



## POPULATION MOBILITY AND PUBLIC HEALTH RISK MAPPING

COVID-19 PREPAREDNESS AND RESPONSE PLAN IN NEPAL (2020)

Province I

Province  
3/3

### INTRODUCTION

The Coronavirus disease (COVID-19), firstly detected in China in November 2019, has spread throughout the globe to the scale of a pandemic, declared by the World Health Organization (WHO). In Nepal, the first case of COVID-19 was reported in January 2020. As of 9 December 2020, the total number of confirmed cases in Nepal stands at 241,995, and 1,614 deaths.<sup>1</sup> The Government of Nepal (GoN) has taken several steps to control transmission and mitigate the impact of COVID-19 on the society. Among them, the Population Mobility Mapping (PMM), was selected by the Ministry of Health and Population (MoHP) as part of the national COVID-19 Response and Preparedness Plan. The project covers 3 provinces (Sudurpashchim Province, Lumbini Province, and Province I) for a total of 9 municipalities (Dhangadhi, Bheemdatta, Dasharathchanda, Nepalgunj, Krishnanagar, Siddharthanagar, Biratnagar, Mechinagar, and Suryodaya) and was rolled out together with the implementing partner, the Nepal Red Cross Society (NRCS).

### POPULATION MOBILITY MAPPING

The PMM was developed through an adaptation of IOM's Displacement Tracking Matrix (DTM) and has been implemented as the response and preparedness to several outbreaks, such as the Ebola Virus Disease (EVD). The aim of the PMM is to understand the dynamics of human mobility and identify the most vulnerable, priority locations within and outside the border. The findings would enable the Government, communities and various actors to prevent the introduction or to limit the spread of infectious diseases and other public health threats, directly affected by human mobility.

<sup>1</sup> [https://covid19.who.int/?gclid=EAlaIqobChMlpu2y9aym6wIVjx0rCh2zNgN6EAAAYASAAEgI1zvD\\_BwE](https://covid19.who.int/?gclid=EAlaIqobChMlpu2y9aym6wIVjx0rCh2zNgN6EAAAYASAAEgI1zvD_BwE)

### OBJECTIVES

PMM has four main objectives:

1. Identify travellers' profiles and mobility patterns with health related impacts.
2. Identify vulnerable places where travellers or mobile populations gather and interact with each other or with local communities, which are at risk of both contracting and spreading infectious diseases and other health threats.
3. Identify priority sites with limited capacities to prepare and respond to public health emergencies.
4. Identify priority public health actions and resource allocations, in order to develop action plans aimed at strengthening public health emergency preparedness and response capacities.

### PRELIMINARY ACTIVITIES

#### 4 Trainings



- IOM Kathmandu
- Sudurpashchim Province
- Lumbini Province
- Province I



#### Oriented staff

- 18 IOM staff
- 45 NRCS staff

### FIELDWORK



#### 9 weeks:

14/08/2020 - 18/10/2020



#### 9 municipalities:

3 in each province



#### Population:

over 700,000 (census 2011)



#### Face-to-face interviews:

over 800 individual interviews and focus group discussions

## DISCUSSION OF RESULTS - PROVINCE I

### PHASE I (6 days)

The Population Mobility Mapping Exercises saw the participation of **key informants (KIs)** who are knowledgeable of population mobility, from 5 categories; 1) government representatives, 2) agency (specifically NGOs/INGOs) representatives, 3) community workers, 4) drivers, and 5) vendors.



15 Focus group discussions (FGDs)



74 KIs

The discussions were facilitated in Nepali, though the information was entered in English. Prior to the start of the FGDs, KIs were informed about IOM's mandate, the scope of the project, and the partnership with GoN and NRCS. All participants were asked to sign a consent form. The information was collected using two main tools – the note taker's guide and a map of the municipality – and was then inserted into the matrix software (Excel) to analyse the priority locations.

### PHASE II (9 days)

A total of **261 sites** with high population mobility were selected for further assessment involving questionnaires to KIs on site.



51 Points of entry (POEs)



18 Market centres



28 Health centres



26 Migrant worksites



27 Traditional healers



22 Transport stations



24 Schools and colleges



25 Places of worship

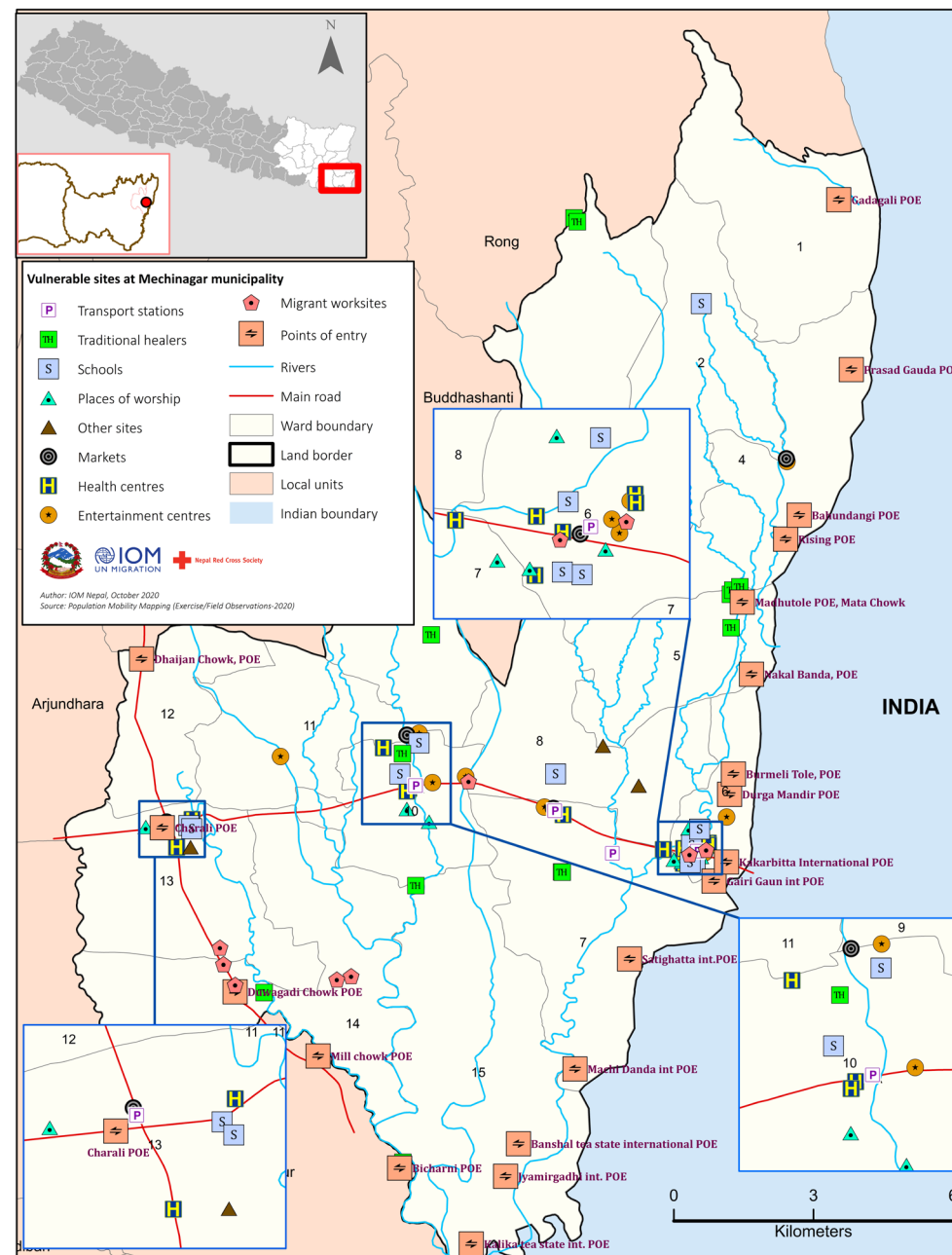


27 Entertainment centres



13 Other places

Based on the data gathered with KoBo Collect on population movement and the GPS coordinates of vulnerable sites present in each municipality, several maps were created using GIS software (see example of map on the right).





## KEY FINDINGS

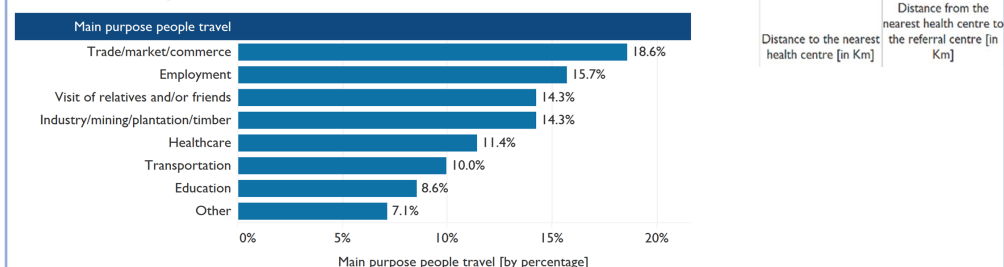
In this section, some key findings are presented according to municipality.

### Biratnagar Metropolitan City

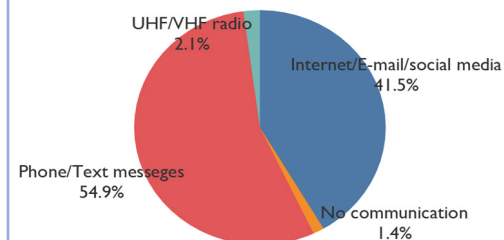
Status of health infrastructure and distance to the nearest health centre and water source

Name of POE	Availability of special equipment to address health issues of PHEIC	Presence of IHR focal point at POE	Presence of IHR focal point from corresponding country	Presence of community health worker/agent for emergency cases	Availability of water on site	Distance from the nearest health centre [in Km]	Distance to the nearest health centre [in Km]
Rani Int. POE, Rani	Available	Do not know	Not available	Available	Available	9.0	9.0
Durbar Int. POE, Bhariyari	Not available	Not available	Not available	Not available	Not available	4.0	7.0
Daraiya Int. POE, Daraiya	Available	Not available	Not available	Not available	Not available	4.0	10.0
Khoksa (Islampur) Int. POE, Islampur	Not available	Not available	Not available	Not available	Not available	3.0	7.0
Ikrai POE, Ikrai	Available	Do not know	Available	Not available	Available	3.0	3.0
ICP Int. POE, Khadani	Available	Not available	Not available	Available	Available	3.0	9.0
Taregama Int. POE, Budhnagar	Available	Not available	Not available	Not available	Not available	2.0	10.0
China Dakshin Gate Int. POE, Rani	Not available	Not available	Not available	Not available	Not available	1.5	8.0
Materwa Int. POE, Materwa	Not available	Not available	Not available	Not available	Not available	1.0	6.0
Kesaliya Pul POE, Kesaliya	Not available	Not available	Not available	Not available	Available	1.0	6.0
Biratnagar Dhat POE, Dhat	Available	Not available	Not available	Not available	Available	2.5	2.5
Hatkola POE, Hatkola	Not available	Not available	Do not know	Not available	Not available	0.2	0.5
Milan Chowk POE, Milan Chowk	Not available	Not available	Available	Not available	Not available	0.1	2.5

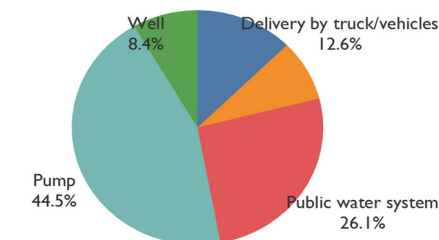
### Main reasons migrant travel across all the sites



### Communication system



### Source of water



## Mechinagar Municipality

Average entry flow per day, busiest day, and percentage coming from other country (October 2020)

Name of POE	Type of POE	Site status	Average entry flow per day	Average entry flow on the busiest day	Average dual flow	Percentage coming from other country
Kakarbhitta Int. POE, Kakarbhitta	Land border	Formal	500,000	700,000	535,000	50
Charali POE, Charali	Land border	Informal	3,000	6,000	3,300	25
Dhaijan Chowk POE, Dhaijan	Land border	Informal	500	700	535	5
Burmeli Tole Int. POE, Burmeli Chowk	Water landing (swimming/boat/by foot)	Informal	500	600	530	50
Bicharni POE, Bicharni	Water landing (swimming/boat/by foot)	Informal	300	400	320	10
Gairi Gaun Int. POE, Gairi Gaun	Land border	Informal	250	500	275	15
Kalika Tea State Int. POE, Jyarnigadhi	Land border	Informal	200	400	220	80
Nakal Banda Int. POE, Chhoti Bhansar	Water landing (swimming/boat/by foot)	Informal	150	300	165	50
Mill Chowk POE, Mill Chowk	Land border	Informal	150	200	160	5
Mechi Danda Int. POE, Mechi Danda	Water landing (swimming/boat/by foot)	Informal	150	300	165	20
Duwagadhi Chowk POE, Duwagadhi	Land border	Informal	150	200	160	5
Durga Mandir Int. POE, Nakalbanda	Water landing (swimming/boat/by foot)	Informal	150	500	175	50
Satighatta Int. POE, Satighatta	Land border	Informal	100	150	108	10
Rising Chowk Int. POE, Rising Chowk	Water landing (swimming/boat/by foot)	Informal	100	150	108	50
Prasad Gauda Int. POE, Bahundangi	Water landing (swimming/boat/by foot)	Informal	100	200	110	70
Madhutole POE, Mata Chowk	Water landing (swimming/boat/by foot)	Informal	100	150	108	50
Jyarnigadhi Int. POE, Sisodangi	Land border	Informal	100	200	110	70
Gadagalli Int. POE, Gadagalli	Water landing (swimming/boat/by foot)	Informal	100	150	108	50
Banshal Tea State Int. POE, Bicharni	Land border	Informal	80	150	88	50
Bahundangi Int. POE, Bahundangi	Water landing (swimming/boat/by foot)	Informal	50	100	55	50

### Mode of transport for emergency case to the nearest POE and health centre

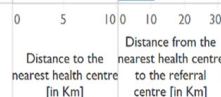
Mode of transport for emergency cases to the POE	Most common means of transport to the nearest health centre	Percentage	Percentage
Private transport (Motorbike, 3-wheel)	Car	19.1%	22.2%
Public transport (Rickshaw)	Foot	22.5%	22.2%
Public transport (Car, Bus, Flight)	Motor bike	22.0%	20.4%
Ambulance	Bus	11.2%	18.5%
By foot	Truck	7.4%	9.3%
Equipped ambulance	Minivan	17.7%	5.6%
Public transport (Flight)			1.9%



## Suryodaya Municipality

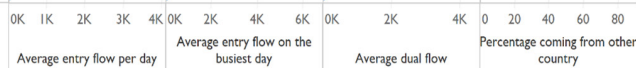
### Status of health infrastructure and distance to the nearest health centres and water source

Name of POE	Availability of special equipment to address health issues of PHEIC	Presence of IHR focal point at POE	Presence of IHR focal point from corresponding country	Presence of community health worker/agent	Availability of water on site		
Teen Block Int. POE, Okaiti	Not available	Not available	Not available	Not available	Available	7.00	14.00
Chhabise Int. POE, Chhabise	Not available	Not available	Not available	Not available	Not available	7.00	4.00
Mechi Bazar Int. POE, Shree Antu	Not available	Not available	Not available	Not available	Available	6.00	12.00
Gufapatal Int. POE, Gufapatal	Not available	Not available	Not available	Not available	Not available	6.00	15.00
Sungtung Int. POE, Sungtung	Not available	Not available	Not available	Not available	Available	5.00	5.00
Odare Arubote POE, Arubote	Not available	Not available	Not available	Not available	Available	5.00	5.00
Tribeni Chowk POE, Chumbang	Not available	Not available	Not available	Not available	Available	3.00	20.00
Khola Godam Int. POE, Khola Godam	Not available	Not available	Not available	Not available	Available	3.00	3.00
Chitrey Int. POE, Chitre	Available	Not available	Not available	Available	Not available	3.00	3.00
Bhalukhop POE, Bhalukhop	Not available	Not available	Not available	Not available	Available	3.00	8.00
Two Mile Int. POE, Tashi Gaun	Available	Not available	Not available	Available	Not available	2.00	2.00
Jobmai Khosla POE, Sangubasi	Not available	Not available	Not available	Not available	Available	2.00	8.00
Pashupatinagar Int. POE, Pashupatinagar	Not available	Not available	Available	Available	Not available	1.00	10.00
Harkate POE, Harkate	Not available	Not available	Not available	Not available	Available	1.00	1.00
Jure Bhanjyang POE, Jure Bhanjyang	Not available	Not available	Do not know	Not available	Available	0.10	11.00
Maneybhanjyang Int. POE, Maneybhanjyang	Not available	Not available	Not available	Not available	Available	0.05	0.02
Samalbung Int. POE, Samalbung	Not available	Not available	Not available	Not available	Available	0.02	18.00
Chhiruwa Int. POE, Chhiruwa	Not available	Not available	Not available	Not available	Available	0.02	11.00



### Average entry flow per day, busiest day, and percentage coming from other country (October 2020)

Name of transport station	People coming from other country				
Fatak Taxi Stand, Pashupatinagar	India	3,000	4,000	3,333	75
Kanyam Taxi Stand, Kanyam	India, USA, Japan	2,500	3,000	2,750	10
Antu Taxi Stand, Shree Antu	India	2,000	2,500	2,208	30
Antu Taxi Stand, Fikkal	India, USA, Japan	1,000	3,000	1,250	3
Pashupatinagar Taxi Stand, Pashupatinagar	India	500	700	558	75
Pashupatinagar Taxi Stand, Fikkal	India	300	500	342	5
Ilam Taxi Stand, Fikkal	India, USA, Japan	300	5,000	717	3
Jhapa Taxi Stand, Fikkal	India	200	400	233	5
Harkate Taxi Stand, Harkate	India, USA	200	250	221	5
Teen Ghare Taxi Stand, Teen Ghare	India	60	250	81	5
Pashupatinagar Buspark, Pashupatinagar	India	60	100	68	70
Samalbung Taxi Station, Shanti Bazar		50	100	58	0



## CHALLENGES

- Discrepancies in names of locations due to the information provided by KIs and lack of official names of various sites, including POEs.
- Inaccessibility of some sites by vehicle due to the rough geographical terrain, worsened by heavy rains during monsoon season. Long distances were often covered by foot by the enumerators, despite high weather temperatures.

- Restricted movement and lockdown created difficulties in reaching KIs and urged for continuous coordination to utilize time efficiently and arrange dispatchment of enumerators to the priority sites.
- Enforcement of Standard Operating Procedures (SOPs) and reminders for Infection and Prevention Control (IPC) measures required constant efforts of the field team throughout the activities.

## RECOMMENDATIONS

- Establish health screening stations at POEs and all other priority locations. Body temperature checking should be advised at sites with high population mobility.
- Set up mechanisms to record people's movement, especially their origin and destination. This is indispensable to trace affected cases, in the event of an outbreak.
- Strengthen IPC and Water, Sanitation and Hygiene (WASH).
- Invest in capacity building of health infrastructure. This is especially the case for health posts, often located in remote areas and hardly accessible, even by foot.
- Focus on risk communication and community engagement. The community should be involved in health-related activities and awareness should be raised on the importance of good sanitary conditions.
- Develop a health working group for Nepal and corresponding countries at formal POEs for both IHR and PHEIC focal points. This will allow for a better management of travellers' movement, especially for tracking purposes.
- Conduct training and capacity development of health staff/immigration/security officials at POEs, including development of SOPs.
- Conduct leadership training for all traditional healers in order to enhance their health practices, and adhere to SOPs within their communities, especially in hostile communities where people rely on them for health and other issues.

## CONTACTS

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