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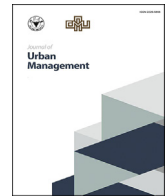
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## Research Article

# Decentralized activity centers in rural Bangladesh: A step towards effective emergency situation management in the post-pandemic cities



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## ABSTRACT

The concentrated development in the urban areas attracts people to migrate into cities for a better living and consequently leading towards the root causes of many socio-economic and environmental nuisances. Moreover, the high-density urban living engines the rapid spread of contagious diseases and thereby threatening the lives of millions of people. The high death rate and affected cases of COVID-19 in Dhaka City, Bangladesh, and its nearby areas, i.e., Gazipur and Narayanganj, gives a clear indication of the importance of activity center decentralization. Due to the growing demand for healthcare, it has become necessary to decentralize the health care facilities to the remote areas and the Government of Bangladesh has already adopted some key measures. In this context, this particular research has tried to determine the mutilated amenity facilities for diversified stakeholders aiming parallel discouragement of the out-migration of skilled professionals and attracting the non-local professionals to live in rural Bangladesh. The research critically argues that if proper facilities can be provided in rural areas, rural to urban migration can be demotivated. It also argues that the development of small urban activity centers will help emergency situation management. The methodology includes an amalgam of a two-step exploratory and descriptive survey prior to and during the global COVID-19 outbreak. The determinants and precedence of required services were determined by Focus Group Discussion (FGD), structured direct questionnaire surveys, secondary online questionnaire surveys and persona approach. The outcome of the research proposes a glimpse of management measures for Bangladesh to tackle future pandemic situation which could be a role model for developing cities also.

## 1. Research background

In 2017, Dhaka, with a share of 32% of the total urban population, was the fifth-largest primate city in the world accommodating more than 20 million people (World Development Indicators). Dhaka, with a population density of 1521 per square km compared to 976 per square kilometer for the country (*Zila Report: Dhaka, 2015*) - contributes more than 30% of national GDP (*Ahsan, 2019*). As development is concentrated in urban areas, especially in Dhaka, people tend to migrate to urban areas for opportunities to improve

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livelihood (Population Distribution and Internal Migration In Bangladesh, 2015). As a result, large cities are becoming unable to cater to

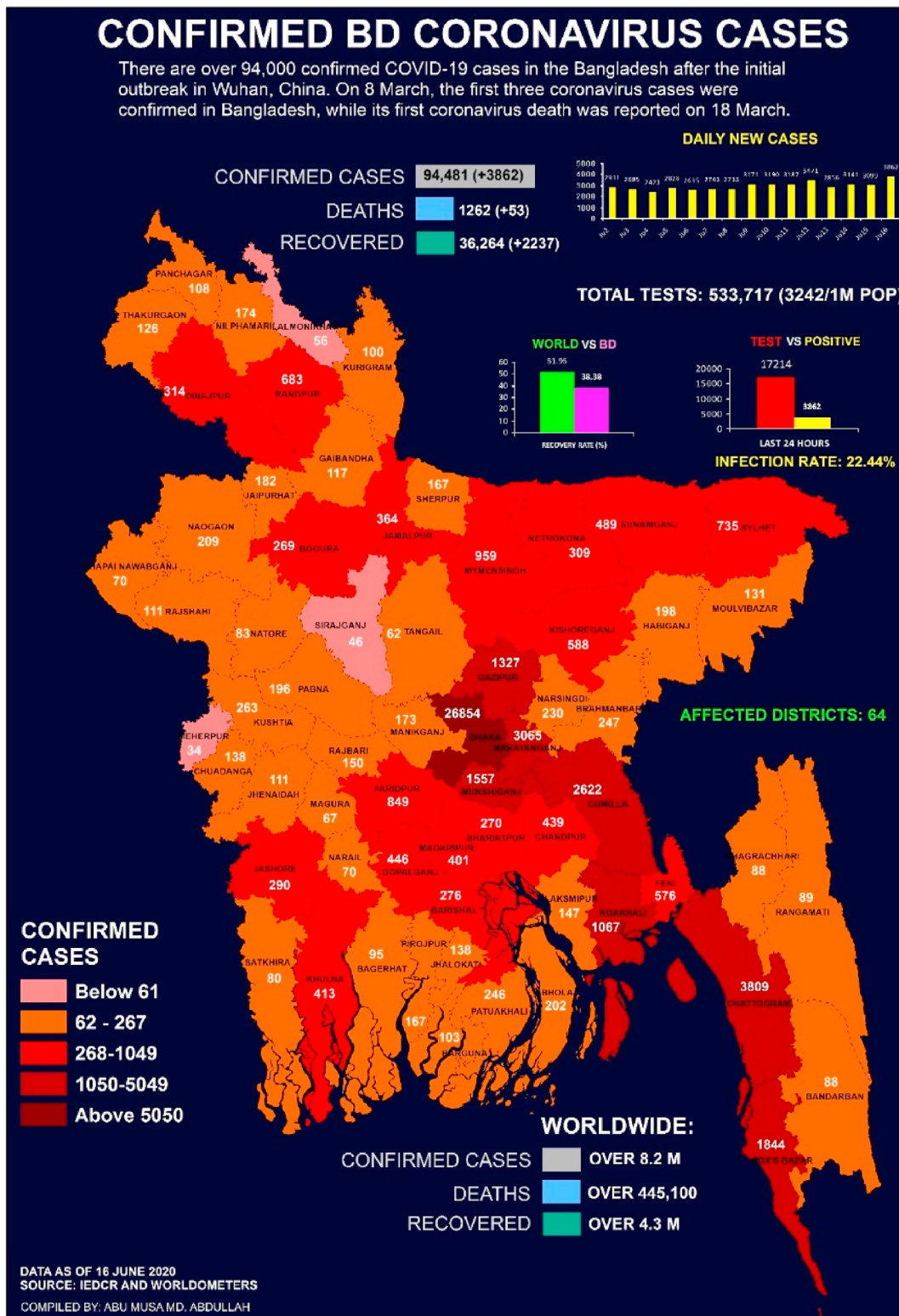


Fig. 1. Spatial distribution of confirmed COVID-19 cases in Bangladesh as of 16 June 2020. Source: IEDCR and Worldometers; Abdullah, 2020

essential services and facilities. This phenomenon has worsened amid the coronavirus pandemic.

The ongoing global COVID-19 pandemic situation (declared by WHO on March 11, 2020) begun at the end of 2019 and on March 8, 2020 Bangladesh detected the first COVID-19 positive case (First coronavirus cases detected in Bangladesh, 2020; WHO Declares COVID-19 Outbreak a Pandemic, 2020). It has been observed that case and death count, as well as the severity of the pandemic, is disproportionately high in Dhaka city and neighboring areas like Narayanganj and Gazipur. Different gray literatures, scientific reports, local as well as international newspapers reports have highlighted these areas as the major hotspots of COVID-19 outbreak in Bangladesh (Noman, 2020). Fig. 1 shows the spatial distribution of confirmed COVID-19 cases in Bangladesh as of 16 June 2020 in Bangladesh, and Dhaka has been marked as the most affected. Several scientific articles significantly prove high population density as one of the major catalysts for the rapid spread of COVID-19 (Bhadra et al., 2020; HamitCoşkun et al., 2020; Kadi & Khelifaoui, 2020; Tammes, 2020).

Along with health effects, the adverse economic impact of COVID-19 results in low-income and lower-middle-income people leaving the city due to the inability to bear the expenses (Antara, 2020). Having lost their jobs in the pandemic, almost 50,000 low-income people have left the city for their ancestral homes with an uncertain future (Ali & Amin, 2020). History shows that different pandemics have shaped the cities at different times, and this COVID-19 pandemic has led us to think about the decentralization of activity centers (Wintle, 2020). Researchers worldwide talk about the importance of the systematic distribution of urban growth and associated decentralization of administration and socioeconomic opportunities. Though several studies showed the importance of decentralization for Bangladesh, associated key issues remained unaddressed; now in pandemic days they have surfaced again.

The research argues that if proper facilities can be provided in rural areas, rural to urban migration can be demotivated. It also argues that the development of small urban activity centers will help emergency situation management. Therefore, this particular study has tried to answer two research questions: (i) What are the amenities required to attain different target groups' needs and aspirations leading toward decentralized activity center<sup>1</sup> development? (ii) How will decentralization help emergency situation management (e.g. any future health emergency like COVID-19 pandemic)? The research questions have been further translated into two central hypotheses to guide the research process, i.e., the required amenities to be provided in small urban centers will be unique for different stakeholders and there is a positive relationship between activity center decentralization and effective management of emergency situations. To evaluate the research arguments, this research aims to determine the mutilated amenity facilities required for diversified stakeholders aiming to discourage the out-migration of skilled professionals and to attract non-local professionals to live in rural Bangladesh.

## 2. Literature review

Numerous studies show two fundamental factors behind migration; pull and push factors (Castelli, 2018; Exploring migration causes – why people migrate, 2020; Piesse, 2014). The main reasons for migrating to urban areas are economic, socio-political, and ecological factors. Studies show that over-migration in the cities imposes an adverse effect on social and political sectors (Hugo, 2015; Migration and Its Impact on Migration and Its Impact on Cities, 2017). Again, due to the overpopulation in the cities, urban infrastructures and services fall short of serving with minimum standards. However, to cope with the consequences of rural-urban migration, the concept of decentralization has been introduced (Rhoda, 1983).

The history of decentralization in Bangladesh started after its independence in 1971. Article 59 and 60 of the Constitution of Bangladesh (COB) guides and classifies the republic's administrative units in local government bodies ("The Constitution of the People's Republic of Bangladesh," 1972). Following the constitution, a high-powered four-tier local government commission to ensure the decentralization of power at each level and emphasize the people's participation was legalized with the Local Government Act-1997, followed by the *Upazila*<sup>2</sup> and *Zilla Parishad*<sup>3</sup> Acts of 1998 and 2000. Following the trend of administrative decentralization, Bangladesh's government has also taken initiatives to strengthen the economic condition by decentralizing power from the center to the periphery (Ali, 2004; Faguet, 2016).

Several sources have emphasized decentralization as a critical policy initiative for sustainable development and good governance around the developing countries (Das, 2020; Governance and the Governance and the law, 2017). In line with the decentralization policies of different developing countries, Bangladesh's government has pursued decentralization policies in the last four decades to ensure nation-building, poverty reduction, and the general population's integration into decision-making processes (Panday, 2017). Regarding the 2030 Agenda of SDG 11 (Sustainable Cities and Communities) in particular, the current government has framed the political will: "My village-My Town." This statement is an explicit expression of the national development strategies: "Vision 2021" and "Vision 2041", that focuses on facilitating the rural-urban continuum without disrupting the nature-integrated settlement pattern of the deltaic agrarian society (Election Manifesto of Bangladesh Awami League, 2018; Making Vision 2041 a Reality: PERSPECTIVE PLAN OF BANGLADESH 2021–2041, 2020).

In March 2020, COVID 19 struck Bangladesh like many other countries and forced the government to impose a nationwide lockdown (Nabi & Showon, 2020). As a result, the growth of the nation's economy has been facing severe depression. Again, the spatial distribution of COVID-affected persons worldwide shows that the cities with the most activity centers and high population density have been more vulnerable to COVID-19. Each country's approach towards tackling the pandemic is either centralized or decentralized, but analysts see

<sup>1</sup> Activity center is referred to a mixed-use urban area where there is a concentration of commercial and other land use uses.

<sup>2</sup> Upazila Parishad or sub-district council is a local government body at the sub-district level in Bangladesh.

<sup>3</sup> Zilla Parishad or district council is a local government body at the district level in Bangladesh.

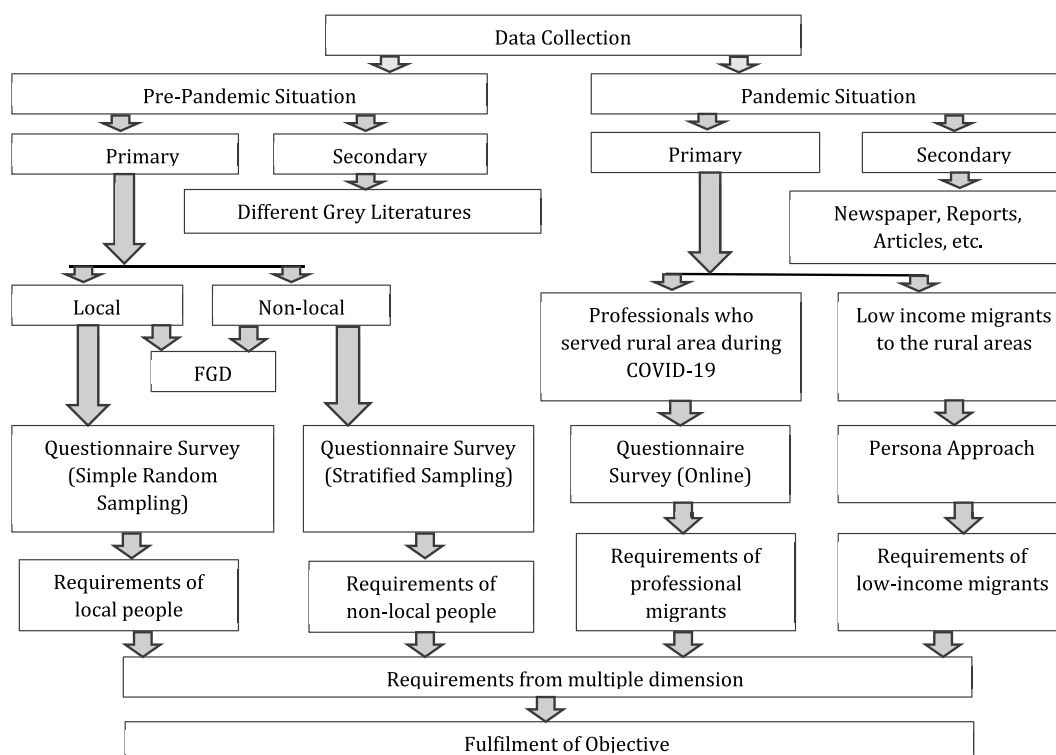


Fig. 2. Research methodology flow chart.

some potential benefits of decentralization (Kosec & Mogues, 2020b). This decentralization approach can be an excellent choice to handle an emergency, regardless of the country's economic status (Kosec & Mogues, 2020a). Drawing the examples of Germany and South Korea, Rajan stated that the country that has approached the coronavirus pandemic in a decentralized manner is more successful in tackling it ("Countries fighting COVID-19 in decentralised manner doing better: Raghuram Rajan," 2020).

A micro-level study from Chaudhury (1978) showed that rural push factors are the driving factor of the villagers' out-migration (Chaudhury, 1978). Parvez et al. (2019) identified that the lack of facilities in rural areas is one of the major causes (Parvez et al., 2019). Showing several push factors of migration in Bangladesh in the Haris Todaro model, Oakil (2007) found that low-income people tend to migrate more than middle-income people (A. T. Oakil, 2007). Hossain (2014) analyzed the existing and required decentralized activity facilities in Bangladesh's rural areas. They had a closer look at the amenities required and provided some policy recommendations (Hossain et al., 2014).

### 3. Methodology

The study has adopted an amalgam of exploratory and explanatory research methods to answer the research questions (Fig. 2). This research considers both the pre and during the pandemic situation to explain the necessities of diversified people.

Both the permanent residents (local people) and the migrated professionals (in the study area for job purposes) of rural and suburban areas (non-local people) have been targeted for data collection. Data has been collected from 7 different *Upazilas*<sup>4</sup> and 7 different villages of 5 districts in 2014 in the pre-pandemic situation (Table 1).

To understand the responses in pandemic situations, data have been collected from the non-local professionals<sup>5</sup> (posted in rural areas due to job purposes) from all around the country during September, 01 to October 30, 2020 using online surveys tools.

Focus Group Discussion (FGD) has been employed to collect required databases in the pre-pandemic situation. Each focus group generally constituted 6 to 12 persons of age 30–50 years engaged in different professions. Besides, local people have been surveyed using a structured questionnaire. Local people have been identified for survey by using a simple random sampling method, where non-local people have been selected through a stratified sampling method. A total of 210 local respondents (30 from each village) and 140 non-local respondents (20 from each *upazila*<sup>4</sup>) have been surveyed. Among 20 non-local samples, 5 government officials, 5 non-government officials, 3 medical officials, and 7 government and non-government staff were selected. In the 'during pandemic' situation, 100

<sup>4</sup> Upazila is also known as sub-district is an administrative region of Bangladesh.

<sup>5</sup> Professionals are those who earn their livings from a specified professional activity e.g., doctor, engineer, teacher, urban planner, etc. Upazila (sub-district) Sadar denotes as the core administrative region of a district.

**Table 1**  
Study area location in before pandemic situation.

Village	Upazila	District
Tezopara	Gabtoli	Bogra
Char Khukshia	Dhunat	Bogra
Brishalikhha	Bera	Pabna
Uslapara	Kulaura	Moulavibazar
Gram Vuktera	Juri	Moulavibazar
Kamalpur	Bhoirab	Kishorganj
Kamarpur	Mollahat	Bagerhaat

(Source: Field Survey, 2014)

professionals,<sup>5</sup> non-local in the areas where they were staying, had been surveyed with an online-based questionnaire circulated through different social medias. The questionnaire was designed to capture the demographic, socio-economic condition of the professionals, their thoughts on migration, and the impact of COVID 19 in their lives. For the low-income people who migrated back to their ancestral home during the pandemic, the Qualitative Persona approach has been applied as a community planning tool to collect detailed case specific databases. As qualitative persona approach helps to discover new things through small sample size and is open-ended, it can reveal details that cannot be presumed and extracted via questionnaire surveys.

#### 4. Findings from pre-pandemic scenario

##### 4.1. Issues related to local people

This study finds that 75% of people aged 15–25 i.e., youths are willing to migrate from their birthplace. Willingness of migration is also related to educational qualification and the tendency is more among the less educated. It is found that people within the age group of 15–35 years and with an education level of Secondary School Certificate (S.S.C) and Higher Secondary School Certificate (H.S.C) are more willing to migrate. Realizing the importance of education in changing their fate, they tend to migrate for higher study purposes.

The skewness value of 0.656 denotes that the data is rightly skewed, but there is a negligible amount of large income group in our study area, i.e., the negligible amount of disproportion in the income level of the people. The value of the Pearson coefficient of correlation between income range and willingness of migration exhibits a highly positive correlation. The analysis shows that people with an income range of or below 3000–5000 BDT<sup>a</sup> are more interested in migrating than others with higher income. It is also found that people with excessively high incomes are less interested in migrating as they are economically solvent (Fig. 3).

This study also found that people with previous migration experience are less interested in migration than the people without an experience of prior migration. That means people who are not aware of the consequences of migration are more willing to migrate. From the cross-tabulation of Table 2, it can be said that 57% of people with experience of migration are not willing to migrate. On the other hand, 49.4% of people without experience are willing to migrate.

People migrate mostly for a better income opportunity; that's why day laborers and landless farmers are more willing to migrate to urban areas than other professions. Health officers, staff, teachers and students are more willing to migrate in search of better academic and career opportunities while the businessmen are unwilling to migrate because of business in their locality. Fig. 4 shows the percentage of willingness to migrate to different mentionable professions.

##### 4.2. Issues related to non-local people

Non-local respondents are already migrants from other origins. The following hypotheses have been conducted to test whether non-local respondents have migrated within 100 km.

**Null hypothesis:** Most of the non-local respondents migrate more than 100 km from their origin.

**Alternate hypothesis:** Most of the non-local respondents migrate within 100 km.

The analysis has been conducted with 140 samples where mean 90.05, standard deviation 84.850 and standard error mean 8.994. From the analysis of one sample *t*-test with a 0.05 level of significance, it is found that there is a mean difference between the test hypothesis and the actual mean. The *t* value is  $-1.106$ , which is less than 0.05. So, the null hypothesis is rejected. Again, as the “*t*” value is negative, the sample's calculated mean is less than the test value (here 100 km). So, most of the non-local people migrate within 100 km from their origin, and this helps to understand their migration distance preference.

It is somewhat true that the non-local people do not find rural community facilities enough satisfactory to settle in rural areas. But the findings show that (Fig. 5) the non-local people are satisfied with housing facilities, water supply, gas supply, electricity, and sanitation. For the study, it is assumed that if an individual facility's satisfaction level is more than 60%, then the residents are satisfied with that facility. Following the rule of thumb, it is found that the non-local are not satisfied with the frequency of load shedding, emergency medical facilities, shopping center, community center, schools, and college facilities.

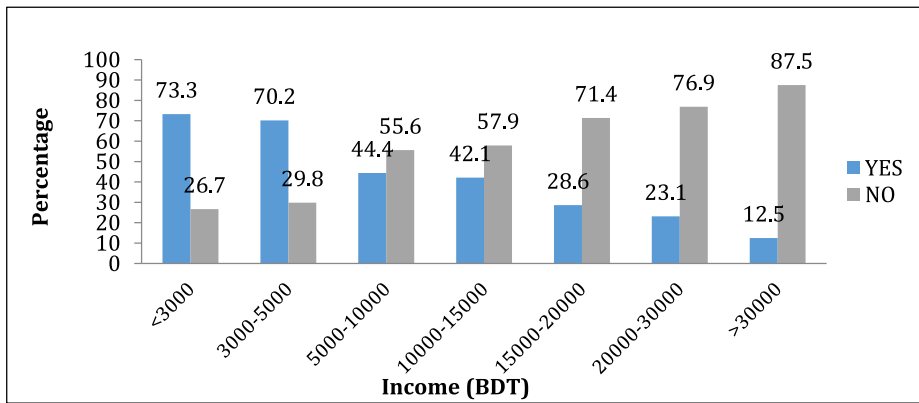


Fig. 3. Relationship between income and willingness of migration. (Source: Field Survey, 2014)

Table 2 Relationship between experience and willingness of migration.

Experience of Migration		whether interested to migrate		Total
		yes	no	
With experience of migration	% within Experience of Migration	43.1%	56.9%	100.0%
	% within whether interested to migrate	22.0%	26.6%	24.4%
	% of Total	10.5%	13.9%	24.4%
Without experience of migration	% within Experience of Migration	49.4%	50.6%	100.0%
	% within whether interested to migrate	78.0%	73.4%	75.6%
	% of Total	37.3%	38.3%	75.6%
	Count	100	110	210

(Source: Field Survey, 2014)

<sup>a</sup> BDT or Bangladeshi taka is the currency of the People's Republic of Bangladesh.

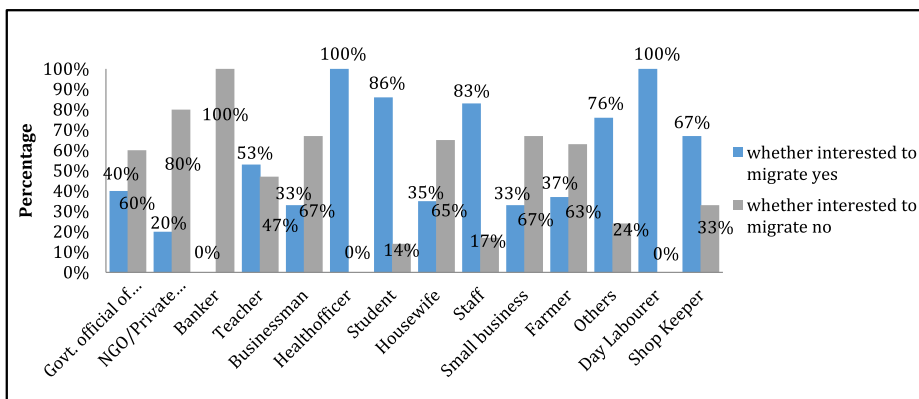


Fig. 4. Relationship between profession and willingness to migrate. (Source: Field Survey, 2014).

## 5. Findings from during pandemic situation

### 5.1. Issues faced by professionals

The survey includes respondents from a cross-section of sectors, government or private service holder 38.6%, engineers or urban planners 23.8%, healthcare professionals 17.8%, teaching or research work 7.9% and 11.9% are either consultants or engaged in the development sectors. Respondents' work experience averaged 3.15 years, with a standard deviation of 4.42. The survey results show that a significant percentage (77.2%) of the professionals stayed at their current location due to job posting. Others are either posted to their home district (16.8%) or their own choice (4%).

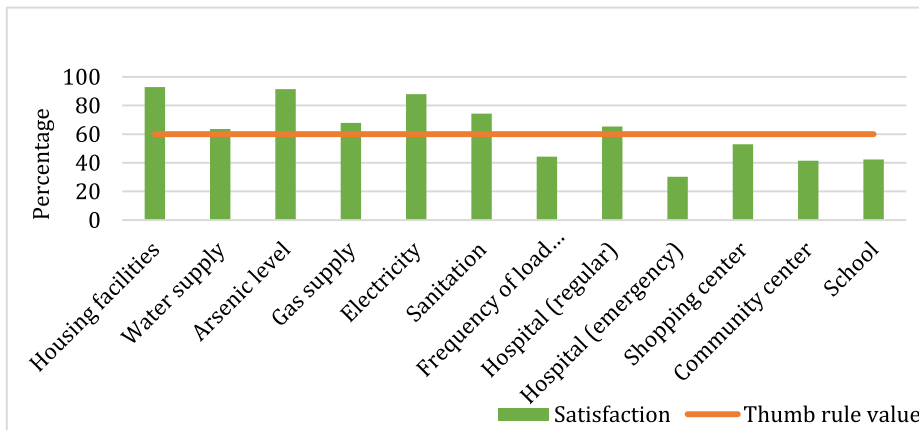


Fig. 5. Level of satisfaction of non-local people about existing facilities. (Source: Field Survey, 2014)

The analysis shows that 33.7% of respondents wanted to migrate to another place (with preferable locations with enhanced job opportunity and other required facilities) regardless of their profession. However, it has been observed that young professionals (aged 20–30) have the most interest in migration. People who have settled in their home districts do not want to reallocate in their place of choice (Fig. 6).

The majority of the people have agreed that migrating to another place will allow them to foster their careers. In contrast, others argue that they will find a better work environment, hence improved work conditions. Counting the maximum number of responses, the top causes behind the decision of migrating have been given below.

1. Seek opportunities for career progression
2. Improved work conditions
3. Better working environments and recreational facilities
4. Better remuneration
5. Higher education
6. Insufficient access to urban amenities
7. Low standards of living
8. Gap in professional contact with colleagues

It has been found that healthcare professionals are most insecure while other professionals are not facing much insecurity. Fig. 7 shows the percentage of respondents versus their profession that felt endangered amid this pandemic.

The result shows, 83.33% of the healthcare professionals faced health insecurity due to their exposure to the coronavirus. At the same time, other professionals have not faced as much insecurity; the pandemic has put immense pressure on every professional's mental health. 56% of the respondents felt severe mental pressure. 66% of respondents' expenditure has increased amid this pandemic to ensure

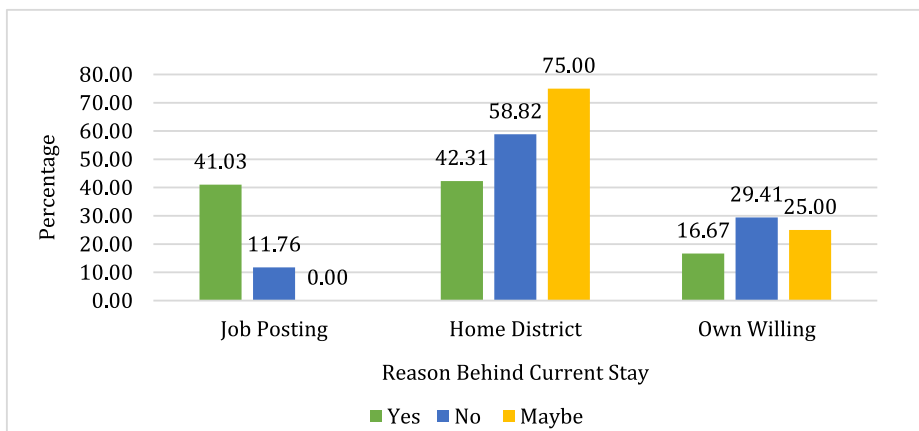


Fig. 6. Respondents' willingness to migrate concerning the current location. (Source: Field Survey, 2020).



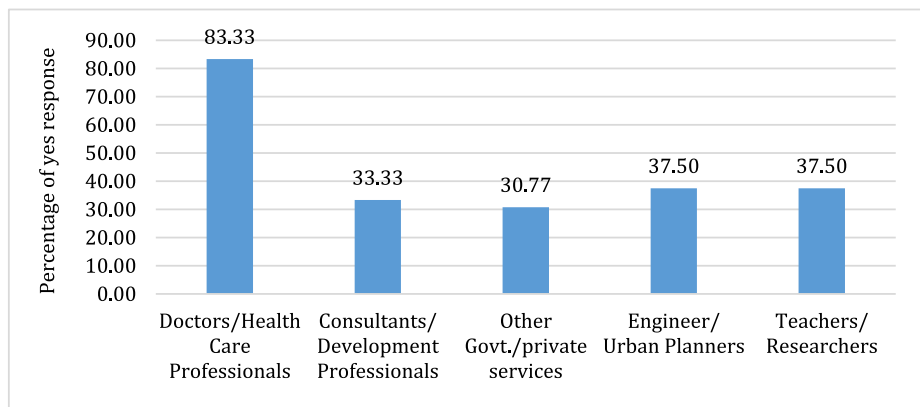


Fig. 7. Health insecurity concerning the profession.  
(Source: Field Survey, 2020)

their personal and family safety. On top of that, almost half of the respondents (41%) indicate that the pandemic had lowered their income as well.

However, 75% of respondents out of the participants from online questionnaire survey wanted to migrate into an urban area in the post-COVID 19 era due to perceived better healthcare and amenities through which their living standard can be improved. Moreover, urban areas offer more diversified jobs and educational facilities. Being exposed to various professional fields, they felt they could get more opportunities to develop their skills in an urban area. On the other hand, 25% of the respondents have chosen to settle in a rural area, as of now, rural areas are less vulnerable to COVID 19; people tend to stay in the countryside in less congestion and natural environment.

## 5.2. Scenario of low-income people

Mr. Feroz<sup>6</sup>, a garment's worker, shared his story during the lockdown days. He had migrated from Barishal to Dhaka 10 years ago in search of job opportunities. Prior to the recent pandemic situation, his salary was sufficient to support his expenses and those of his five-member family in Barishal. Upon the imposition of lockdown measures, he lost his income and found it challenging to meet basic necessities such as rent, food, and personal protective items for him and his family. He also added that he wants to go back to his village and live with his family.

Mr. Badol<sup>6</sup>, who runs a small tea stall beside the Dhaka-Narayanganj link road, shared that his 7-member family lives with the tea stall's earnings. He had to shut down his stall for four months owing to the lockdown. During this period, he was unable to pay his rent, and his family was on the verge of starving. With no hope in sight, they relocated to Feni, their place of origin, and started working as a day laborer. He expressed with sadness that he never wanted to return again to Dhaka, leaving the loved ones behind.

Mr. Rabbi<sup>6</sup>, is an 18-year-old boy. He came to Narayanganj from Patuakhali in search of work. His father lives in Narayanganj and works in a garments company. As all the educational institutions are closed due to the pandemic, his family sent him to his father to earn extra money. He plans to go back to his village as soon as the educational institutions reopen.

These stories represent the scenario of low-income and lower-middle-income peoples of Bangladesh. Analysis of these scenarios tells us how this pandemic is affecting low-income people below the poverty line. If this situation continues, people aligned with the poverty line will fall, and lower-middle-income people will go parallel with the line. It is also clear that they might settle down in their own countryside with their families if they can be provided with enough opportunities.

## 6. Analyzing the requirements of multiple stakeholders to live in rural areas

### 6.1. Requirements of local people not to move to an urban area (pre-pandemic scenario)

Local people who are not satisfied with the amenities they receive tend to migrate from their origin. To stop this migration, the respondents asserted requirements. To identify the essential facilities for discouraging the local people from migrating, the priority indexing method has been applied. On a scale of 10 and decreasing the number for less priority facilities, the total score has been counted. In order of priority, the local people's requirements have been stated in Table 3.

<sup>6</sup> Not the original name.

**Table 3**  
Top ten facilities prioritized by local people.

Priorities	Facilities	Total score
First	Increased Income	1459
Second	Improved quality of education	1056
Third	Improved Medical Facility	1016
Fourth	Improved lifestyle	789
Fifth	Employment opportunity of Other Members	697
Sixth	Supply of Electricity	677
Seventh	Opportunity For Self-Employment	524
Eighth	Improved Structure Of Housing	478
Ninth	Ownership of Land	469
Tenth	Incentive For Agriculture Loan	446

(Source: Field Survey, 2014)

### 6.2. Requirements of non-local people to stay in their present location (considering a normal situation)

The non-local respondents have prioritized increasing their income like the local respondents. In most cases, the non-local respondents are not satisfied with their income, and about 17% have prioritized increased income opportunities as their top priority. Applying the priority indexing method, the requirements are listed in Table 4.

### 6.3. Comparison of the requirements for local and non-local people

Both the local and non-local respondents demanded an increase in income as their top priority. Regarding community facilities, the priority is different for local and non-local people. It is found that non-local people prioritize educational and recreational facilities, where the local peoples' demand is the improvement of sanitation facilities. Educational facilities are required for both local and non-local people, but recreational facilities are more requisite for non-local people.

Most of the non-local government employees prefer to stay in quarter and quarter facility is a requirement of the non-local respondents where the locals reside in their own houses. Medical facilities of the rural areas are not satisfactory, and for this reason, most of the government or NGO employees are not willing to stay in rural areas. However, local people are less satisfied with both regular and emergency facilities than the non-local as local people cannot access the *Upazila Sadar*<sup>5</sup> in case of an emergency medical condition.

About 96 percent of non-local respondents and 86 percent of local respondents are satisfied with the less ethnic and political violence in their residing areas. In the prospect of social security, most local residents are dissatisfied about the land grabber's action. The local respondents are unwilling to leave their place if they get their required facilities. On the other hand, some non-local respondents are willing to migrate from the study area despite having the required facilities as they are more willing to live with their families.

### 6.4. Requirements of professionals to stay in the rural area (considering a pandemic situation)

Responses indicated that they are more concerned about their health issues during this pandemic situation, which is quite apparent. The frequency distribution availed from the online survey shows that most of the respondents voted for the requirement of health care centers in rural areas. However, in their view, there is not enough supply of medicine in the countryside. Hence, the need for medicine supply has also been prioritized by the respondents. In the fringe areas of Bangladesh, the network providers cannot facilitate high-speed internet connection. Considering the new medium of work, respondents have required a decent internet connection to continue their stay in the rural areas. According to the maximum responses, the facility requirements are listed following.

- 1 Provide health care centers
- 2 Enough medicine supplies

**Table 4**  
Top ten facilities prioritized by non-local people.

Priorities	Facilities	Total score
First	Increased Income	1022
Second	Improved quality of education	757
Third	Number of education Facilities	746
Fourth	Improved Medical Facility	660
Fifth	Improved lifestyle	645
Sixth	Recreational Facility	595
Seventh	Employment opportunity of Other Members	538
Eighth	Supply of Electricity	400
Ninth	Supply of Gas	339
Tenth	Improved Communication facility	249

(Source: Field Survey, 2014)

- 3 Provide internet service
- 4 Better transportation, safety, residence facility
- 5 More career and entrepreneurship opportunities
- 6 Scope for cultural and recreational activities
- 7 Basic Amenities closely matched with city amenities
- 8 Provide a better living environment

#### 6.5. Requirements of low-income people to live in their hometown (considering a pandemic situation)

Most of our interlocutors are low-income rural-urban migrants in search of better-earning potential. These were mostly agrarian workers who decided to migrate due to inequitable distribution of resources and pull factors of urban migration. But they are willing to migrate to their origins if they receive some desired facilities.

Mr. Feroz, had to mortgage their last piece of land for his father's final rites. He wants to go back to his village and do something of his own, but the mortgage debt is more than 0.4 million BDT. He said all he needs is a bit of financial help through microfinance. He also asked for agro training programs.

On the other hand, Badol, who doesn't have any land of his own, also wants to go back to his hometown to do small business. He also wants some training or technical education from where he can generate some business ideas.

Again, Rabbi, wanted opportunities for technical education along with the necessary education. However, also arranging some part-time works for college-going students would be enough, he added. He thinks that gaining technical knowledge, along with implementing opportunities, can really keep them in the roots. He also regretted that if his father could income more money, he should not have to join any works.

#### 6.6. Comparison of the requirements in a routine and pandemic situation

In a typical situation, people are more conscious about their income and career opportunities. Hence, both the local and non-local people stated increased income at the top of their priority list. They are more conscious about the living standard and the community facilities. But during this pandemic situation, people realized the importance of health facilities, and they prioritize health facilities at the top of their requirements. People are demanding enough medical supplies and efficient emergency responses. People are being conscious about access to information and that's why they keep the internet service facility in their requirements. People moved their concept from city fascination to a better living environment. Simultaneously, along with the community facilities, the low-income migrants, due to COVID-19, require financial help to start their employment in rural areas and not migrating to urban areas.

### 7. Policy recommendations

Based on the theoretical understanding of the concept, relevant practical planning implementation, and analysis of field-level databases carried out in this study; the following policy recommendations are made.

Revitalization of the rural economy should be ensured to diversify income opportunity and increase in income through some approaches such as rural industrialization, diversification of agriculture, promotion of non-agricultural employment opportunities, etc. To create new income opportunities with increasing wage rates, area-specific products should be prioritized for employment generation. Agro-based and agro-processing industries should be more developed in diversified ways. Similarly, specific products of specific rural areas should be prioritized to create employment in that rural area. By identifying the specific area and specific products for agro-based and agro-processing industries, possible loanees and possible loan packages should be determined with controlled interest rates. The government should encourage the growth of these rural industries through policies with the help of different monetary packages. Different NGOs work in rural areas for the financial help of rural people, but in maximum cases, they demand a high-interest rate. NGOs are a reasonable means of reaching financial bits of help to the rural level, but the government should positively control them.

Improvement of the existing community facilities, education facilities, recreational facilities, etc., needs to be ensured through different government projects. The government should also be strategic in government job posting, e.g., the non-locals tend to migrate within 100 km distance from their home town and more willing to have government quarters than living in tenant houses. Emphasis also should be given to the information access facility that is a strong internet connection facility. During the pandemic situation, health security became people's top priority, and this can be ensured through proper distribution of medicines and medical kits along with establishing sufficient health care institutions. Health care should be prioritized in the planning process to avoid future health hazards.

On April 5, 2020, Bangladesh Prime Minister Sheik Hasina announced BDT<sup>3</sup> 72,750 crore (USD 8573 million) stimulus packages to combat the adverse economic effects of coronavirus. The SME industries will get this lending facility with a 9% interest rate while industries will pay 4% and the government will allocate the remaining 5% as a subsidy (Oakil, 2007). The low-income migrants can be brought to any such incentives to make them employed in rural areas. The migrant who goes back to their hometown due to the adverse economic impact of COVID-19 should be listed with their details to understand their field of expertise. According to their experience scope, they should be brought under training and motivation to contribute to their own rural area while being economically solvent. These should be done as a short-term step to keep them in the rural area.

## 8. Effective emergency situation management in the Post Pandemic City

### 8.1. Proposed policies for boosting up decentralization measures

Multiple stakeholders' requirements should be fulfilled to ensure the decentralization of activity centers and reduce the rural to urban migration. Sufficient community amenities are typical requirements, and the recommendations also suggest that. Both the short term and long term measures have been considered while formulating the recommendations. The low-income people who have migrated to the rural areas due to COVID-19 may come back to the city again. Short term and immediate measures are needed so that they can be involved in any employment and do not migrate to the city again. They should be listed to be included in the government incentive for COVID-19 and provide financial help or loan at a low-interest rate so that they become able to start their own business and also create employment for others.

Along with these short term measures, long term planning for diversifying employment in rural areas is also needed. Government policies to promote area-specific employment generation have been suggested. Along with employment generation, health care facility provision has also been brought to focus. The facility of higher studies and ensuring social security will keep them in rural areas. These all together will ensure decentralization, and providing facilities in a natural environment will ensure sustainability.

### 8.2. The role of decentralization in future pandemic situation management

Diseases shape cities, but it is time to shape cities to fight diseases better. In times of crisis, the rise in demand for different services triggered by Covid-19 has shown how ineffective centralized organizations are. Three primary hospitals were forced to close during the SARS outbreak in Singapore as the city struggled to contain the illness. Delivering operational efficiencies, privatization, and decentralization of public services, such as waste collection and healthcare, have proven successful. Decentralization delivers another asset during a crisis: resilience. It decreases the single failure points that make centralized systems fragile. Urban resilience, coming out of this pandemic, should be a top priority for policymakers. We should consider the risks of cross-contamination between similar urban structures, as well as decentralization. For example, following the SARS epidemic, after discovering that SARS was transmitted via linked drainage systems, Hong Kong instituted regulations to improve the collection and management of wastewater ([Three Design Lessons for the Post Pandemic City, 2020](#)).

COVID-19 joins a long list of infectious diseases that are likely to leave permanent traces on urban spaces, such as the 1918 Spanish flu in New York and Mexico City or the Ebola Virus Disease in West Africa in 2014 ([Klaus, 2020](#)). The arrival of COVID-19 in the United States, first on the East Coast, made it possible for the West Coast to prepare itself through an efficient network of information. Dieter R. Enzmann, MD, and Chair of the Department of Radiology at UCLA, stated that from his insights, he believes that our future approach to the pandemic will be influenced by the interaction of future healthcare technologies, the notion of punctuated harmony, and the decentralization of healthcare ([The Effects of Decentralization in Times of Pandemic, 2020](#)).

To battle the COVID-19 pandemic, urban services' decentralization can be learned to make cities more resilient for public health emergencies. Decentralized systems are more economical from users' point of view: they eliminate reliance on the central system, offer an incentive for resource recovery, and be designed and adjusted according to users' requirements. From the authorities' point of view, these technologies reduce their total load and assist in better resource management ([Jainer & Pasricha, 2020](#)).

Around 95 percent of individuals with COVID-19 live in urban areas. This has placed some of the underlying inequalities into sharp focus at the heart of our towns and cities. COVID-19, including the 1 billion inhabitants of the highly populated informal settlements and slums of the world, as well as other people who lack access to affordable, secure and healthy housing, will be hit hardest by the most vulnerable. The reaction to post-COVID-19 will need to resolve these breakdowns and provide essential services to all urban residents, particularly health care and housing. Local authorities should be the driving force to reduce inequality, supported by national government policies that enhance the resilience of cities and their people ([Sharif, 2020](#)).

The world has experienced pandemics like COVID-19 at different times. Decentralization of the activity centers will make the cities more resilient, and better urban community management at the same time will ensure better resource management and more effective management of pandemic situations.

## 9. Conclusion & way forward

COVID-19 pandemic situation makes us think again about the decentralization of activity centers. The government of Bangladesh is concerned about decentralization, and this pandemic urges us to take steps now. The study findings highlight the requirements of different stakeholders to live in rural areas and support that provision of these facilities will demotivate rural to urban migration. The requirements show that in a normal situation, people prioritize the increase in their income while considering the pandemic situation, provision of health care facilities, especially the emergency health facilities, came to the top of the priority. The outcome of this research points out some significant policy recommendations to guide planning for emergency measures in the rural areas in developing countries to ensure quick response in an emergency. Recommendations have been formulated based on the requirements focusing on both the short-term and long-term aspects to decentralize the activity centers. Supporting the positive relation between decentralization and effective emergency management, activity center decentralization will help to manage the post-pandemic city and future pandemics effectively. Experts have widely mentioned that building city resilience can be an option to manage pandemic situations more efficiently, and that can be possible through decentralizing the amenity facilities and health care services. Thus, decentralization of the activity centers will help manage the future pandemics as well as simultaneously ensure the necessary steps to be taken to fulfill the

diversified people's requirements. As a way forward, future researchers can use this study as a baseline to establish a more comprehensive research integrating the post pandemic condition to ground test and calibrate this research output as well as featuring an in-depth analysis concerning the efficiency of decentralized activity centers as an option for emergency situation management.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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