5.2 Establishing institutional frameworks and analytical pipelines

Table 1 presents the summary of country cases where institutional frameworks and analytical pipelines provided timely analysis for informing decision as well as reduced response burden in disasters. In Nepal, the first report on population inflows to each region was released 13 days after the earthquake—this was made possible by the existing collaboration framework, which aimed to support preparedness and response to humanitarian disasters through analysis of CDR data (Wilson et al. 2016). In Vanuatu, at the time of volcanic eruptions in 2018, there was already an institutional framework in place for analyzing the effects of previous disasters. It enabled timely insights into population displacement for the government as well as humanitarian agencies (UN Global Pulse 2014). In The Gambia, the existing framework explored the use of CDR data to create an evidence base for policy and project design in the context of economic and social development. The spread of COVID-19 has prompted interest in internal mobility, altering the development objective of this partnership (Arai et al. 2021). Sierra Leone, Guinea, and Liberia collaborated to develop a data pipeline, which facilitated timely information exchange on cross-border movements among the neighboring countries (ITU, n.d.). In Turkey, a real-time analytics platform was developed to provide analytical insights to the government disaster response team which helped zero in on the number of people affected by disasters nationwide (GSMA, 2019). In Mozambique, a semi-automated software tool was installed on the premise of the ICT regulator to detect disaster-driven displacements and returns, providing results in a practical and timely manner; in this case, past mobile data was analyzed to assess the sensitivity and accuracy of the displacement monitoring system for future use. This toolkit was also installed in Ghana to support the COVID-19 response effort.

These examples demonstrate that efforts on establishing an institutional framework and system building between the data producer and use could contribute to strengthening preparedness to respond to a timely data demand under disasters. Appendix 1 highlights the experiences of several countries in establishing institutional frameworks and data pipeline. Each country case provides insights on their approaches as well as the key steps that can be considered for developing institutional frameworks and data pipelines, and areas for improvements.

### Table 1. Benefits of institutional frameworks and data pipelines: selected country cases

<table>
<thead>
<tr>
<th>Country</th>
<th>Partnership</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guinea, Liberia, Sierra Leone (2014)</td>
<td>Regulators, MNOs, ITU, University of Tokyo</td>
<td>• Data pipeline for computing statistics in three countries facilitated timely information exchange on human mobility patterns, including cross-border movements at the aggregated level for the epidemic</td>
</tr>
</tbody>
</table>
| Nepal (2015)  | MNO, Flowminder                   | • Existing collaborative framework enabled the prompt response after the earthquake happened  
• Supported the response to the 2015 Gorkha earthquake  
• Data processing infrastructure set up quickly and first report prepared within two weeks after the earthquake |
| Vanuatu (2018) | MNO, UN Global Pulse              | • Analysis of the 2017 tropical cyclone and volcano was ongoing at the occurrence of volcanic events in 2018  
• Supported the response to the 2018 volcanic eruptions using the system in place  
• Data access and code in place, enabling to provide timely insights |
| Turkey (2019) | MNO, GSMA                         | • Developed a system (Galata) to deliver real-time analytics during earthquakes  
• Ensured functionality through testing and field exercises |
<table>
<thead>
<tr>
<th>Country</th>
<th>Organization</th>
<th>Actions</th>
</tr>
</thead>
</table>
| The Gambia       | NSO, regulator, MNOs, World Bank, University of Tokyo | • Platform for data processing was already built for the internal migration analysis before the onset of COVID-19  
• Existing partnership helped build consensus on leveraging the platform for responding the data demand after the onset of COVID-19  
• Codes are ready for producing mobility indicators. World Bank COVID-19 Mobility indicators were used. Results were used for informing response efforts and facilitating communications among governments agencies. |
| Ghana            | MNO, NSO, Flowminder                  | • Leveraged the use of pre-existing collaboration and data pipeline provided timely mobility insight for informed decision on intervention to support COVID-19 strategies  
• Data governance has been strengthened through the collective and transparent decision-making processes |
| Mozambique       | Regulator, disaster management agency, Flowminder | • Generated aggregated data for identifying displacement  
• Used an open-source toolkit (FlowKit) for data management |
| Norway           | MNO, NIPH, University of Oslo, Norwegian Computing Centre | • Operated daily for data extraction from the MNO, collection of health data, and analytics  
• Supplied the Norwegian Institute of Public Health with data daily to support COVID-19 response efforts |