ULAANBAATAR DTM FLOW MONITORING SURVEY REPORT

February – June 2020

НИЙСЛЭЛИЙН ЗАСАГ ДАРГЫН ТАМГЫН ГАЗАР

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Cover photo: Officers representing Health department of Municipality of Ulaanbaatar, National Emergency Management Agency, General Agency of Professional Inspection, Police and IOM standing together at one of the checkpoints during Ulaanbaatar Flow Monitoring Survey.

FOREWORD

The Ulaanbaatar DTM Flow Monitoring exercise was conducted between February 27 and May 31, 2020 by IOM in cooperation with the Municipality of Ulaanbaatar under the project "Understanding and Managing Internal Migration in Mongolia" funded by the Swiss Development Cooperation. The objective of this intervention was to support the Government of Mongolia's efforts in planning prevention and response measures amid COVID-19 pandemic. The specific Flow Monitoring method was used to support the decision of the Municipality to monitor the flow of people via the 6 checkpoints around the capital city thereby ensuring availability of data on potential community transmission patterns as well as insights into possible preparedness and prevention actions.

The present report summarizes the data collected during the implementation of the DTM Flow Monitoring in Ulaanbaatar, includes major analytical conclusions and presents recommendations for future utilization as well as enhancement of preparedness and response to emergencies.

The activation of the DTM is testimony of the early and proactive measures that the Government of Mongolia and the Municipality of Ulaanbaatar took to prevent and mitigate the spread of COVID-19. It is important to mention that back in February 2020 Mongolia was the first country in the world to use DTM for COVID-19 prevention, thus leading by example in creating an evidence base for informed decision making in emergency context.

At the time of publishing this report, Mongolia is facing the first clusters of community transmission which brings back the need for enhanced preparedness and response operations to ensure the safety of the people. IOM and the Government of Mongolia look forward to furthering their cooperation by institutionalizing DTM Flow Monitoring in Ulaanbaatar Municipality as well as by piloting and implementing the Mobility Tracking tool in Ulaanbaatar, making it one of the few capitals in the world to use it for emergency and general planning purposes.

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EXECUTIVE SUMMARY

The collaboration between Municipality of Ulaanbaatar (MUB) and IOM Mongolia identified key highlights related to movement trends amid the COVID-19 pandemic.

One key finding of the assessment is that even amid intercity travel restrictions, population mobility still occurred to a certain degree. In other words, internal mobility did not come to a complete standstill. In the case of community transmission, while intercity travel restrictions are likely to delay and reduce the spread of COVID-19, it is unlikely to stop the spread.

Another insight is that demographics, checkpoint location and intercity travel restriction all factor into the various levels of movement. However, of particular interest that invites further research is the clustering of movements to and from Songinokhairkhan and Bayanzurkh districts.[1]

POPULATION MOBILITY DURING THE COVID-19 PANDEMIC

Even amid intercity travel restrictions and the closure of Ulaanbaatar city, intercity movement still occurred minimally due to special permissions that enabled specific mobility, such as family member death, emergency hospitalization and per diem, among others. Therefore, during intercity travel restriction days, mobility is reduced to 22 per cent of 'normal' level, which was on average 40,733 on restriction-free days (IOM Mongolia, 2020).[2] It is found that men are more likely to be mobile and so should be targeted with preventive activities.

VARYING LEVELS OF MOVEMENTS

Checkpoint location and interctiy travel restriction factor into the different levels of movement and traffic.

During the restriction days, Nalaikh checkpoint (East) saw the highest traffic movement, while during the normal traffic days, Emeelt checkpoint (West) recorded the highest number of movements. For vehicles moving within Ulaanbaatar, Emeelt (West) and Nalaikh (East) were the checkpoints with the most traffic, compared to the other four checkpoints. This could be explained by the fact that many people are travelling from residential areas of UB to areas of employment through Emeelt (West) and Nalaikh (East).

[1] The city of Ulaanbaatar is divided into 9 administrative districts or düüreg, which are further subdivided into smaller administrative units called khoroo

[2] IOM Mongolia (2020), *Mongolia – Flow Monitoring In Ulaanbaatar (COVID-19 Preparedness) – Situation Report 90*. Available online at: [https://migration.iom.int/reports/mongolia-%E2%80%93-flow-monitoring-ulaanbaatar-covid-19-preparedness-%E2%80%93-situation-report-90-1-june]. (Published 01 June 2020).

This information may be useful in implementing COVID-19 health protocols that includes ensuring adequate human resources are available to support with temperature monitoring, epidemiological surveillance, and dissemination of COVID-19 related information. Nalaikh (East) checkpoint is a good place to communicate prevention information for industrial workers. Though Gunt, Morin and Ulziit checkpoints feature less heavily in the data; they still need to be considered in measures to prevent the spread of COVID-19 within UB.

DESTINATION AND ORIGIN

In absolute terms, Songinokhairkhan was the district with the highest share of population movements. Bayanzurkh had the highest surge of inflow population and Bayangol recorded the highest net increase of the number of people as a share of the resident population (5%.) When looking at movement per 1,000 people, Songinokhairkhan still had the highest share of mobile population, followed by Khan-Uul with the second highest proportion of mobile population.

In absolute terms, we can observe clustering of movements to Ulaanbaatar especially in Bayanzurkh district. About half of all the movements from Dornod (48%), Gobisumber (51%), Khentii (56%), Sukhbaatar (59%) went to Bayanzurkh. There was no other district in Ulaanbaatar with similar scale of clustering patterns. But looking at per 1,000 population rate, the percentage of clustering movements to Bayanzurkh from these aimags decreased.

More than half of the overall traffic from Ulaanbaatar towards Sukhbaatar (58%), Khentii (59%), Dornod (54%), and Gobisumber (52%) originated in Bayanzurkh. Almost half of those headed towards Gobi-Altai (49%), Darkhan-Uul (48%), Khovd (46%) and more than a third of those headed to Bayankhongor (44%), Bayan-Ulgii (41%), Khuvsgul (43%), Arkhangai (37%), Uvs (44%), Uvurkhangai (41%) and Zavkhan (41%) were coming from Songinokhairkhan.

The findings that indicate the clustering of movements towards Bayanzurkh and Songinokhairkhan districts are consistent with relevant statistics on population movement to Ulaanbaatar city for 2018 (NSO, 2019).[3] However, the findings that indicate potential flow patterns between certain aimags and districts invite further research.

LENGTH OF STAYS

Of the assessed individuals that were coming to Ulaanbaatar, 58 per cent intended to stay for over one month, followed by those planning to stay for up to a week (18%), and for a day (15%). The data for those leaving Ulaanbaatar was similar: 56 per cent intended to stay for over one month, followed by those planning to stay for up to a week (16%), and for a day (16%). The declared planned length of stay in the countryside varied according to the destination aimag.

[3] National Statistics Office of Mongolia (2019), *Socio-Economic Status of the Capital City of Mongolia: 2018*. Available online at: [https://1212.mn/BookLibraryDownload.ashx?url=22._ulaanbaatar.pdf&ln=Mn]

INTRODUCTION

The Government of Mongolia (GOM) took early and proactive measures to prevent and mitigate the spread of COVID-19. In addition to closing educational institutions on 27 January 2020 and imposing international air travel restrictions on 13 February 2020, the Government also declared a state of 'high alert' to prevent a possible spread of COVID-19 during the Mongolian Lunar New Year (24-26 February 2020). The Emergency Commission restricted all travel between aimags[4] (provinces), as well as incoming and outgoing flows in the capital city of Ulaanbaatar (UB), which is by far the biggest urban settlement in Mongolia and accounts for almost half of the country's population.[5] It is a major destination, origin and transit point for population movements and as such could be a major risk for further spreading COVID-19 to the entire country.

To increase its preparedness and response to COVID-19, the Municipality of Ulaanbaatar (MUB) requested the assistance of IOM Mongolia to undertake data collection of movements at six checkpoints/FMPs[6] within UB by implementing IOM's Displacement Tracking Matrix (DTM). DTM's methodology is used in emergencies in more than 80 countries around the world, and in 2018 alone, it covered more than 40 million people (IOM, 2019).[7] In 2018, DTM was successfully implemented to monitor the movement of people during the Ebola virus outbreak in South Sudan. For Mongolia, the National Emergency Management Agency (NEMA) and the IOM have been using DTM Mobility Tracking method since 2018 to monitor the movement of citizens in 21 aimags and 330 soums[8] in order to prepare for natural disasters, in particular for dzud.[9]

The UB DTM Flow Monitoring operation was successfully implemented from 27 February to 31 May 2020. Under the collaboration between MUB and IOM, a total of over 500 health, education and UB city officials were mobilized as data enumerators for the survey and over 300 doctors and personnel of district health centres, central hospitals, maternity wards and special occupational centres were mobilized for health surveillance. The pilot phase was conducted from 27 February to 3 March 2020, during the first intercity travel restriction period,[10] and the actual survey was conducted thereafter until 1 June 2020. At the six FMPs that are government established toll booths, located on the outskirt of UB on main intercity roads (Emeelt, Baruunturuun, Gunt, Ulziit, Morin and Nalaikh), trained data enumerators collected non-personal data 24 hours a day for 7 days a week. During the three-month operation, a total of 3.5 million population movements were tracked and 90 daily situation reports, two analytical reports and another on potential transmission hotspots by population density and volume of population flow were produced and shared with partners.

[4] The territory of Mongolia is divided into 22 administrative units, i.e. 21 aimags and the capital city of Ulaanbaatar. Aimags and the capital city are the primary administrative units.

[5] ADB (2018), *Mongolia: Urban sector factsheet*. Available online at: [https://www.adb.org/sites/default/files/publication/404296/mongolia-urban-sector-fact-sheet.pdf].

[6] The terms "checkpoints" and "flow monitoring points (FMPs)" are used interchangeably in this report to define the transit points at which the population flow was monitored.

[7] IOM (2019), *World Migration Report 2020*. Available online at: [https://publications.iom.int/system/files/pdf/wmr_2020.pdf].

[8] Aimags are divided into soums. Soums are the secondary administrative units.

[9] A dzud is a cyclical, slow onset disaster unique to Mongolia. It consists of a summer drought followed by a deterioration of weather conditions in winter and spring during which shortage of pasture and water leads to large-scale death of livestock.

[10] During the UB DTM FM operation period, a total of four intercity travel restrictions were imposed: 27 Feb to 3 Mar; 11 to 15 Mar; 22 to 24 Apr; and 15 to 16 May.

METHODOLOGY

DISPLACEMENT TRACKING MATRIX

The Displacement Tracking Matrix (DTM) is a system to track and monitor displacement and population mobility. It is designed to regularly and systematically capture, process and disseminate information to provide a better understanding of the movements and evolving needs of displaced populations, whether on site or en route.

Conceptualized in 2004 in Iraq, for the Internally Displaced Person (IDP) assessments and monitoring exercises, the DTM has been continuously refined and enhanced through years of operational experience in countries in both conflict and natural disaster settings. It is essential in providing primary data and information on displacement, both in country and at the global level.

Flow Monitoring is one of the four distinct components of DTM system. The purpose of flow monitoring is to provide updated information on the scale and profile of population movements. This methodology has been developed to track movement flows of groups and individuals through key points of origin, transit locations and points of destination. The information and analysis provided by flow monitoring aims to better understand movement trends and define shortcomings and priorities in the provision of assistance along displacement/migratory routes if required. The locations of flow monitoring points (FMPs) are defined based on previously conducted entry, exit and transit point assessments undertaken with national and local authorities along main routes.

ULAANBAATAR DTM FLOW MONITORING

The purpose of the Ulaanbaatar DTM Flow Monitoring (UB DTM FM) is to gather quantitative data on mobile population transiting through FMPs within Ulaanbaatar.

The assessment period for Ulaanbaatar's DTM Flow Monitoring was between February to June 2020.

The data on mobile populations transiting through FMPs or checkpoints in Ulaanbaatar city aim to support the Government of Mongolia's (GOM) efforts in planning a targeted response to COVID-19. The information gathered can be particularly useful to help the Municipality of Ulaanbaatar (MUB) identify potential community transmission routes to and from Ulaanbaatar city and community transmission hotspots within the city.

During the assessment period, extreme weather conditions with temperatures drops well below zero degree Celsius affected data collection. As a result, paper forms were used for data collection and subsequently entered in KOBO[11] system rather than smart/mobile devices.

[11] KoBoToolbox, developed by the Harvard Humanitarian Initiative, is an open source suite of tools for data collection and analysis in humanitarian emergencies and other challenging environments that was built to quickly collecting reliable information in a humanitarian crisis. More info on https://www.kobotoolbox.org/

The data was collected for two types of vehicles moving to and from the checkpoints: private vehicles *(form in Annex I)* and public transportations *(form in Annex II)*.

The data collected were as follows:

- Type of vehicle (5 categories for private vehicle)
- Vehicle plate/registration number
- Number of individuals travelling (breakdown of gender and age: men, women as 18 years and older; boys, and girls as 0-17 years old)
- Origin and destination (Aimag and district level for UB)
- Length of stay (at origin and destination)

The data was collected through brief face-to-face interviews with travellers if they were transiting in a private vehicle or with key informants if travellers were transiting in public transportations.

DATA LIMITATIONS

The data does not represent all inter and intra-regional population movements and should not be generalized as such. Rather, it is of population flows at specific FMPs. Data collected in assessed FMPs should not lead to assumptions about flows in non-assessed FMPs or areas without monitoring points.

DATA ANALYSIS

From the survey, IOM Mongolia, with support from the DTM Regional Office in Bangkok, oversaw verification, processing and analysis of collected data for various/multiple report outputs that were disseminated to government counterparts and relevant partners. Daily Situation reports with descriptive statistics covering 24 hours of movements at the FMPs were produced for the entire duration of the exercise, including both pilot and actual implementation. The situation reports provided details on demographic profile of individuals as well as movement patterns by origin, destination, and length of stay. Cumulative findings of the situation report as of 31 May 2020 is in the subsequent section I. Descriptive Statistics.

In addition to the daily situation reports, IOM Mongolia produced two analytical reports and one report on potential COVID-19 transmission hotspots to offer possible recommendations, planning and communication messages and response measures for GOM. Main findings of the analytical reports, covering the period from 27 February to 5 April 2020 are summarized in section II. Analytical Findings.

I. DESCRIPTIVE STATISTICS

Between 27 February and 31 May 2020, IOM Mongolia and MUB collected non-personal data from a total of 3.5 million individuals passing through six checkpoints around Ulaanbaatar city. During the tenure of the operation, several travel restrictions to and from Ulaanbaatar city were imposed, impacting number of daily average movements.

3,458,342

Cumulative movements tracked by DTM Flow Monitoring Points

13,110 (R) | 40,733 (N)

Average movements per day during restricted (R) and unrestricted (N) periods

During the reporting period, of all those who crossed the checkpoints, both incoming and outgoing movements to and from UB from other aimags, more than half were men (51%), 31 per cent were women and 18 per cent were children (10% boys and 8% girls).

In terms of population flow by origin and destination, 48 per cent of all those who entered the city were coming from Tuv, Darkhan-Uul and Uvurkhangai aimags. The top three destinations for movements out of the city were Tuv, Selenge and Darkhan-Uul aimags, collectively making up 48 per cent of all the exit movements.

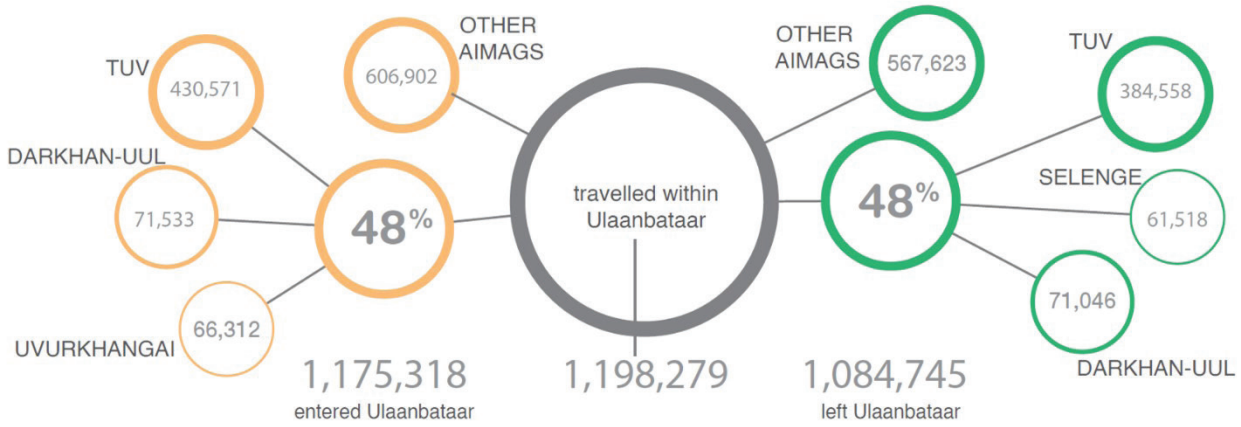

Figure 1: Overall population flow

While the six FMPs varied in level of traffic, Emeelt checkpoint, which is located in western end of the city, received the highest incoming traffic flow from other aimags, followed by Nalaikh checkpoint, located in eastern end of the city. Baruunturuun checkpoint experienced the least traffic during the period owing to the renovation of road that passes through the checkpoint.

	OVERALL		
FMPs	TOTAL	IN	OUT
Baruunturuun	402,017	191,320	210,697
Ulziit	497,885	263,835	234,050
Nalaikh	1,034,098	514,079	520,019
Morin	861,307	430,676	430,631
Emeelt	1,238,105	661,986	576,119
Gunt	622,149	311,255	310,894
Total	4,655,561	2,373,151	2,282,410

Table 1: Traffic at Flow Monitoring Points (FMPs)

II. ANALYTICAL FINDINGS

The findings in this section are drawn from data collected between 27 February and 5 April 2020.

In the period when traffic was restricted and Ulaanbaatar city was closed, movements dropped to about 22 per cent of the normal traffic but did not come to a complete standstill. The average during the restricted days is 10,196 movements per day as compared to 43,663 during "unrestricted" days. Traffic tends to reduce drastically in the first 24 hours after restriction, but then gradually increases.

Most of the traffic through the checkpoints are by private cars (86%), followed by public buses (9%), then by trucks (4%). Private cars are the main mode of transportation for domestic intercity movements.

Based on the assessment, it was found that 58 per cent of population flows into Ulaanbaatar are for an intended stay of over one month, followed by those planning to stay for up to a week (18%) and those coming to Ulaanbaatar just for a day (15%). The data for those leaving Ulaanbaatar is similar (Figure 2 and 3).

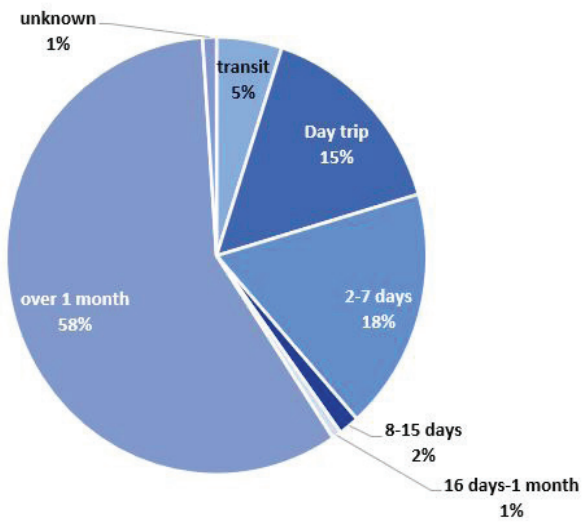

Figure 2: Intended length of stay in UB

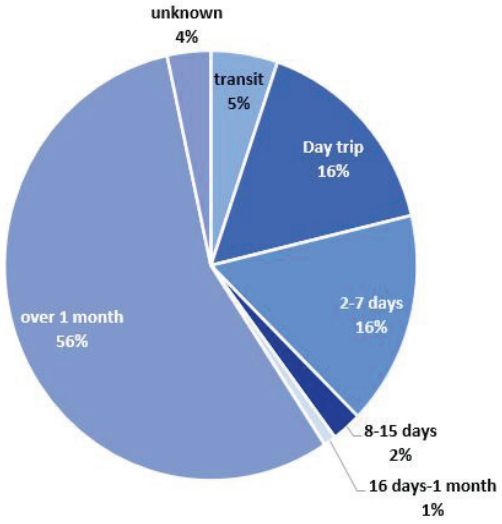

Figure 3: Intended length of stay outside UB

During the restriction days, Nalaikh checkpoint (East) recorded the highest traffic (mean – 27%; max – 38%), while during the normal traffic days, Emeelt checkpoint (West) recorded the highest number of movements (mean – 28%; max – 44%). This could be attributed to the fact that this FMP covers the commuter route i.e. Nalaikh FMP covers the industrial part of Ulaanbaatar city in the eastern part of the city. Data on internal mobility within Ulaanbaatar shows that Emeelt (West) and Nalaikh (East) are the checkpoints with the highest transit traffic. This could be explained by the commuter route of individuals travelling from the residential part of Ulaanbaatar to areas of employment through Emeelt (West) and Nalaikh (East) FMPs.

The data also shows that in the period of the first two days after an internal traffic restriction was lifted, there was an increase in the number of individuals that crossed the checkpoints. Comparatively, internal mobility within Ulaanbaatar remains stable except for upsurge in movements on weekends.

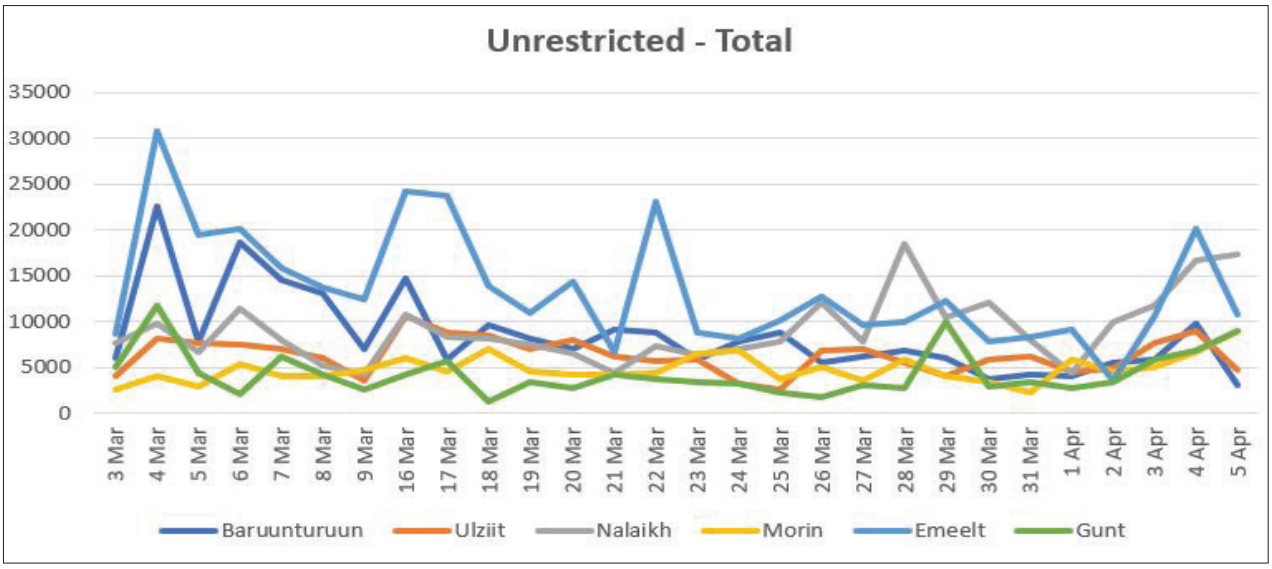

Figure 4: Number of individuals going in and out of UB, plus movements of individuals within UB

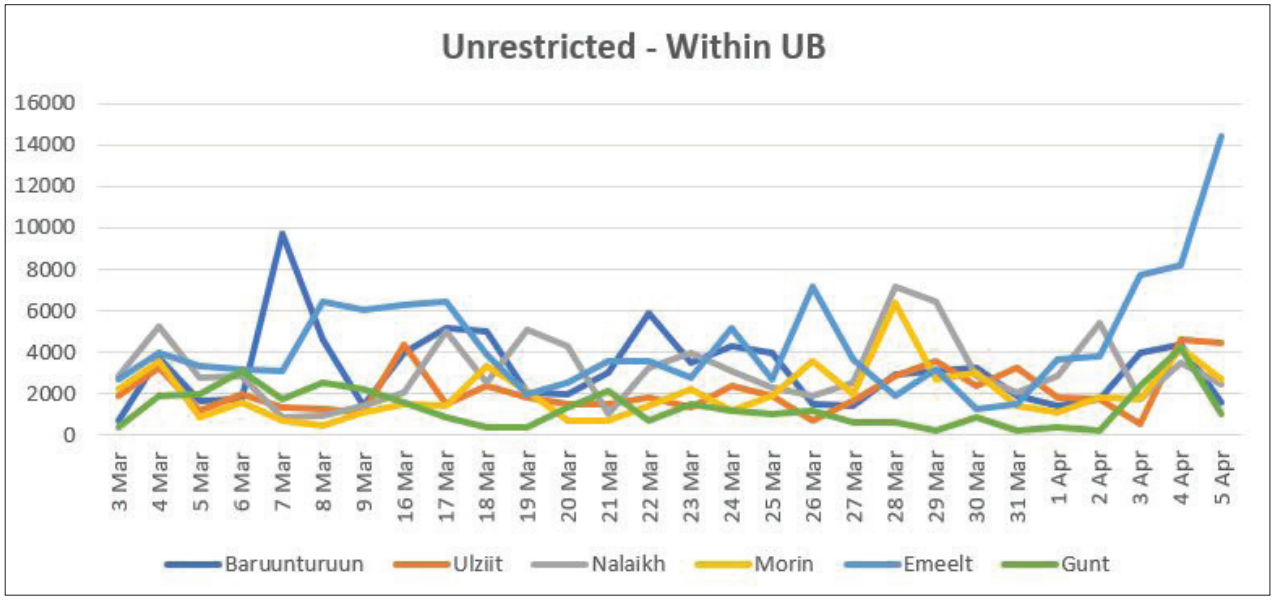

Figure 5: Number of individuals whose movements are within UB only

In absolute terms, Songinokhairkhan reported the highest share of moving population (with the number of people who travelled to the district equaled to 39% of the district population[12] and the number of people who travelled from the district also equaled to 39% of the district population). In absolute terms, Bayanzurkh reported the highest surge of inflow population (11,307; 3%) and Bayangol reported the highest net increase of the number of people as a proportion of the resident population – 5 per cent.

Indicator	Bagakhangai	Baganuur	Bayangol	Bayanzurkh	Chingeltei	Khan-Uul	Nalaikh	Songinokhairkhan	Sukhbaatar
District population (2019)	4163	28474	225279	361532	151139	185251	37715	330200	145398
Incoming movement (w/o UB)	366	1106	72414	116841	28745	64967	2930	129783	31643
Outgoing movement (w/o UB)	228	1135	61981	105534	26366	59260	2785	129640	28248
% of incoming	9%	4%	32%	32%	19%	35%	8%	39%	22%
% of outgoing	5%	4%	28%	29%	17%	32%	7%	39%	19%
% net increase	3%	0%	5%	3%	2%	3%	0%	0%	2%

Table 2: Absolute number of population movement, by district

When looking at movement rate per 1,000 people, Songinokhairkhan district still had the highest share of moving population, followed by Khan-Uul with the second highest share of moving population.

Indicator	Bagakhangai	Baganuur	Bayangol	Bayanzurkh	Chingeltei	Khan-Uul	Nalaikh	Songinokhairkhan	Sukhbaatar
District population (2019)	4.163	28.474	225.279	361.532	151.139	185.251	37.715	330.2	145.398
Incoming movement (w/o UB)	88	39	321	323	190	351	78	393	218
Outgoing movement (w/o UB)	55	40	275	292	174	320	74	393	194
% of incoming	9%	4%	32%	32%	19%	35%	8%	39%	22%
% of outgoing	5%	4%	28%	29%	17%	32%	7%	39%	19%
% net increase	3%	0%	5%	3%	2%	3%	0%	0%	2%

Table 3: Movement rate per 1000 people, by district

[12] National Statistics Office of Mongolia (2019). Data on Mongolian population, by bag/khoroo, urban and rural settlement. Available at: [www.1212.mn]

In absolute terms, data shows the clustering of movements to Bayanzurkh district. About half (48%-59%) of all the movements from Dornod, Gobisumber, Khentii, Sukhbaatar went to Bayanzurkh (Table 4). There is no other district in Ulaanbaatar with similar scale of clustering patterns.

The districts that reported the highest proportion of movements from a specific aimag are either Bayanzurkh or Songinokhairkhan.

When looking at number of movements per 1,000 people to these districts, the rate of clustering decreased as depicted in Table 5.

Aimag of origin	Bayanzurkh	Songinokhairkhan
Arkhangai	22%	34%
Bayan-Ulgii	24%	42%
Bulgan	24%	30%
Darkhan-Uul	19%	40%
Dornod	48%	12%
Dornogobi	41%	15%
Dundgobi	34%	19%
Gobi-Altai	24%	39%
Gobisumber	51%	10%
Khentii	56%	10%
Khuvsgul	23%	33%
Orkhon	23%	30%
Selenge	23%	27%
Sukhbaatar	59%	9%
Tuv	21%	30%
Umnugobi	25%	25%
Uvurkhangai	21%	37%
Zavkhan	27%	30%
Khovd	23%	42%
Bayankhongor	22%	38%
Uvs	24%	40%

Table 4: Percentage of movement to Bayanzurkh and Songinokhairkhan

Aimag of origin (per 1000 population of district)	Bayanzurkh	Songinokhairkhan	%
Arkhangai	15	25	
Bayan-Ulgii	1	2	**32%**
Bulgan	12	16	
Darkhan-Uul	17	38	
Dornod	10	3	**32%**
Dornogobi	13	5	
Dundgobi	13	8	
Gobi-Altai	3	6	
Gobisumber	13	3	**34%**
Khentii	29	6	**40%**
Khuvsgul	8	13	
Orkhon	13	19	
Selenge	20	26	
Sukhbaatar	10	2	**40%**
Tuv	96	145	
Umnugobi	13	14	
Uvurkhangai	16	30	
Zavkhan	6	8	
Khovd	3	6	**31%**
Bayankhongor	7	13	
Uvs	4	7	

Table 5: The rate of clustering to the districts calculated for per 1,000 people

The two UB districts of origin that recorded the highest number of outgoing movements are Bayanzurkh and Songinokhairkhan, covering 56 per cent of all urban to rural mobility. Table 6 offers a distribution of mobility from these two districts to all the aimags. Highlighted cells show the highest deviation from the mean, indicating major destination aimags for the districts. More than half of the overall mobility from Ulaanbaatar towards Sukhbaatar, Khentii, Dornod, and Gobisumber originates in Bayanzurkh. Of those travelling from Songinokhairkhan district, almost half travelled to Gobi-Altai, Darkhan-Uul, Khovd while more than a third travelled to Bayankhongor, Bayan-Ulgii, Khuvsgul, Arkhangai, Uvs, Uvurkhangai and Zavkhan.

Aimag of destination	Ulaanbaatar District of origin (2 biggest districts only)				
	Bayanzurkh		Songinokhairkhan		Total
Arkhangai	3,926	21%	7,018	37%	18,819
Bayankhongor	1,420	16%	3,797	44%	8,676
Bayan-Ulgii	272	25%	453	41%	1,096
Bulgan	3,392	22%	5,330	34%	15,760
Darkhan-Uul	5,102	17%	14,577	48%	30,531
Dornod	4,193	54%	803	10%	7,780
Dornogobi	5,732	43%	1,805	13%	13,446
Dundgobi	4,797	33%	2,910	20%	14,344
Gobi-Altai	736	20%	1,808	49%	3,704
Gobisumber	4,450	52%	946	11%	8,527
Khentii	10,478	59%	1,629	9%	17,620
Khovd	738	22%	1,571	46%	3,407
Khuvsgul	1,887	20%	3,986	43%	9,296
Orkhon	3,823	19%	7,196	36%	19,857
Selenge	6,151	21%	8,983	31%	28,951
Sukhbaatar	3,576	58%	638	10%	6,123
Tuv	32,995	21%	48,237	31%	156,421
Umnugobi	5,717	25%	5,403	24%	22,429
Uvs	633	22%	1,279	44%	2,925
Uvurkhangai	3,994	19%	8,527	41%	20,933
Zavkhan	1,168	22%	2220	41%	5,432

(Total is for all the movements towards all the aimags and is bigger than a sum of Bayanzurkh and Songinokhairkhan)

Table 6: Movements towards aimags from the districts, by total number and percentage in total movements

RECOMMENDATIONS

In light of the report's findings, the following recommendations are proposed:

FOR PLANNING PREVENTION AND RESPONSE AMID COVID-19

- Data from the assessment shows that men are comparatively more mobile and should be targeted the most with preventive activities.
- Prevention activities could target car drivers. Cars could be used as communication tools for some prevention materials: bump stickers, windshields, amongst other things.
- The FMPs could be used as a health surveillance location, whereby personnel could be planned accordingly for various tasks including for temperature checks, epidemiological surveillance and spreading information materials.
- Given that Nalaikh (East) checkpoint has reported the highest transit traffic during the restriction days, which could be explained by the commuter route of individuals travelling from the residential part of Ulaanbaatar to areas of employment through Nalaikh (East) checkpoint, it is a good place to spread prevention information for industrial workers.
- Though Gunt, Morin and Ulziit checkpoints feature less heavily in the data, they still reported significant number of transit traffic within the city; and therefore, they need to be considered in measures to prevent the spread of COVID-19 within UB.
- Gradual re-opening of roads may assist in minimizing the spread of COVID-19. For example, alternating the cars according to their plate numbers for the first two days after the restriction is lifted.
- Movement within UB is also very high. For instance, during the travel restriction days, Nalaikh and Emeelt FMPs, which are major transit FMPs for intracity traffic, accounted for more than 50 per cent of overall traffic. Therefore, it would be beneficial to restrict movement within the city to limit possible community transmission and mitigate the spread of COVID-19.
- In terms of data analysis, to better understand mobility and identify possible hotspots and potential travel corridors where COVID-19 may spread, data can be overlayed with relevant and existing data with the rate of population movement per 1,000 people.
- It is recommended that DTM FM data is further analyzed and used beyond the specific COVID-19 context. Possible use can include providing insights into the issue of traffic congestion, distribution of infrastructure around the city (i.e. supermarkets) and generally for the development planning purposes.

OPERATIONAL

- Improve working conditions and environment in checkpoints through the expansion of premises of booths, comprehensive heating solution and addressing sewage problems.
- Periodic review of FMP locations and safety assessments to determine relocation of FMPs, if necessary, to improve data collection.
- Clearly plan the duration of the flow monitoring, anticipate possible turnover of staff to ensure a stable number of staff are available, and strengthen their accountability.
- Strengthen the involvement and supervision of partner organizations in the flow monitoring activities.
- Moving forward, it is necessary to involve the MUB Statistics Office and the MUB Information Technology Department in institutionalizing the use of the DTM methodology in flow monitoring.

LESSONS LEARNED: PARTNERSHIP WITH MUB

OVERALL COORDINATION

In accordance with the decision of the 7th meeting of the Capital City Emergency Commission and the cooperation agreement between the MUB and the IOM to help prevent the spread of COVID-19, tracking of the population flow at six checkpoints of the capital city was carried out for 100 days from 27 February 2020 to 5 June 2020.

According to the agreed operational structure, the Health department of MUB provided overall operational coordination in the exercise. Due to unfavourable weather conditions, a two-phase data collection was implemented, where health officials collected data on paper form at checkpoints, which were subsequently entered into the KOBO system by education officials and teachers.

TRAINING AND TECHNICAL GUIDE

- A total of 10 trainings on the DTM Flow monitoring methodology were provided to more than 500 staff members, including 254 resident physicians, 60 teachers, and more than 200 public servants.
- A total of 8 employees including the general coordinators and shift supervisors of public transportation centres of the capital city were provided training on DTM flow monitoring methodology.
- The “Procedure for monitoring the flow of passengers” aimed at regulating the flow monitoring at the six FMPs of the capital city was developed and approved by Sh. Ankhmaa, then Deputy Governor of the capital city and briefed to the relevant staff.
- Arrangements were made to increase the number of personnel to support with monitoring population movements accordingly when the traffic restrictions were lifted. Measures were taken to increase the number of registration staff at certain FMPs due to the increased traffic to summer camps and resorts as the weather gets warmer and due to the relocation of some checkpoints.
- The education departments of Bayanzurkh, Bayangol, Sukhbaatar, Songinokhairkhan, Khan-Uul, Chingeltei, and Nalaikh districts were responsible for entering the flow monitoring data into the system, and a total of 75 teachers worked in three shifts, with each lasting 8 hours.
- Data enumerators working at checkpoints were provided with warm clothes and medical vests with a “medical check” sign on it. They were also provided with a small bottle of hand sanitizer and 2-3 masks per day, and 1 liter of hand sanitizer per fortnight in each checkpoint.
- A total of 20 field visits were conducted to monitor the activities of the checkpoints, and regular inspections were carried out on the working conditions, infection control status, flow monitoring and registration process, and necessary adjustments, as needed.

DTM officer delivering training on DTM FM methodology to resident doctors, Ulaanbaatar © IOM 2020

Resident doctors being trained in DTM FM methodology, Ulaanbaatar © IOM 2020

Teachers entering data into KOBO system, Ulaanbaatar © IOM 2020

Data enumerators standing in front of FMP booth, Ulaanbaatar © IOM 2020

CHALLENGES AND SOLUTIONS

- **Working in harsh weather condition:** Working in below zero degree Celsius weather made it impossible to use smart devices such as phones and tablets outside for data collection. To resolve this issue, data collection was conducted by a two-step process, whereby paper form was used outside for direct face-to-face survey and promptly entered into KOBO system by designated staff who were sitting inside the booth.
- **Limited staff occupancy at FMP booths:** Due to the lifting of traffic restrictions, there arose a need to increase data enumerators. The challenge was that checkpoints could not house more staff in the same booth, prompting measures to be taken to separate paper form data enumerators from that of KOBO entrants. As a result, MUB Education department came to support and take over data entry into KOBO system, by entering the data that were coming from the booths at nearby schools and working on an 8-hour shift. The overall process entailed involvement of significant manpower.
- **Work environment hygiene:** The Governor's Office was informed of checkpoints with unhygienic and unusable toilets. In response, new ones were built in the Emeelt and Nalaikh checkpoints while regularly cleaning and sanitizing the workspace. In addition, daily cleaning of FMP booths was completed by relevant health organizations, with follow-up monitoring to ensure a safe, clean work environment.
- **Data enumerators' turnover:** High turnover of data enumerators imposed some data quality issues. Therefore, measures were taken to pair new staff with experienced staff on the same shift and by maintaining senior health staff in charge of the FMP. Constant monitoring and supervision were in place.
- **Data quality:** Issues such as incomplete forms i.e. not writing down the vehicle plate numbers missing entrance and exit times, illegible handwriting, and unclear bus route/destination resulted in incomplete and poor-quality data. To resolve this issue, the health staff in charge at FMPs were instructed to double-check the registration forms, and the management team staff were sent to supervise on a daily basis. However, this led to longer wait time as it resulted in longer completion time with the registration form for unregistered buses or buses with missing/incomplete forms. Thus, an official letter was sent to the National Center for Road Transport to improve the registration of Ulaanbaatar and local road transport centers.
- **Safety of data enumerators:** Separation of paper data collection from KOBO entry required for 24/7 data entry to KOBO by teachers. As per 8-hour shift schedule, it was arranged that the night shifts for the teachers started at midnight. The paper forms were also delivered by drivers of medical institutions to schools at midnight. This created a safety concern for those working night shifts. To address this, measures were taken to select teachers with homes close to the school where they entered the data, to minimize the travel distance.
- **Roles and responsibilities of other relevant organizations in the operation:** The operation of the checkpoints can be effective with the involvement and cooperation of all relevant agencies. To address the issue, several meetings and discussion were held on a higher level.

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ANNEX I

I. PRIVATE VEHICLE FORM

УРСГАЛ ХӨДӨЛГӨӨНИЙ БҮРТГЭЛ - МОНГОЛ УЛС

УТБ – VI – 2020.02.14

	1. Цэгийн код	2. Цэгийн нэр	3. Бүртгэгчийн код эсвэл нэр	4. Бүртгэгчийн хүйс	5. Огноо өө-сс-жжжж	5.1 Бүртгэл эхэлсэн цаг 24-цагийн формат цц:мм	5.2 Бүртгэл дууссан цаг 24-цагийн формат цц:мм

ТЭЭВРИЙН ХЭРЭГСЭЛ	6. Дэс дугаар	1	2	3	4	5	6	7	8	9	10
	7. Тээврийн хэрэгслийн хэлбэр										
	7.1. Тээврийн хэрэгслийн үлсын бүртгэлийн дугаар										
ЗОРЧИГЧИЙН МЭДЭЭЛЭЛ	8. Нийт зорчигчийн тоо, үүнээс:										
	8.1. Насанд хүрсэн эрэгтэй										
	8.2 Насанд хүрсэн эмэгтэй										
	8.3 Хүү										
	8.4 Охин										
ИРСЭН ГАЗАР (Хаанаас ирсэн)	9.1. Аймаг										
	9.2. Сум										
	9.3 Улаанбаатараас ирж байгаа бол, аль дүүргээс?										
	9.4 Тус газар байсан хугацаа										
ОЧИЖ БУЙ ГАЗАР (хаашаа явж байгаа)	10.1. Аймаг										
	10.2. Сум										
	10.3 Улаанбаатар луу явж байгаа бол, аль дүүрэг рүү?										
	10.4. Тус газар байх хугацаа										

7.1. Тээврийн хэрэгслийн хэлбэр: 1. Суудлын машин/ Такси; 2. Мини автобус; 3. Ачааны машин; 4. Мотоцикль; 5. Бусад (тодорхойлно)
9.4 болон 10.4 Тус газар байсан/байх хугацаа: 1. Дамжин өнгөрөх 2. Өдрийн аялал 3. Долоо хүртэлх өдөр 4. 8-аас 15 өдөр 5. 16 өдрөөс нэг сар 6. Нэг саравс дээш

ANNEX II

II. PUBLIC TRANSPORTATION FORM

УРСГАЛ ХӨДӨЛГӨӨНИЙ БҮРТГЭЛ - МОНГОЛ УЛС	АВТОБУСНЫ БҮРТГЭЛ								УТБ – VI – 2020.02.14	
Товчоон дээр бүртгэгч бөглөнө										
	1. Цэгийн код	2. Цэгийн нэр		3. Бүртгэгчийн код эсвэл нэр		4. Бүртгэгчийн хүйс		5. Огноо өө-сс-жжжж	5.1 Цаг 24-цаг формат цц:мм	Хуудас #
Жолооч бөглөх хэсэг										
	6. Автобусны улсын дугаар	6.1 Гарсан аймгийн нэр		6.2 Очих аймгийн нэр		6.3 Автобусны багтаамж				
Жолооч бөглөх хэсэг										
	7. Дэс дугаар	1	2	3	4	5	6	7	8	9	10
ЗОРЧИГЧИЙН МЭДЭЭЛЭЛ	8. Нэг бүлгийн зорчигчийн тоо, үүнээс:										
	8.1. Насанд хүрсэн эрэгтэй										
	8.2 Насанд хүрсэн эмэгтэй										
	8.3 Хүү										
	8.4 Охин										
ИРСЭН ГАЗАР (Хаанаас ирсэн)	9.1. Аймаг										
	9.2. Сум										
	9.3 Улаанбаатараас ирж байгаа бол, аль дүүргээс?										
ОЧИЖ БУЙ ГАЗАР (хаашаа явж байгаа)	10.1. Аймаг										
	10.2. Сум										
	10.3 Улаанбаатар луу явж байгаа бол, аль дүүрэг рүү?										


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