The Importance of ‘Where’ in Revitalization Strategies for Nepal

PART 1: MAPPING A PANDEMIC FROM GLOBAL TO LOCAL

ASIA’S PATH FORWARD

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EXECUTIVE SUMMARY
The COVID-19 pandemic and aftermath may have a transforming impact on the economy of Nepal. Both government and non-state actors have recognized the important role of digital data technology in Nepal’s future economy. However, much of the accessible data remains scattered, generalized, and often inaccurate. This series discusses how a three-pronged approach can contribute to an inclusive recovery in Nepal.

Part 1, here, discusses international and Nepali efforts to improve transparency and accountability in government and business by following open data principles in information collection and sharing. We introduce an ongoing effort by one of the co-authors to map the spread of the COVID-19 virus pandemic across Nepal by accessing government data. The difficulties in accurately mapping the spread of COVID-19 is presented as a problem of governance rather than a technology gap.

Part 2 will discuss the diversity of the economic landscape in Nepal and illustrate how modern open data technology can be used by micro entrepreneurs and communities in Nepal to optimize the use of their available resources, and find fresh markets for their products.

Part 3 will discuss the importance of collaboration in creating open data ecosystems for sharing accurate, timely, and place-based digital data among local governments, private enterprise, and civil society for a mutually beneficial market systems approach to inclusive and resilient development.

INTRODUCTION
The COVID-19 pandemic spread rapidly around the world during the first part of 2020. Over 100 countries introduced a combination of measures to slow its spread and lessen its impact on the health of their citizens. The efficacy of these measures has varied from country to country. There are also indications that the global economy will not simply return to the pre-pandemic status quo.

In April, CIPE posted a policy note outlining its early thinking on the critical issues for a successful post-pandemic recovery. The CIPE note anticipates the difficulty of restarting economies while ensuring principles of democracy, inclusion, and good governance are not undermined. CIPE stresses that although economic and social activities were suppressed by edict, they cannot be simply be restarted in the same manner.

CIPE also asked independent several writers to submit papers suggesting ways to operationalize its policy note. The CIPE paper mentions the importance of digital data in supply chain management. We intend to show how digital data can have a positive influence on all the themes mentioned in their
note. In particular, we want to encourage CIPE to place a strong emphasis on the role of open access to
digital data as a means of supporting economic revitalization while enabling vulnerable groups to have
greater say in directing their own development. The three ‘legs’ of our approach involve public, private,
and social approaches to open data sharing. This approach has a strong fit with the Nepali context, but
we also believe it may have relevance for other countries where CIPE has partners.

Open Data Sharing

Perhaps one of the most transformational effects of the pandemic will be the motivation it has given to
advocates for greater openness in the collection, analysis, and sharing of information. Open data
platforms are expanding in the private sector and in some governments.

The Open Data Charter argues that open data helps to improve the quality of governance and
enhances the inclusion of marginalized groups. The Open Data Institute (ODI) works with both public
and private organizations. The work ODI has done in creating an open data system to optimize supply
chains for Airbus and its suppliers has reduced the time needed to create and deliver crucial parts. The
Open Contracting Partnership (OCP) focuses its attention on improving the transparency of
government procurement systems.

In April, OCP published guidelines to improve emergency procurement of medical supplies needed to
fight the pandemic. A background survey for the guidelines showed 71% felt more open access to
government data would improve existing procurement systems. Unfortunately, as of June 10, the
Nepali government refused to provide any details on how it is spending the ten billion Nepali rupees it
says it has budgeted for addressing the effects of the COVID-19 pandemic in the country. Young people
staged numerous protests across the country to express their displeasure at the government’s lack of
transparency. The government responded that it would improve its efforts, and distributed an
unofficial breakdown of expenditures.

The Open Government Partnership (OGP) has a broader mandate than just open data. OGP works with
governments to promote accountable, responsive, and inclusive governance practices. Since its
founding in 2011, OGP has grown from seven to seventy-eight members. Civil society in Nepal has been
encouraging their government to apply to become a member of the OGP since 2015, but the
government has not yet completed the process.

The Government of Nepal does not fully support an open data environment. The right to freedom of
information was incorporated into the 1990 constitution, and again confirmed in the 2015 constitution.
However, as of mid-2020, there is neither a policy, plan, institution, nor infrastructure for this to happen.
Small citizen groups have worked diligently over the past decade to compile and share as much
government data as possible. Unfortunately, gaps remain and often the data shared is out of date. In addition, many are concerned the IT Bill of 2020 may further erode freedom of expression. The 2017 Global Open Data Index, managed by the Open Knowledge Foundation, ranked the Government of Nepal 69th out of 95 countries for data openness (Taiwan is #1). On a positive note, in October 2019, the Government of Nepal approved a comprehensive framework for expanding the use of digital data technology for "socio-economic transformation and good governance".

Cambodia is also not yet a member of OGP. However, one example of a functional collaboration between government and non-state actors on data sharing is Open Development Cambodia (ODC). ODC has built up a relationship of mutual trust with the Cambodian government that enables it to post an array of information, sometimes contradicting government positions, without consequence. Over time, the consistent accuracy of their data has led the government to finance some of their operations to generate data for government operations. In 2017, ODI, with USAID assistance, prepared a positive review of ODC’s impact. Recently, ODC agreed with government and private sector to digitize and post all environmental impact assessments on its website to improve the accountability of all actors.

The civil society members of the OGP international steering committee issued a statement on the need for greater government transparency in accurate dissemination of data on COVID-19 to the public. OGP maintains a list of crowd sourced information on government approaches to COVID-19. The list includes one example from local governments in Nepal. However, the federal government of Nepal appears to have been ill-prepared for the problem, as discussed below.

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ASSESSING THE SPREAD OF COVID-19

Many discussions about COVID-19 focus on the number of infections and deaths at a country level. Country-level visualizations have been driving much of the early discussion on the design of future interventions which mostly focus on the role of national governments in recovery efforts. The UNDP has already packaged an analysis comparing the national level vulnerabilities of individual countries.

One of the most commonly displayed maps of the global spread shows single markers for most of the developing world. On this map you can barely see the tiny dot over Nepal, wedged between India and China.

Figure 1: Global spread of COVID-19 as of July 21, 2020

2 COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University
Nepal is far from a homogeneous country that can be represented by a single dot. Its landscape is characterized by extreme variation from place to place. Unfortunately, accurate and timely information on the reality of socioeconomic opportunities and constraints of rural settings is rare.

In some ways, the approach to mapping the impact of a pandemic is like analyzing a business environment. When mapping the impact of an earthquake, flood, or storm, both the geographic extent and timeframe can be predicted. With a pandemic like COVID-19, every day brings new challenges. Patterns can be discerned, but, as with business plans, the future cannot be predicted merely by analyzing the past.

As of mid-June, the government had limited the public release of information on the spread of the COVID-19 virus in Nepal to data aggregated at the district level. Newspaper articles added some details of individual locations. One of our co-authors, Mr. Indra Sharan KC, created a privately managed sub-national COVID-19 case distribution dashboard to map the available data. He has been updating this dashboard daily in March. The Ministry of Population and Health gives media briefings on the number of cases but does not give many critical aspects of the data — such as gender, age, location, travel history, and category of transmission. Data gaps and inaccuracies have limited the full utility of the information. He has offered assistance to the Ministry of Health and Population to build a digital data system to track the spread of the disease at the municipality and ward levels.

The first case of the virus reached Nepal in January. However, by mid-June the death rate of the disease remained much lower than feared. With less than 4% of its population over 60 years old, Nepal's COVID-19 case pattern is similar to other countries in South Asia, with males between the ages of 20-29 being the most affected. Also, with only 19 deaths as of mid-June, Nepal retains the second lowest Case Mortality Ratio of the eight countries of the SAARC region, except for Bhutan which has had a total of 67 cases and no deaths.

3 At least two other dashboards are publicly accessible, one from the Ministry of Home Affairs and one developed privately. The validity of individual case locations shown on these sites is questionable.
However, such aggregate numbers do not give sufficient detail to manage the problem. The real story in any epidemic is much more granular: which town, which street, which building has victims; where are the numbers growing; and what are the possible seeders for future expansion? Dr. John Snow's 1854 map of the London cholera epidemic remains the classic example of the importance of knowing where an infectious disease is striking, and what is its origin, and where might it spread next. Snow's geographic method quickly identified the Broad Street water pump as a likely threat. His analysis, although correct, contradicted that of more senior medical professionals who believed the disease spread through the air. This is first well-known case of developing a causal theory for disease transmission using maps.

All the data available on the distribution of the virus remains approximate and is used here primarily as an illustration of the value in openly sharing digital data. Nepal’s public health bureaucracy continues to rely primarily upon a paper-based information system. Early in the pandemic, data released by the government enabled analysts to assess the origin of the virus and the location of the patient. However, over time, the available data became less detailed and reliable. As an example, the important information shown in Illustration 4 is no longer made available by the government.

Over the first three months of the pandemic, one of the most consistent characteristics of the Nepali COVID-19 data was the clear pattern of geographic concentration near the southern border that has persisted despite the rapid increase in total cases. This pattern confirmed the most important source of the virus has been Nepalis returning by land from India where many unknowingly had become infected.

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Figure 3: Confirmed COVID-19 Cases in Nepal as of May 19, 2020

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This NepalCorona dashboard was developed by Indra Sharan KC. He prepared the dashboard using an ESRI ARCGIS open source base map and updates daily it using data made available by the Nepal Ministry of Health and Population. Except where noted, all maps and graphs in the remainder of this article have been created by the co-author.
infected. From May 19 to June 15, the total number of confirmed cases increased 500%. This is partly a function of improved testing capacity that helped to assess the real extent. However, beginning in mid-May, many returning workers were allowed to venture back to their villages in the western hills, and the pattern rapidly changed. Unfortunately, this was also when the government data began to be less reliable.

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![Figure 4: The distribution of confirmed cases by type of transmission, based on 250 cases with complete data as of 21 May](image-url)
**Figure 5**: Distribution of confirmed COVID-19 Cases in Nepal May 31 and June 16, 2020

**Figure 6**: Daily plot of positive test results through June 15, 2020 by province

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6 Province names map made freely available by NordNordWest. Lizenz: Creative Commons by-sa-3.0 de.
Despite early measures by the government to prevent people from entering the country, thousands of Nepalis working in India began returning in mid-May. The government is attempting to quarantine and test the returnees before allowing them to head for their homes. Local governments and community leaders have been advised to stay in contact with the returnees, but this has proved to be difficult given the rugged terrain of rural Nepal. By mid-June, the costly, but disorganized, quarantine measures organized by local governments had mixed results. Dailekh District started with 1 case on May 18, increasing rapidly to 644 by June 15, the second largest district total in the country. WHO has suggested these quarantine efforts may have reduced the potential for community transmission, but in Dailekh District most new cases were being identified among those who had been put in quarantine centers without any symptoms.

Nevertheless, some districts have had better success in controlling the spread of the disease than others. Udayapur District was designated as a 'hotspot' in late April, but its COVID caseload management proved to be effective. By mid-June, the number of active cases in Udayapur had dropped to seven. Hopefully, case studies will be undertaken to document the involvement of the separate levels of government, plus civil society and private sector across the country in mitigating the impact of the disease.

Figure 7: Timeline indicating the rapid increase in COVID-19 cases in Dailekh District, Nepal from May 18 to June 14, 2020
The CoronaNepal dashboard also contains a dataset of the locations of all health facilities in Nepal, ranging from Government Hospitals to sub-health posts. Linking the health facility locations to health incident levels could improve the accuracy of medical supply procurement and distribution.

Figure 8: Government Hospitals existing in Province 5 (the hardest hit during the current pandemic) as of 2015.

There are likely some inaccuracies in the health post data as the GPS positions of these locations were recorded prior to the creation of the new federal structure with 7 provinces and 753 local governments taking on a more significant role in public health management.
In the beginning, when there were only few cases daily, data coming out of the Ministry of Health and Population had sufficient detail to plot the locations of the cases at the sub-municipality level.

The densely populated Municipality of Birgunj is located near the Indian border in Parsa District, the district reporting the highest number of cases as of late-May. The image below uses a technique to approximate the concentration of cases. Collecting, reporting, and mapping complete data immediately gives actionable information for managing the crisis. However, such detail presented in Illustration 8 below is not available nationwide as the case records submitted from some testing centers are often incomplete. As the case numbers have increased, the data released by government no longer includes gender, age, source, and location.
CONCLUSION

Part 1 has introduced some of the current support mechanisms available to help build open data systems in the public sector. It highlighted an ongoing initiative to improve collaboration between government and civil society to map the spread of the COVID-19 virus. Digital data systems can be a critical aspect of economic and political revitalization by openly sharing complete, accurate, location-specific, and time-sensitive data. Being forced to continue relying upon generalized data that is rarely updated and difficult to access reduces the potential for individuals to make informed decisions or to collaborate effectively with others.

In Part 2 we will discuss some of the digital tools being used in Nepal to enhance the accuracy and timeliness of data available to small-scale rural enterprises. These examples will illustrate how taking these tools to scale can be of benefit to producers, processors, marketers, and consumers.

This Asia’s Path Forward paper addresses Restarting Economies. Visit CIPE.org for further Asia’s Path Forward papers on the six essential themes for an economic recovery roadmap:

- Restarting Economies
- Diversifying Supply Chains
- Combating Corruption
- Authoritarianism and Challenges to Democracies
- Economic Challenges for Women and Marginalized Groups
- Chamber and Association Responses and Strategies
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