification of historical dighis (water points) of Cox's Bazar	CoxDA, LGED	Goldighi, Laldighi and Bazarghata ponds of Cox's Bazar municipality
53	City bus stands and bus points	CoxDA, LGED	Holiday Moor, Bazarghata and Larpara of Cox's Bazar municipality
54	Maintenance of Airport Road	CoxDA, LGED	Shoikot School to airport

	Name of project	Implementing department	Location
55	Central Sewer Treatment Plant	CoxDA, LGED, Ministry of Public Health	Kolatoli beach point
56	Embankment-cum-road alongside Bakkhali River	CoxDA, LGED	Kosturaghat to Banglabazar
57	Cox's DA Housing Project 01	CoxDA, DC Office	Sugandha and Kalatoli points
58	Water Park Development	CoxDA	Khurushkul bridge point
59	Development of roads in Cox's Bazar township	CoxDA, LGED	Cox's Bazar municipality

Source: Land Records Division, DC Office, Cox's Bazar, and CoxDA.

Table A8.3. Regression result: factors affecting per capita monthly family income

Variables	(1) ln_pc_minc
shead_female	-0.287*
	(0.149)
shead_eduyears	0.0350***
	(0.00928)
shead_dl	-0.399***
	(0.0710)
pc_land	0.000749*
	(0.000454)
treatment	-0.0924
	(0.0690)
remit	0.546***
	(0.110)
Constant	8.095***
	(0.0807)
Observations	404
R-squared	0.226

Notes: Robust standard errors are in parentheses; *** p<0.01, ** p<0.05, * p<0.1. ln_pc_minc = log of per capita monthly family income; shead_female = female headed household (=1); shead_eduyears = years of education of the household head; shead_dl = whether the household head is a day labourer (=1); pc_land = per capita land holding of the household; treatment = whether the household is within the treatment area, i.e. Ukhiya and Teknaf (=1); remit = whether the household receives any remittances from abroad.

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