This brief sketches the information characterization of the “have-less” in Nepal by unveiling Internet (data) consumption and online activity quantitatively. Conventional digital inequality has been seen as a deviance that can be fixed by increasing access. We argue that such framing shifts our focus away from critical issues about how Internet is used, who benefits and who is excluded in the end or even during the drive for increasing connectivity. We suggest that in an evolving landscape of digital expansion, the distinct in-between tier of the information have-less appears. The formation of this have-less group is a result of particular social transformations where communication technologies start to play crucial roles in the lives of the marginalized groups such as migrant workers, unemployed youth, and the old. We show that in utilizing the binary categories of “haves” vs. “have-nots,” the dominant narrative of Nepali Internet misses out the information stratification in Nepali society. Consequently, Internet policies, based on inaccurate ground assessment, will have no or limited impact on the lives and livelihood of the very users for whom the massive investment in the digital infrastructure is being rolled out. This brief calls for a new set of policies that explicitly recognize the information stratification and make use of distinct technosocial characteristics of the information have-less in striving for the universal connectivity in the country.

The Internet Have-less
A substantial body of literature on digital divide is about social consequences of inequality in the information and communication technology (ICT) ownership, access, and skill. It is common to look at the uneven distribution in binary

1 For the purpose of this brief, we limit our enquiry to recent technologies, i.e., wireless phones and wireless mobile Internet. Similar arguments hold, however, in the case of older ICT technologies such as cable Internet and cable TV. For a wider technological perspective along this line, see Pandey, Shailesh and Nischal Regmi. 2018. Changing Connectivities and Renewed Priorities: Status and Challenges Facing Nepali Internet. First Monday 23(1). Available at http://firstmonday.org/ojs/index.php/fm/article/view/8071/6613#p5; accessed April 25, 2018.

2 Selwyn states that the impact of ICT could be seen “in terms which reflect the extent to which technology use enables individuals to participate and be part of society.” See, Selwyn, Neil. 2004. Reconsidering Political and Popular Understandings of the Digital Divide. New Media & Society 6(3): 341–362. Zillien and Harigittai find that a user’s social status is significantly related to various types of
terms, such as those who have ownership/access/skill ("have") and those who do not ("have-nots") in this literature. Meanwhile, ICT infrastructure has rapidly expanded, and ICT devices have been adopted, extended and spread in an unprecedented manner. The two-fold distinction of haves/have-nots poorly represents such a dynamic landscape. In fact, the scenario becomes comprehensible in other ways. In technologically advanced (largely Western) countries, for instance, a significant population has an Internet connection. Yet, cracks begin to appear when we zoom-in beyond the issue of access. The binary characterization is, therefore, the first-level divide only. Digital skill and usage gaps are found on the second-level. The third-level divide emerges when mere possession of skills and use are inadequate to determine the beneficial outcomes in the lives of the ICT users. Various studies have shown that digital divide extends beyond access, and there are social implications of what people do online. Inequality is therefore better understood as a persistent and dynamic target. Furthermore, the digital landscape demands an evolving understanding about shifting swathes of exclusions as connectivity is continuously reconfigured for universal access.

This dynamic concept of inequality is also valid for the Internet in Nepal. Yet, the popular discourses do not adequately acknowledge the rearrangements in social relations that can be brought about in Nepal by the ICTs, particularly by the mobile phones and wireless Internet. Available studies on digital inequality focus on age, gender, and race distinctions. These dimensions alone cannot capture the complexity in full when we factor in demographic shifts such as rural-to-urban and overseas migration, and rising rates of unemployment among the productive workforce. Migration changes the communication requirements and alters the ways technologies are used. For example, migration to the cities accelerates the establishment of cybercafés and prioritizes pre-paid payment on mobile phones. Beyond access, we see a distinct group emerging out of such technosocial transformations that lie between the traditional haves and have-nots. We have called this group as “have-less” in this brief. This rapidly expanding group of have-less is characterized by low-income and the use of low-end devices. The have-less has also limited activities online. People falling in this group may use Internet solely for entertainment. They have thus no need to understand search engine or e-mail. The availability of small mobile phone recharge (as low as Rs. 10) connects also those who are unemployed or with low income. Their use may be limited to text-only browsing. Nevertheless, when such limited users largely constitute the subscriber base, as is the case in most poor countries, there is a sizable impact on the total data consumption. The existence of the have-less group demands that we revise conventional binary categorization between haves and have-nots.

The rise in mobile phones and mobile Internet has been central in increasing connectivity of the have-less. The celebrated change in the mobile telephony, for example, is chiefly attributed to the widespread diffusion of the technology and its consequent impact on the societies. Nevertheless, a significant proportion of ICT users own feature phones, low-end handsets or knock-off smartphones. Non-smartphones make up to

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5 No single reason can be identified for the overwhelming choice for pre-paid among the migrant population. Some prefer this mode of payment for tighter control on their spending. Others choose it for lesser hassles in making payment when compared to the billed payment. Still others opt for it by taking mobile phone service as non-essential. It is inaccurate to bundle all pre-paid users into one group when it is clear that the outcomes they derive from the use will significantly vary.

6 For our purpose here, we have narrowed the concept of information have-less to specific class of users of the technologies. The notion also includes manufacturers and providers in the original formulation of the term. See, Qiu, Jack Linchuan. 2009. Working-Class Network Society: Communication Technology and the Information Have-Less in Urban China. Cambridge: MIT Press.
68 percent of the mobile phones in Nepal, according to the 2014 survey conducted by Martin Chautari. Another survey by Internews similarly puts this number at 62 percent. Therefore, a large percentage in the population with mobile phones cannot access public services such as “Hamro Police” and “Traffic Police” as these mobile-apps are specifically developed for smartphones. The very devices exclude them from accessing such services. Yet, the development in the mobile telephony has not been understood from the point of how the middle (of haves and have-nots) uses ICTs for the core needs such as employment and social connectivity. The national regulator in Nepal places them in the category of haves going by the basic subscription statistics they publish. The classification is problematic as the have-less group spends much less amount of time online, consume limited data, and rely on cybercafé for the Internet in the major cities. They also find new utilities for the technologies. Using missed calls to convey information is one example of innovation favored by the have-less to save on the expenses.

The Unevenness of Mobile Internet Use

At the end of 2015, Nepal Telecom had a mobile subscriber base adding up to 48 percent of the population. Its major competitor Ncell had 53 percent. Seventy percent of the voice subscribers “could” use data services. Contrary to the flattering subscription numbers, a Nepal Telecom data subscriber used only 45 megabytes (MBs) of data on average in a month. The equivalent for a Ncell subscriber was 68 MBs. At today’s price, this would give a Nepal Telecom and Ncell subscriber 84 and 127 MBs of data respectively. These numbers are low in absolute term, and equal approximately an hour of YouTube video on the lowest quality setting of 240 pixels. This is also far below the global average. With the predominance of the have-less group, the result is not surprising. A large proportion of Nepali users are responsible only for a small fraction of the Internet data traffic. The cost of mobile Internet (data) is certainly a determining factor for the low data usage. While data from the fixed Internet is relatively cheaper, most Nepali users access the Internet exclusively through their mobile phones. There are economic and non-economic reasons for this preference. The fixed Internet requires additional expenses on devices, repair and maintenance, and on household electricity. The increasing mobility and the dimensions of the dwelling that does not afford certain mode of connectivity also necessitate the use of the mobile phones. Such mode of connectivity of the have-less is different from the haves.

The uneven geographical positioning of mobile Internet users is also apparent in Twitter activity. Geotagged tweets are used to draw a distribution map of the Twitter users’ location in Nepal. Many Twitter hashtags and accounts were buzzing with prayers, complaints, and requests for help, aftershock updates, and communication of ground situation following the April 2015 earthquake. Telecom operators also recommended using SMS and the Internet due to high congestion in voice calls during such crises. The real time aspect and the speed at which information spreads is the reason for Twitter’s use during disaster response. The Nepali government also perceived Twitter as an effective way to inform the public. Nepal Police set up their Twitter account on April 26, 2015. Similarly, the National Emergency Operation Centre (NEOC), under the Ministry of Home Affairs, established their Twitter account and issued official statistics immediately. In order to understand the Internet use from mobile phones, we thus look at the geolocation of tweets originating from

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3 Nepal Telecommunications Authority (NTA) publishes monthly subscription statistics gathered from telecom and Internet service providers. See, http://nta.gov.np/en/mis-reports/. The mobile telephony subscription figures, which are in essence count of active sim-cards, divides the population into haves (subscribers) and have-nots (non-subscribers).
April 24 to May 11 in 2015 and 2017. The reason for choosing Twitter is clearly the availability of geotagged data. In addition, following hashtags such as #NepalEarthquake and #NepalQuake is convenient even for non-users. It is not necessary to have a Twitter account to view tagged messages, a large percentage of which is public. Though it is not necessary to own a smartphone to access Twitter, the increase in Twitter usage and smartphone ownership in Nepal seems highly correlated. We chose 2015 because we expected most phones that can support access to Twitter to be active following the devastating earthquake. We chose the same period in 2017 as a baseline representing what is an average activity period in comparison. Indeed, StatCounter report Twitter’s popularity was three times higher during April-May 2015 compared to that of 2017. Figure 1 shows the volume of tweets at the zonal level.

Two things jump out from chart. First, 60 percent of total tweets originate from the Bagmati zone. The capital Kathmandu city alone commands 41 percent of tweets. Second, and more interestingly, the proportion of tweets is almost the same in 2017 for the top two zones. The figure gives a good indication that the majority of active users are unevenly located in a few urban hubs, the majority of whom are in the cities of the Kathmandu Valley. Mountainous areas in the Sagarmatha zone usually originate noticeable Twitter activity from trekkers and mountain climbers. This

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12 The 2015 data can be found at https://worldmap.harvard.edu/maps/nepalquake. The 2017 tweet data was obtained from the Billion Object Platform (BOP), located at http://bop.worldmap.harvard.edu/bop/. Both were downloaded on July 14, 2017.


14 Prior to the federal system of government, Nepal was divided into 14 administrative zones and 75 districts that were grouped into five development regions. The data in the brief follows the old system as it was collected before the new structure came into effect. However, this does not significantly alter the arguments we make in the brief.

15 The relative ordering of the zones is largely maintained in both years. It is visually apparent and reflected in a high correlation score of 0.98 (one being the perfect correlation).
explains the dip in 2015. Sixteen districts fail to register on Twitter activity. Twelve of these are from the mid-western and far-western development regions. Similar geographic pattern of exclusion is observed in other ICTs like the wired-Internet, and even in the case of household electricity.16

Another way to gauge online activity is to look at the volume of search queries from Google Search in 2015. Search volume for “Nepal earthquake” peaks on April 26 and again on May 12, the day after the largest quake and the day of the major aftershock respectively. As with the tweets, Figure 2 shows that the search activity in 2015 was the highest in the last five years. Most searches originate from Kathmandu, Biratnagar and Pokhara. These are also the top three places in volume of tweets. In a one year period (June 2016 – June 2017), search volume was disproportionately associated with Kathmandu Valley. All top ten cities are in the Valley. Places outside the top ten include Biratnagar (Koshi), Dharan (Koshi), Birganj (Narayani), Nepalganj (Bheri), Bharatpur (Narayani), Pokhara (Gandaki) and Butwal (Lumbini). This corresponds very closely with the ordering based on tweet proportions.

The dismal activity in the mid-western and far-western regions is, of course, derived largely from the fact that Telecom services, specifically 3G, elude a large number of districts there. Mountainous districts in the North have the worst deal. The idea that connectivity will bring economic benefits by its own virtue continues to be popular but misplaced. Running an online-based shopping and delivery services from these mountainous locations, for instance, do not provide the return on investment. Physical distance and geographic position will continue to affect the business there. Furthermore, connectivity disfavors remote places as new linkages between places reconfigure the existing power imbalances to their disadvantage, owing chiefly to their small number and low online spending.

Yet, geography alone does not give a sufficient explanation for the diffusion of services and patterns of the online use. 3G sites are few even in a populous district like Kailali despite boding a favorable terrain. Though Kailali and Kaski have similar population densities, around 240 people per square kilometer, Kaski originates nine times more tweets than Kailali. This disfavor may have roots in the fact that Kailali has a per capita income (US$ 942) well below the national average of US$ 1080, while Kaski (US$ 1561) lies on the other side of the income spectrum.18 More voice (2G) and less data (3G) coverage characterizes Kailali. Income and Internet technology can be paired with geography to gauge online activity. Bhaktapur, a city in the Kathmandu Valley, is ranked eighth (out of ten) in the number of tweets. This is despite a good 3G coverage, second highest population density and higher than average per capita income of US$ 1379 in the city. Parsa is also ranked thirtieth in tweet volume despite higher than average per capita income, population density, and a favorable terrain. The characterization based on demographic and income indicators is useful to understand general trends, but insufficient in describing the use, and more significantly, non-use.

These facts require that we put into perspective the hyperbole of the SIM subscription numbers in the


17 The data was collected on July 15, 2017. Google Trends assign a value of 100 to the location with the most popularity. Kathmandu takes the top spot. Biratnagar's score of 74 is then interpreted as three-fourth as popular compared to Kathmandu. Locations with less than one percent popularity as the peak get a zero score.

of limited Internet use. A better explanation can be provided when we recognize the existence of a group that is different from the haves and have-nots in amount of time spent online, access to fixed Internet, level of digital skills, and utility they find for the technologies. We have used the term have-less to signal its in-between position in emerging information stratification in the country. We also ask that the ICT policies drop the deterministic view of technology in order to find appropriate interventions. We do so by unbundling the implicit assumptions behind the transformative claims in the dominant visions of connectivity. Together, these two lines of argument call for more grounded policies that do not simply assume connectivity as a necessary and sufficient condition for growth and economic development.

It is common to view the technological fix for solving the problems of development as the problems themselves being geographically dislocated. Such a standpoint comes from imaginaries of the Internet which afford a “cyberspace” that renders the issues of geographic position and physical distance irrelevant. That is why dominant discourses on connectivity call for an immediate investment in broadband infrastructure or “lose the opportunity to reap the economic and social benefits that broadband brings.”

Such international discourses were crucial in the development of Nepali broadband policy. Reports from international organizations like the World Bank provided the quantitative basis to these dominant discourses. One such report claimed a contribution of 1.38 percentage points to economic growth with an increase of 10 percent penetration in broadband. The World Bank later admitted the contribution of ICT for development is unobservable in countries that lack the so-called “analog complements,” viz. favorable

Conclusions: Beyond Binary Narratives

We thus make a case for cautious Internet policies that look beyond access. The need to look at issues related to use and the outcomes post-access is highlighted by the heavily lopsided data consumption in a period characterized by the impressive rise in mobile Internet subscriptions, and the policy prescriptions largely influenced by such an expansion. Beyond access, we find the data consumption (when viewed against the total mobile telephony subscribers) and online presence (compared to the total mobile Internet subscribers) is heavily skewed. We therefore argue that the binary characterization of the digital divide (viz. haves vs. have-nots) fails to explain the significant proportion

mainstream media. Sadly, the most important statistical underpinning for Nepali Internet policies does come from mobile telephony subscription numbers, and not on the data usage. Subscription numbers are essentially the total number of active SIM-cards. Impressive subscription numbers mask inequality in bandwidth and consumption. Unlike subscription, bandwidth is a persistent and dynamic target affected by the arrival of new technologies and its diffusion. The minimum speed to qualify as a broadband connection has increased drastically around the world with the success of optical-fiber based Internet and wireless (3G and later) technologies. Nepal's mobile phone and mobile Internet subscription numbers have shown a similar impressive growth. Yet, the popular narratives fail to acknowledge the creation of a large consumption gap between Internet users with access to the fixed Internet and those with access through mobile phones. Furthermore, a large volume of Internet traffic reaching the mobile phones could be traveling through Wi-Fi at home, school or office and therefore not registering on the mobile networks. Those with regular access to the fixed Internet find a way around the expensive mobile data. They also find opportunities to engage in bandwidth hungry online activities, such as video chat and watching movies more regularly. Differences in overall data consumption between haves and have-less can be even more pronounced when adjusted for such access to the fixed Internet. Nevertheless, the information characterizations of the two groups are significantly different.

References:

business environment, strong human capital, and good governance.\textsuperscript{21}

The claims on the positive correlation between ICTs and economic growth, which are posited as “self-evident” in the Nepali policy documents are unconvincing. Academic research on the impact of ICTs is inconclusive.\textsuperscript{22} Many studies find ICT to have minimal impact in low-income countries. In fact, it has even been argued that ICT, a skill-based technology, can widen the existing income inequality.\textsuperscript{23} The role of information, such as the market price, is a major source of hype and techno-romanticism. Information has been stated to hold transformative potential for the rural farmers and fishermen in the Global South.\textsuperscript{24} The ubiquity of mobile phones therefore makes it the ideal platform for information dissemination. Recent critiques have reached different conclusions questioning the assumptions, research methodology, and economics behind such rosy pictures.\textsuperscript{25}

Despite this, the emphasis on investment in digital infrastructure is exclusively informed by positive estimations pushing for a “knowledge-based society and economy.” The possibility of no or limited impact as probable outcomes is entirely ignored. As Friederici, Ojanperä and Graham put it, the worrying aspect of a “self-evident” vision of connectivity is that it offers “a powerful, aspatial and ahistorical teleology.”\textsuperscript{26} Since many in the policy making positions believe that there are always new technological fixes for the development problems, they say very little on who benefits, who is left out, and by how much. Importantly, their vision ignores the fact that the process of diffusion of ICTs is carried out within the structural constraints. The group of have-less comes into existence from social transformations which assigns distinctive role to communication technologies in their lives and livelihood. The migrant workers, unemployed youth from lower social strata, older population with limited access to some form of ICTs and the Internet should not be placed in haves. The have-less is just one group that is easier to visualize in the gradation based on ownership, access, skill, and other measures in conceptualizations of the digital divide. Mature ICT policies will appreciate the evolution of networked connectivity within different information strata in the society.\textsuperscript{27}


\textsuperscript{25} Jensen’s work on the use of mobile phones by the fishermen of Kerala has been strongly criticized by Steyn for its over-generalizations. He argues that the conclusions were based on unrealistic premises, poor data and even suspect sources. See, Steyn, Jacques. 2016. A Critique of the Claims about Mobile Phones and Kerala Fisherman: The Importance of the Context of Complex Social Systems. The Electronic Journal of Information Systems in Developing Countries 74(1): 1–31. Also, Burrell and Oreglia from their ethnographic study in Uganda and China have found four aspects of the “myth of market price information.” They find counter-narrative to the centrality of market price information in decision-making. They also do not find compelling evidence to establish a causal relationship between access to market price and improvement in market efficiency. See, Burrell, Jenna and Elisa Oreglia. 2015. The Myth of Market Price Information: Mobile Phones and the Application of Economic Knowledge in ICTD. Economy and Society 44(2): 271–292.

Martin Chautari (MC) began as an informal discussion group in Kathmandu in 1991, allowing development professionals and academics to meet every two weeks to share insights and experiences. In 1995, the name ‘Martin Chautari’ was adopted after the late Martin Hoftun, one of the founders of the original discussion group. After being managed by the Centre for Social Research and Development for six years, in 2002 MC became registered as a separate non-government organization in Kathmandu.

Since its inception, MC’s core objective has been to enhance the quality of public dialogue and the public sphere in Nepal. Started at a time in which Nepal had little, if any, culture of informed public discussion, MC is now nationally known for its discussions which are held two times a week. Chautari also conducts research focused on governance and democracy, media, education, health and livelihoods with cross-cutting themes of gender and social inclusion. A rigorous mentoring program of young researchers is in-built into MC’s work.

Till date MC has published ninety-two books. MC is also the editorial home of the journals *Samaj Adhyayan* [formerly *Media Adhyayan*, established in 2006], and *Studies in Nepali History and Society* [SINHAS, published by Mandala Book Point since 1996]. Since 2006, MC has opened its research library and media documentation center to the public. The library's holdings total more than 22,000 books, a quarter of which focuses on the media.

All five components – the discussions, research, mentoring, publications and library – feed into each other and form an intrinsic part of MC’s primary objective: strengthening the social contract between the state and citizens and expanding and making inclusive the public sphere by promoting informed dialogues and analytically rigorous research.

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**Moving Beyond Access: The Landscape of Internet Use and Digital Inequality in Nepal**

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