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RESEARCH BRIEF

Early Developments in Telephones and Electricity in Nepal

This research brief discusses some examples of early telephone uses in Nepal, compares it with electricity and through these, attempts to complement existing Eurocentric historiography of the dominant view on early infrastructure developments that concentrates on imperial motives for technology dissemination.[1] Imperial needs to remain in contact with its colonies arguably facilitated the diffusion of technology across continents. The introduction of telephones and electricity in Nepal, in contrast, were driven by the Rana regime's needs to further its own administrative and commercial interests.

Telephones arrived in Nepal forty years after its invention. The Rana Prime Minister Chandra Shamsher introduced a telephone system from Kathmandu to Birganj in 1915–1916. Telephones initially catered to the rulers' personal needs. By 1937, with the extension of the Kathmandu–Birganj open wire magneto trunk lines, telephones were being utilized for administration, commerce and diplomacy.

Developments in electricity were similarly state driven. While the Rana rulers quickly recognized the many uses of electricity such as street lighting, domestic electrification and running electric appliances, it was to the combined goals of hydro-development and industrial development that the state's resources were invested. Apart from the electrification of Rana palaces and public streets, distribution of electric lines for households was arbitrary and depended on one's affiliation with the ruling class.[2]

In both cases, infrastructures were mainly articulated as facilities for the state but were also presented as public goods, for the use of the *duniyadar* (subjects) and the "customer." Primary sources available with us signal the public access to telephones and electricity. Conflating this public with that of present day publics

[1] For more on imperialism and technology see, Headrick, Daniel R. 1981. *Tools of Empire: Technology and European Imperialism in the Nineteenth Century*. New York: Oxford University Press; and Headrick, Daniel R. 1988. *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850–1940*. New York: Oxford University Press.

[2] For a description of early experience of electricity see, Dixit, Madan Mani. 2053 v.s. *Anandamaya Akash*. Kathmandu: Gyangun Sahitya Pratisthan.

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is, of course, anachronistic. In the case of telephones, the public comprised of diplomatic persons, pilgrims, members of the Rana administration, traders and the common person. The latter appeared in the content of telephone messages rather than as active users, perhaps a bias of the sources that were approached.[3] The early customers of electricity were the British envoy, members of the Rana administration and Nepali businesses. The state's demarcation of the *duniyadar* as a separate category of users of infrastructure indicates that these developments were believed to benefit a larger populace eventually.

Connecting the Kingdom to Kathmandu: Sri Chandra Telephone

The first telephone connections were limited between the Shah king's palace and that of the Rana prime minister. The extension of telephone lines from Kathmandu to Birganj through a 115-km open wire magneto trunk telephone line, completed in 1916, and its professed access to the public around the same year are considered early landmarks in Nepal's telecommunication history.[4] According to the standard narrative, the Sri Chandra telephone, named after Prime Minister Chandra Shamsher (r. 1901–1929), was a result of the British Empire wishing to continue its sway over peripheries such as Nepal from which it received financial and military assistance during the First World War.[5] Although the existence of well-developed telegraph technology in British India may have been influential,[6] the introduction of telephones (and electricity) in Nepal though were primarily due to the ruling class experimenting with new technologies.

A transcript of a conversation between Prime Minister Chandra Shamsher and the British minister to Nepal J. Manners Smith on November 29, 1915 survives at the National Archives, Kathmandu. It reveals that the initiative for the adoption of telephones came from the Nepali ruler and not from the British. The conversation begins with the resident inquiring about the planned telephone line between Kathmandu and Birganj. Upon Chandra Shamsher's affirmation, the resident refers to an "order" received from his government thirty-year earlier that cautioned against the establishment of "the imperial telegraph telephone line without the approval of the government."[7] To this, Chandra Shamsher explains that the plan was Nepal's internal communication and was a long-held desire. He says that telephones were to be constructed by his government for the exchange of government (*sarkari*) messages and for the messages of the *duniyadar*, the latter were to be subject to certain fees. To the surprise of the British minister, Chandra Shamsher also discloses the existence of plans since the time of Jang Bahadur to operate a "wireless tram" and telephone lines and the existence of an experimental telegraph connection between Jang's palace and Narayanhiti. He thus indicates the Rana rulers' curiosity towards these technologies since the 1850s, much before the alleged

[3] Most documents for this research brief come from the Foreign Ministry Archive, Kathmandu (hereafter FMAK). These contain correspondences related to passports, border issues, border crime, etc., as opposed to examples of telephone and electricity uses by the *sahu-mahajan*s or the *duniyadar*. Examples of the latter were searched for in the Kumari Chok collections at the National Archives. The collection has not been adequately described on the document level, making it probable that such examples could be found in the future.

[4] Through overhead wires, the telephone line passed from Thankot along the Gadhi to Bhaise, Parvanipur, Churiya and to Birganj. A 20-km difference between the Gadhi trail and the telephone line indicates that the telephone line was less circuitous. For more on journeys through the Gadhi trail, see Pande, Bhim Bahadur. 2068 v.s.[2038 v.s.] *Tyas Bakhatko Nepal: Ranakalin Akhiri Teen Dashak*. Kathmandu: Bhim Bahadur Pande; and Acharya-Dixit, Ram Mani. 2046 v.s. *Yatra Samsmaran*. Kathmandu: Shanti Niketan Pustakalaya.

[5] Pangeni, Bhaveshwor, ed. 2072 v.s. *Telephone Sevako Satavarshikiko Upalakshama Prakashit Nepal Dursanchar Sevako Itihas* (1973–2073 v.s.). Kathmandu: Nepal Dursanchar Company Limited (NDCL), p. 9.

[6] On telegraph technology in British India, see Kaul, Chandrika. 2018. *Reporting the Raj: The British Press and India c. 1880–1922.* New Delhi: Viva Books.

[7] "Samvat 1972 San 1915 Telephone Rakhne Vishaya British Minister Sanga Kura Bhayeko," Serial No. 268, Poka No. 134/1, FMAK.

"order." This was Chandra's way of ascertaining Nepal's independence from British imperial guidance.

A news report published in *Gorkhapatra* informs of the commencement of telephone services "for all the *duniyadar*" on Jeth 1, 1974 v.s., rates for which was postponed for a later announcement.[8] In 1934, instead of separate rates for the *duniyadar,* telephone rates were fixed according to the number of words with Mohar 24 *paisa* being the minimum fees and Mohar 50 *paisa* for telephone conversations and for written messages received after office hours (apart from the 50 *paisa*, the latter also included an additional "late fee").[9] These rates were applicable for *sarkari* and *duniyadar* messages equally as mentioned in the *Sawal* of 1991 v.s.[10]

In the reign of Juddha Shamsher (r. 1932–1945), telephone lines were extended from Birganj to Kalaiya, Gaur, Malangawa, Jaleshwor, Janakpur, Siraha, Hanuman Nagar, Rajbiraj and Raxaul. By 1941, Itahari, Biratnagar, Dharan and Dhankuta were connected through trunk lines as well. Telecommunications, like other infrastructure, trail along existing ones instead of advancing into new terrain. It was perhaps because of the shorter distance between Bhimphedi and Birganj that telephone expansions were initially carried out along this route instead of others such as those towards Palpa or Hanumannagar or *Naya Muluk*.[11]

The next phase of telephone expansion occurred during Mohan Shamsher's rule (r. 1948–1951). Lines were extended westward from Trishuli to Gorkha, Kunchha, Pokhara, Kusma and Palpa by 1950–1951. Plans to connect the *Naya Muluk* remained unrealized due to political changes that brought the end of the Rana rule.[12] Apart from trunk lines, the Mohan Akashvani or wireless line (*betarko tar*) based on radio AM transmission was also used as an alternative communication technology. The aim was to bring mountainous terrains that were then not conducive to trunk lines into contact.[13] The three phases of telecommunication growth during the reign of Chandra Shamsher, Juddha Shamsher and Mohan Shamsher indicate that this technology grew from initially being experiments with new technologies to becoming some of the earliest national infrastructures, for the administrative uses of the state and even for the general uses of a circumscribed public.

Early Uses of Telephones: Some Examples

Documents exemplifying the administrative uses of telephones are available at the Foreign Ministry archives. A few examples of dispatches from the Munsi Khana to various government offices in Birganj, Biratnagar, Saptari, Parsa and Dhankuta from 1920–1950 are discussed below. Among frequently dispatched

[8] Gorkhapatra, Jeth 1, 1974 v.s.; quoted in Pangeni, Bhaveshwor, ed. 2072 v.s. *Telephone Sevako Satavarshikiko Upalakshama Prakashit Nepal Dursanchar Sevako Itihas* (1973–2073 v.s.). Kathmandu: NDCL, p. 11.

[9] The earliest telephone messages were not voice communications although such an option was also available. Rather, messages were mediated by operators located in Kathmandu, Chisapani, Bhimphedi, Amlekhganj and Birganj. They received and transmitted messages to operators along the route who wrote down messages. The messages were carried to the recipient in a thin lokta paper slip by a messenger (*halkara*). Available records of messages of the Rana prime ministers refer to written telephone messages, conversations through telephones and to telegraphs.

[10] "Telephone Head Officeka Nauma 1991 Sal Poush 2 Gate Roj 5 ma Bhayeko Sawal," Sri 5 ko Sarkar, Nirman Tatha Sanchar Mantrayala, Telecommunication Vibhag Digdarshan, 2018 v.s. Available at Madan Puraskar Pustakalaya (MPP), Lalitpur. In India, telegraph rates were "first fixed at 1 rupee per sixteen-word message for every 644 kilometers, the 1-rupee fee was later made uniform throughout India regardless of distance." Discussed in Headrick, Daniel R. 1988. *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850–1940*. New York: Oxford University Press, p. 122.

[11] The recent effects of geography, physical distance and income on access to infrastructure and on reinforcement of inequality and exclusion are discussed in Martin Chautari. 2018. *Moving Beyond Access: The Landscape of Internet Use and Digital Inequality in Nepal.* Research Brief No. 23. Kathmandu: Martin Chautari.

[12] Pangeni, Bhaveshwor, ed. 2072 v.s. *Telephone Sevako Satavarshikiko Upalakshama Prakashit Nepal Dursanchar Sevako Itihas* (1973–2073 v.s.). Kathmandu: NDCL, p. 16.

[13] The public utility of the Mohan Akashvani, the wireless AM radio transmission set up in 2006 v.s. is discussed in Gorkhapatra, Fagun 20, 2006 v.s., p. 1. This research brief is limited to the uses of telephones. A separate research will be required to explore the details of the Mohan Akashvani.

messages were those to Chisapani Gadhi and Birganj instructing these offices to make lodging arrangements including permissions to use the government bungalow for the British resident, his guests and relatives and later the Indian embassy and their guests on their journey to or from Kathmandu.[14] Telephone dispatches such as those translated below were also common.[15]

Example 1

94/8/13/1 Birganj *goswara*
Received pho(ne). The work of opening the *dhar* buried by the man-killing earthquake should be done by the *ilaka* Rautahat Sarlahi *goswara*. Phone has been made to the *goswara* to receive the collection of papers and to work quickly. For the work to be done, since it is a new *goswara*, if a person from that *goswara* (Birganj?) is needed, send 1 person who knows the work and ensure that the work is completed quickly.

1/15

Munsikhana

Example 2

On 07/1/8/6 Parsa Mal
For the expense of the Nepali embassy, Delhi, the expenses for the year 2007 is to be sent as mentioned by the opening order, if the money has not been sent, do so at the earliest and do the work of informing.

Sd- Sarada
Sd-Prabhu

The administrative use of telephones is evident in the above examples. In addition, the Rana regime also claimed to make telephones and alternatives such as AM radiotelegraphy accessible to the public. Earliest mentions of the inauguration of telephones for the *duniyadar* appeared in *Gorkhapatra* on Jeth 1, 1974 v.s. under the title *Desh Samachar*.[16] Twenty years later, in 1994 v.s., the expansion of telephone lines from Birganj towards the east was reported by *Gorkhapatra* to have been received by celebrations and by praises for the ruler by the "*raiti mahajan*" of the areas surrounding Hanuman Nagar.[17] Another report published in *Gorkhapatra* on Magh 27, 2006 v.s. mentioned the AM radio transmission or the Mohan Akashvani becoming a "public service" in Biratnagar.[18] For over four decades, the public use of telephones was recognized. This may be due to a slow increase of the number of *duniyadar*'s wishing to use telephones. However, the rules that allowed the public access to telephones are not discussed in the sources currently available.

According to the *Sawal* of 1991 v.s., messages were to be categorized into the following types in the order of priority—state messages (*kaj sarkari*), messages related to telephone works (*telephoneko kam vishaya*) and messages of the *duniyadar* (*duniyadarko*). Apart from stating that all messages were to be categorized as *duniyadar* if they fell outside *kaj sarkari*, the *Sawal* does not define who the *duniyadar* were.[19] Messages available among the Kumari Chok documents at the National Archives and those at the Foreign Ministry Archives do not spell out whether these were part of the *sarkari*, *duniyadar* or telephone related works.

[14] See, for example, messages dated 84/8/24/5 to Chisapani Gadhi, 07/1/2/3 to Chisapani Gadhi and 07/2/5/5 to Birganj Goswara in "Telephone, Tarko Nakkal Vahi," Serial No. 144, Poka No. 0/1 and Poka No. 0/5, FMAK.

[15] These examples are taken from "Telephone, Tarko Nakkal Vahi," Serial No. 144, Poka No. 0/1 and Poka No. 0/5, FMAK.

[16] Reproduced in Pangeni, Bhaveshwor, ed. 2072 v.s. *Telephone Sevako Satavarshikiko Upalakshama Prakashit Nepal Dursanchar Sevako Itihas* (1973–2073 v.s.). Kathmandu: NDCL, p. 11.

[17] "Telephoneko Naya Line," *Gorkhapatra*, Jeth 1, 1994 v.s.; reproduced in Pangeni, Bhaveshwor, ed. 2072 v.s. *Telephone Sevako Satavarshikiko Upalakshama Prakashit Nepal Dursanchar Sevako Itihas* (1973–2073 v.s.). Kathmandu: NDCL, p. 14.

[18] "Mohan-akash-vani," *Gorkhapatra*, Magh 10, 2006 v.s.; reproduced in Pangeni, Bhaveshwor, ed. 2072 v.s. *Telephone Sevako Satavarshikiko Upalakshama Prakashit Nepal Dursanchar Sevako Itihas* (1973–2073 v.s.). Kathmandu: NDCL, pp. 16–17.

[19] "Telephone Head Officeka Nauma 1991 Sal Poush 2 Gate Roj 5 ma Bhayeko Sawal," Sri 5 ko Sarkar, Nirman Tatha Sanchar Mantrayala, Telecommunication Vibhag Digdarshan, 2018 v.s., p. 12, MPP.

Copies of written telephone messages bearing the prime minister's signature are preserved at the Kumari Chok adda's collections. These contain condolence and congratulatory messages, valuation of precious metals and stones, requests for games such as horses and elephants, orders to dispatch luxury goods (e.g., curtain hoops, tables etc.), health updates of the prime minister's sons and relatives, and travel arrangements for his immediate family members. Messages related to permissions granted for passport issuance, employment of British Indian doctors, engineers and overseers, arrest of dacoits, currency exchange, cash transfer, Birta extensions and tax payments are also present.[20]

Among messages that would belong to the *duniyadar*, the following examples are available among the records at the Foreign Ministry Archives. The first is related to passport issuance to non-diplomatic foreigners arriving with a diplomatic entourage such as a missive from 1950–1951 that conveys the instructions sent by Major Bijay Shamsher to provide passports to two Indians residing with the "Bhattacharya of the rail" in Birganj.[21] The second and less common telephone messages pertain to pilgrims arriving in Kathmandu for the Shivaratri celebrations.[22] The third is related to individuals charged with felony either by the Nepali state or by British India, the telephone missives for which spell out the names of the individuals and whether they belonged to this or that side of the border. Such messages are in abundance. One example is given below,[23]

> On 2007/5/16/6 Bandipur Court
> Among those criminals accused of the case of treason, Vishnuhari Padhyay's birthplace is in Bandipur *Ilaka*. To arrange to send evidence against him, a written description sent by Birganj to that adda (Bandipur Court?) has been made known to us. Immediately inquire whether this work has been complete or not and if not find out about Vishnuhari Padhyay, the year in which he was born in this village, that he is the son of so and so and so and so descendants are present in the house etc. These details should be verified by 4/5 individuals and (also by) Vishnuhari's father and brothers specifying their relation with Vishnuhari …
>
> Bijaya (Shamsher).

The same file also contains a message from 1951–1952, slightly more than a year after the downfall of the Rana regime, pertaining to one Asha Bahadur's mother's travel plans.[24] The sender and the recipient are not clearly indicated. But this message is the first, in that particular *poka*, involving a *duniyadar*. If, according to the *Sawal* of 1991 v.s., the *duniyadar* included the non-aristocratic, non-government individuals that were allowed the use of telephones for private non-political messages,[25] these *duniyadar* messages are neither at the Foreign Ministry Archives nor at the Kumari Chok collections. Rather, criminal proceedings and cases of extradition were the only circumstance in which the *duniyadar* figured in some missives. Until such primary sources are retrieved, fleeting glimpse of the *duniyadar* telephone uses can be gathered from the financial records of industries established in the late Rana period.[26]

[20] Poka Number 207 Kha, "Telephone Taarko Nakkal Kitaap" of the Kumari Chok Documents, National Archives, Kathmandu contains many personal and administrative messages bearing the prime minister's signature.

[21] "2007 Salko Telephone Nakkal Vahi," Serial No. 144, Poka No. 0/5, FMAK.

[22] "85/86 Sal Pho(ne) Gayeko Nakkal," Serial No. 144, Poka No. 0/1, FMAK.

[23] "2007 Salko Telephone Nakkal Vahi," Serial No. 144, Poka No. 0/5, FMAK.

[24] "2007 Salko Telephone Nakkal Vahi," Serial No. 144, Poka No. 0/5, FMAK.

[25] "When sending telephone messages the *duniyadar* can write about private matters. Matters concerning the state or causing harm to the government, (or) of danger to government work, (or) messages that can lead to treason or any other form of resistance against the state should not be sent … " in "Telephone Head Officeka Nauma 1991 Sal Poush 2 Gate Roj 5 ma Bhayeko Sawal," Sri 5 ko Sarkar, Nirman Tatha Sanchar Mantrayala, Telecommunication Vibhag Digdarshan, 2018 v.s., p. 12, MPP.

[26] Additionally, biographies and regional histories could be some other informative sources of *duniyadar* uses of telephones.

Telephones and Commerce

A speech delivered by the chief electric engineer R.G. Kilburn[27] at the inauguration of the Jhapa telephone service in 1936 mentions that the telephone system was never looked upon by the Rana regime as a "commercial undertaking" but "purely in the interest of administration."[28] Prime Minister Juddha Shamsher's speech on the same occasion touches upon the administrative uses of telephones while also specifying who its potential users could be in the areas of Sarlahi, Malangawa, Jaleshwor and Janakpur. According to him:

> Now that the telephone is here, the *jimidar, bhaladmi*, *santa, mahanta* and other big and small *raiti duniya* living in between these (areas), if they have to send any important message to the other side, if anything has to be conveyed immediately to the center or if any matter (*nijayan?*) requires to be immediately conveyed back and forth between the districts falling within this telephone line such work can be conveniently done and such will be a way for happiness and comfort for all is what I feel.
>
> Government employees who need to convey government matters immediately … between the center and the district (can do so)…. Thus it is a support for the good of our common *raiti* and *duniya* and for quickness of work.[29]

The above excerpt makes no reference to the *sahu-mahajan*s and does not provide any indication of the commercial use of telephones. Was it not for one letter from 1942, the commercial uses of telephones would have remained eclipsed. This letter from the "bhakta praja" of the Sri Pashupati *Goshala* briefly mentions the benefits of telephones to the *sahu-mahajan*s in Birganj indicating its use for trade and commerce. It mentions how, upon the introduction of telephones, *sahu-mahajan*s were freed from requirements of maintaining "agents" in Birganj to liaise between Nepal and British India.[30] However, we have not retrieved documents that unveil the kinds of businesses that maintained agents and the practices that led these agents either to redundancy or to modify and co-exist with new technology. Nor do we have evidence that reveal how the Rana regime intended to disseminate telephones as a medium of trade facilitation along the border areas. Existing studies on economic history of the early twentieth century do not mention the uses of telephones by the *sahu-mahajan*s either.[31]

Among the two that were checked for this research brief, Bhattarai, Ghanashyam. 2057 v.s. *Birganjko Aitihasik Ruparekha*. Birganj: Ghanashyam Bhattarai and Shah, Jay Bikram. 2061 v.s. *Birganjko Nalibeli*. Birganj: Srimati Jaya Rani Shah contain short references to telephones, telegraphs and letters as forms of communication in Birganj but lack further details.

[27] Very little is known about Kilburn except that he was a Scottish engineer employed by the Rana government for the *bijuli adda*, at least from the early years of Juddha's rule. Kilburn was also responsible for the operation of the Dhursing-Matatirtha ropeway and the two power plants in Kathmandu. He is believed to have served the *bijuli adda* during Padma and Mohan Shamsher's reign as well.

[28] Similar non-commercial reiterations continued to appear, for example in a 1950 letter, "Letter from Nepal's Director of Foreign Affairs to the Indian Ambassador," Serial No. 268, Poka No. 134/1, FMAK.

[29] Gorkhapatra, Ashwin 31, 1993 v.s., Serial No. 268, Poka No. 134/1, FMAK.

[30] "Sri Govindaya Namo Nama," Baishakh 22, 1999 v.s., Serial No. 155, Poka No. 35/27, FMAK.

[31] Recalling his research on trade and industry in the western towns of Nepal, Stephen Mikesell mentions, "All the records that I found, at least for Bandipur-Tori (sic) route, were letters and telegraph, at least from the 50s, and there was no reference to telephone as I recall." As an adjunct, Mikesell also forwarded a message from Mathura Shrestha whose family had business contracts with the Ranas. According to Shrestha, "As to telephone service in Birganj, I can recollect during BS (sic) 2002 when I first went to Birganj there was a telephone line connecting Birganj to Kathmandu. But to have telephone conversation one had to visit telephone office. I didn't know that there was any household connection then. I too read that land line there was initiated by Juddha Samser (sic), but don't know when it was started." Personal conversation, July 7, 2019. Similarly, there are no references to the uses of telephones for trade and commerce in Pangeni, Bhaveshwor. 2071 v.s. *Ranakalin Nepalko Itihas: Sarkari Karobarma Subba Ganeshdas Ratnadas*. Kathmandu: Dharmanaran Adhyayan Pratisthan.

What we do have are balance sheets of various industries of the late 1940s, two of which reveal their use of telephones. According to the balance sheet of the state-owned Nepal Bank Limited, Mohar rupees 6,249 was incurred as the combined expenses for tickets, telegram and telephone for 1947–1948. The Morang Hydro-electric Supply Company Limited, Biratnagar mentions telephone and telegram expenses separately. While rupees 1,719-2-6 was incurred as telephone expenses, an additional rupees 121,345-8-9 was incurred for telegram and tickets for the year 1948–1949. For the same year, the Birjung Cotton Mills incurred rupees 786-5 as expenses towards tickets and telegram whereas the Nepal Plywood and Bobbin Company Limited, Biratnagar and Morang Oil Mills do not record telecommunication expenses. The balance sheet of all five institutions for 1947–1948 or 1948–1949 record expenses for electricity.

Not all industries that were set up in the late 1940s maintained telephone connections.[32] However, those that did and those that did not were all financed by the capital of individuals close to the Rana regime. This is clearly indicated in the shareholder list of the various industries. For example, according to the *vivaran patra* of 1939–1940, the operators of the Morang Hydro-electric Supply Company were the *Bada Hakim* of Biratnagar Som Shamsher Rana, Subba Gunjaman, Subba Kashiraj Pande, Captain Keshar Bahadur Khatri Chhetri and Padma Sundar Malla. Similarly, the balance sheet of the Birganj Cotton Mills of 1948–1949, among those industries without access to telephones, mentions Bahadur Shamsher Rana, Som Shamsher Rana, Purna Bikram Rana, Subba Hom Prasad Upadhyaya and Anandaraj Shrestha. The inclusion of Som Shamsher in both projects is one example of how a small cluster of individuals, either Ranas or their affiliates, circulated within these as partners. The social class that dominated the state machinery also dominated new economic initiatives. How is this of relevance for our discussion on telephones?

According to critical theory of technology, technological advances are not instrumentalist but substantive. In other words, technologies are not neutral. They are determined by "the social power under which they are made and insures that they also serve the interests of that power."[33] In early twentieth century Nepal, power remained concentrated within the Rana elites and their affiliates. As the above examples show, certain industries had access to telephones. However, the interest, operation and management of these industries converged with the interests of the state. This leads us to deduce that the ambit of the users of telephones for commerce was confined to the upper echelons of these industries, those that were interlocked with the state. Markets were in existence.[34] However, their capacity was fixed to being locations for curated, controlled exchange of internally produced or externally manufactured wares under the supervision of the state. As a result developments undertaken by the state established Sri Chandrabatti Prakash Bijuli Adda did not encounter the challenges of the market. Being the principal source of authority, the state was able to delineate the composition of the *duniyadar* as per its will. Mention of the *jimidar, bhaladmi*, *santa, mahanta*, big and small *raiti, duniya* notwithstanding, the *duniyadar* were not separate from the interest of the state. Until further evidence is available, it can be argued that the early use of telephones, whether for administration or commerce, was shaped by the purpose it served the state.

Early Uses of Electricity

In the early twentieth century, the two power plants in existence in Kathmandu were the Pharping power plant (est. 1911) and the Sundarijal power plant (est.

[32] For more on the industries that were set up under the Udyog Parishad in 1935 see, Gyawali, Bandana. 2018. The Udyog Parishad Papers, 1991–2002 v.s.: Financing Industries in Late Rana-Era Nepal. *Studies in Nepali History and Society* 23(2): 429–480.

[33] Feenberg, Andrew. 1991. *Critical Theory of Technology*. New York: Oxford University Press, p. 35.

[34] Regmi mentions the existence of internal markets in footnotes 55, 77, 81, 82, 84 of chapter eight, see Regmi, Mahesh Chandra. 1999[1971]. *A Study in Nepali Economic History, 1768–1846.* New Delhi: Adroit Publishers.

1936–1937) with a third, the Morang Hydro-electric Supply Company (est. 1942) in Morang district. Developments in electricity were almost concurrent with those of telephones. Like the telephones, a power plant was installed during the reign of Chandra Shamsher but wider uses of electricity began during the reign of Juddha Shamsher. Like the telephones, electricity primarily served the state's *addas* or people closely affiliated with the ruling Ranas. Did electricity find a way to the *duniyadar*? Based on the electricity *Niyam* of 1994 v.s. and on primary sources from the Foreign Ministry Archives, Kathmandu and the National Archives of India, this section will explore the early uses of electricity.

The *Niyam* of 1994 v.s. is focused on "customers" who are categorized according to the number of electric bulbs they use. It neither mentions the word *duniyadar* nor the word *raiti*. Rather, what receive mention are customers with private installations, *sarkari* lighting and street lighting. It also contains instructions on tariffs at temples, revealing that apart from Rana palaces and offices, electricity was distributed to certain public spaces. Electric lights inaugurated by Prime Minister Chandra Shumsher at Pashupati *ghat*s were subject to rates according to the numbers of bulbs installed, the bills for which were to be paid by the *guthi*. Similarly, any customer wanting to install electric lights at temples was permitted to do so only after the receipt of appropriate payments.[35] It does not specify whether these "customers" were *guthis* or individuals.

Apart from the Pashupati temple, the *adda*'s "private" customers were the British legation and the British surgeon, both of whom were charged separate rates. In addition, the *Niyam* also specifies that of the 200 bulbs installed at the Narayanhiti palace, 65 were not to be charged. The remaining were to be charged per unit, the rates for which were not specified neither was the payer. Such details reveal that the British resident, the British surgeon, the prime minister, a *guthi* and the king were beneficiaries of electricity and, as "customers" were entitled to services upon paying a price. Although this points to electrification for private purpose, it is not clear whether the private customers of electricity and the *duniyadar* users of telephones were same group of people.

We do not have evidence to determine the distribution of electricity lines within Kathmandu. Since the telephone *Sawal* of 1991 v.s. states that telephone messages were distributed within Singha Darbar, Hadigau, Bishal Nagar, Jawalakhel, Patan, Dillibazar, Naxal and Maharajganj, we could either assume that the same areas were also supplied with electricity or that since electricity required less surveillance, its distribution was slightly wider. The electrification of Pashupati *ghat*s would suggest the latter. The Chandrabatti streetlights, the ropeway and electric machinery such as fans mentioned in the *Niyam* along with later developments such as the Morang Hydropower for industrial ventures in Biratnagar indicates that the uses of electricity was not confined to lighting alone.

According to an undated hand written letter addressed to the prime minister, power generated from the Pharping plant was consumed by various government offices, the mint, the arsenal, the ropeway and increasingly by rice mills that had abandoned the *dhiki* (manual wooden thresher) for electric mills.[36] The letter mentions the inability of the Pharping plant to cope with increasing annual demands primarily because of its reliance on monsoon rains and hence the inauguration of the Sundarijal power plant. By 1949, however, the Sundarijal plant was also inadequate because it relied on monsoon rains between July and September.[37]

[35] Swasthya, Nahar Tatha Bijuli Mantralaya Vidyut Vibhag Manual. 2019 v.s. Grahak Dar-rate Bare Bijuliko Niyam, 1994 v.s./8/17, Nepal, MPP.

[36] Undated hand written letter addressed to the Maharaj in "Pharpingko Bijuli Badi Khapat Bhai Janatalai Marka Pareko Huda Sundarijalko Powerhouse Sthapana Bhayeko Sambandhi Patra," Serial No. 155, Poka No. 35/27, FMAK.

[37] This is mentioned in a letter to the prime minister from Kashiraj Pande. See, Hand written letter from Kashiraj Pande, 11.07.05 in "Mr. R.G. Kilburn Sanga Bhayeko Lekhapadhi, Ropeway Vistar ra Sundarijal Vidyut Sambandhima Belayati Dutavassanga Bhayeko Lekhapadhi, 1948," Serial. No. 181, Poka No. 38/1, FMAK.

Although the demand for electricity arose from various ends and not just from palaces and street lighting, in the absence of end-use data, the distribution and consumption of power for public lighting, for household and for other purposes cannot be segregated. Nevertheless, among the various uses of electricity, we know that the state was aware of its potential for industrial development. The 1942 hydro project, the Morang Hydropower, was mainly an outcome of such an idea.

Morang was the site for a number of industries set up with the support of the *Udyog Parishad*. The earliest, the Biratnagar Jute Mills (est. 1936), was followed by others such as the Morang Cotton Mills (est. 1942), Nepal Plywood and Bobbin Company (est. 1943), Raghupati Jute Mill (est. 1946), Morang Sugar Mills (est. 1947), Morang Oil Mills and Nepal Chemical Industries (establishment years unknown).[38] With diesel, steam and coal as alternatives, not all these industries depended on hydropower.[39] However, that the Morang Hydro-plant was developed as a more "economic" substitute to steam or oil is mentioned in the prospectus of the Morang Hydro-electric Supply Co. Ltd. which also anticipated a "great demand for electricity" from the Biratnagar Jute Mills. Additionally,

> 6. Income
> It is estimated that 180,000 units of electricity will be required for Biratnagar Jute Mills and Biratnagar bazaar. Placing the charges at an average of 1 *anna* per unit the income per month comes to Rs. 11,250/-. [40]

According to the above extract, the Morang Hydropower was developed for industrial use, specifically for the existing Biratnagar Jute Mill. The balance sheet of this jute mill for the years 1949–1950 and 1950–1951 mention expenses incurred for electricity such as "electric fitting" and "electric power." Similarly the balance sheets of the plywood and bobbin company and the Morang Oil Mills mentions the same. However, the balance sheet of the Morang Hydro for 1950–1951 also mention separate expenses for an under construction power plant and for coal and wood, leading one to suspect the use of more than one energy source.[41]

Apart from power to industries, electricity consumption in Biratnagar bazaar was also anticipated, as mentioned in the above extract. It is difficult to ascertain whether this is a reference to specific businesses or to domestic supply. Nonetheless, if there were 4,400 customers of electricity in Biratnagar, Dharan, Dhankuta, Jhapa, Rajbiraj and Bhadrapur in 1975,[42] one would imagine a much smaller bazaar and inhabitation in Biratnagar in the late 1940s and consequently, a smaller density of customers. It also demonstrate the multiple uses of electricity by the late 1940s.

The fruition of the Morang Hydro perhaps inspired the state to initiate similar projects. Letters exchanged between the engineer R.G. Kilburn and Prime Minister Mohan Shamsher in 1948–1949 concerning potential sites for hydro development outside Kathmandu mentions possibilities such as Koshi, "Kali Khola," Kulekhani and Narayangarh (sic).[43] These initiatives were the result of then held beliefs that industrial employment would mitigate Nepal's "decadent

[38] Kandel, Devi Prasad Sharma. 2009. *Trade and Industry of Nepal during the Rana Period*. Kathmandu: Ratna Pustak Bhandar.

[39] Personal conversations with Santa Bahadur Pun, former MD of Nepal Electricity Authority, August 11, 2019.

[40] Prospectus of the Morang Hydro-electric Supply Co. Ltd., December 1, 1942. The Nepali version of the prospectus is available at MPP.

[41] The balance sheets of the Morang Hydro, the Biratnagar Jute Mills, Nepal Plywood and Bobbin Company, Morang Oil Mills, Nepal Bank Limited, etc. for various years are available at MPP.

[42] Cited in No Name. 2038 v.s. Purvanchal Vidyut Corporationko Pragati Vivaran. *Purvanchal Vidyut Corporation Bulletin* 1(1): 8–13.

[43] "Letter from R.G Kilburn to the prime minister," August 21, 1948; "letter from R.G. Kilburn to the prime minister," September 28, 1948; "letter from R.G. Kilburn to general Bijay Shamsher," May 16, 1949 all three letters in Serial No. 181, Poka No. 38/1, Mr. R.G. Kilburn Sanga Bhayeko Lekhapadhi, Ropeway Vistar ra Sundarijal Vidyut Sambandhima Belayati Dutavassanga Bhayeko Lekhapadhi, 1948, FMAK.

economic situation," would provide employment for its youth and lead toward progress.[44]

Hydro developments in Nepal were also influenced by British India's extension of the post-war reconstruction for the development of Nepal's water resources in 1945. British India suggested a joint survey to explore Nepal's potential hydroelectric resources and to use these for the benefit of both countries. For India, hydroelectric development in Nepal would provide valuable source of power to the United Provinces, Bihar and Bengal as well as secure flood control measures for them provided Nepal agreed to export power to these neighboring Indian provinces.[45] The British were aware of the difficulty of persuading Nepal to a joint scheme and hence mentioned that if it opted to stay out of the proposal, north Indian provinces would set up their own grids and Nepal would lose this opportunity of establishing economic cooperation with India and benefiting from it.

When British India made the above proposal, Nepal had already accumulated experiences from three hydropower projects. Although nothing tangible resulted from it, we do not have any evidence that indicate that Nepal responded to the proposition based on its learning and challenges from the Pharping, Sundarijal and the Morang Hydropower projects. Rather, Nepal negotiated with British India for a preliminary hydro-electric survey for its industrialization. Whether this survey was part of a scaling up of industrial activities in Morang or of setting up additional industrial centers, such as in Narayanghat, is not clear.

Even when justified as a pre-requisite from industrial development, hydro-developments in Nepal were carried out alongside and not in anticipation of industrialization. For example, we do not have evidence supporting the distribution of power from the Pharping and Sundarijal plants to a growing number of electric rice mills or other operations. Rather, according to sources, following the inauguration of the first plant, there was a lull of almost thirteen years before the Dhursing-Matatirtha ropeway was inaugurated in 1924. With the ropeway in place, power from Pharping proved inadequate and a second plant was developed in Sundarijal in 1934 which was deemed insufficient by 1949 because it was rain fed and unable to fulfill power needs yet again. The dependence of industries in Morang to multiple sources of energy instead of the Morang Hydro is a similar case of abbreviated planning and point to the improvised nature of hydro-development in the late Rana period.

Conclusion

Early twentieth century developments in communication and hydropower were state investments in which the state adopted technologies initially as experiments and subsequently as tools for administration and commerce. Telephones were a conduit between Kathmandu and parts of the kingdom and were used by the rulers and by certain state affiliated subjects. Electricity and hydro developments remained confined to the state and to upper reaches of the society as well. The extent to which these developments helped the state consolidate its power, the extent to which it shaped relations with the "public" and the influence of technology on a society that bore miniscule effects of industrialization will require more intensive research at the archives.

Additionally, this research brief is a preamble to further comparative research in the areas of the history of communication, electrification, hydro-development and infrastructure. Questions such as the relation between technology, infrastructure and social institutions, their shaping and reshaping society according to the dominant power and the ability and extent to which technology and infrastructure transforms or reinforce the nature of society remain unanswered.

[44] "Letter from the Prime Minister of Nepal to H.M.'s Minister in Nepal," File 616-X, serial nos. 1–6, Secret, External Affairs, 1937, National Archives of India (NAI).

[45] "Proposed development of hydroelectric resources in Nepal," File number 119 PWR/45, Post-war Reconstruction Branch, External Affairs Department, 1945, NAI.

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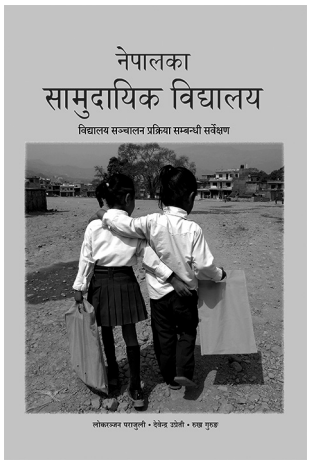

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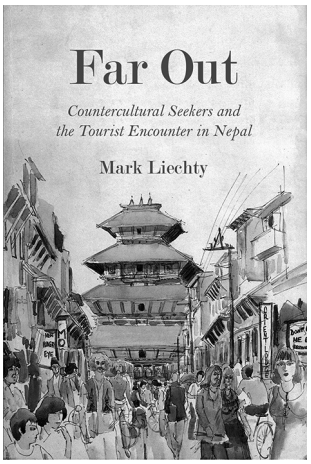

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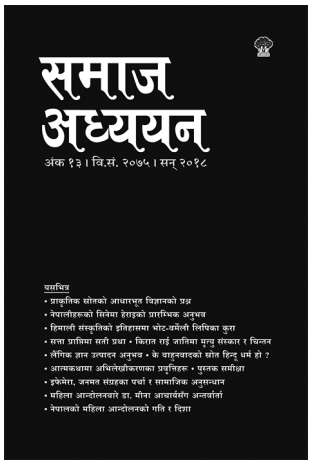

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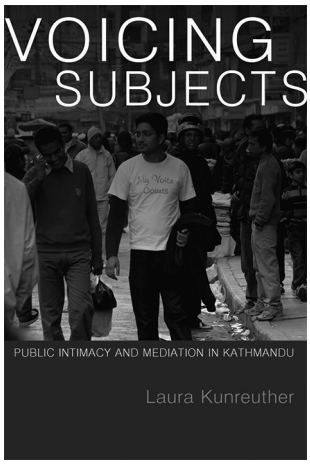

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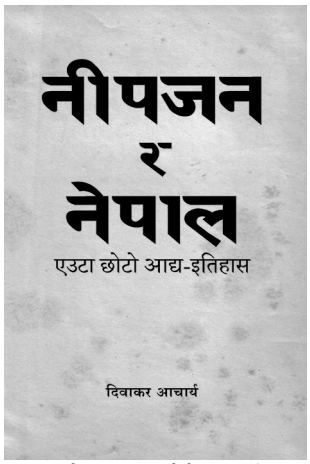

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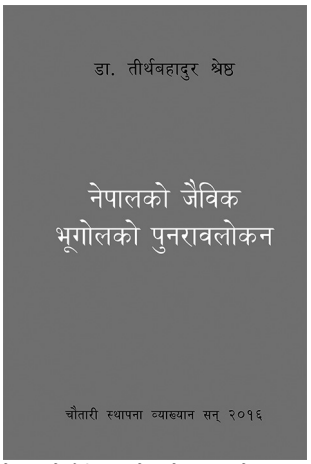

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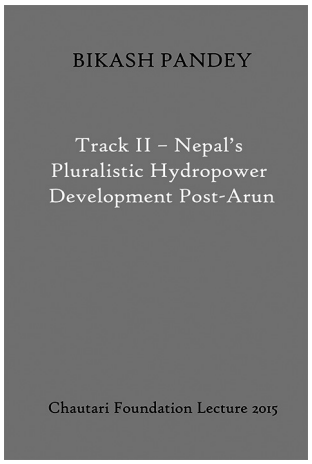

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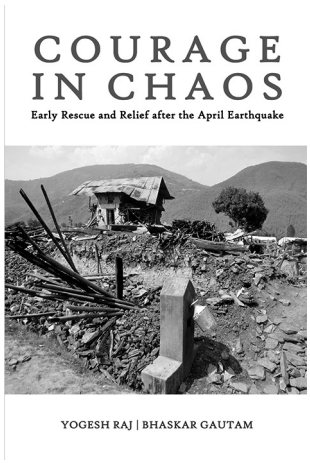

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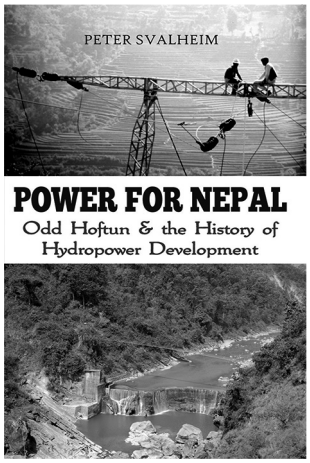

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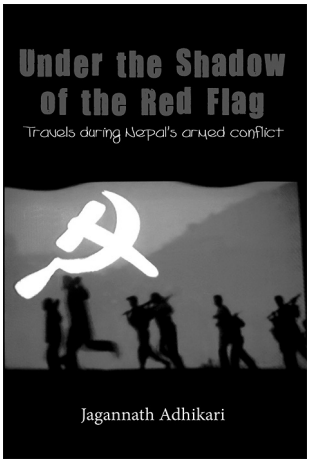

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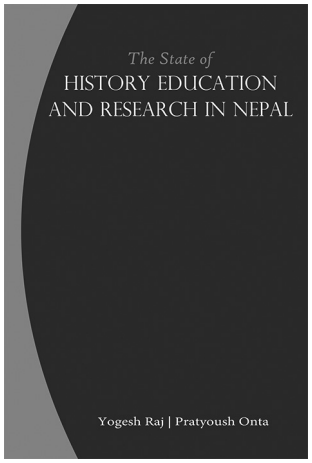

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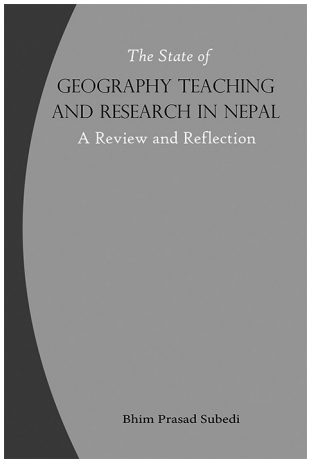

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Martin Chautari (MC) began as an informal discussion group in Kathmandu in 1991, allowing development professionals and academics to meet every two weeks to share insights and experiences. In 1995, the name 'Martin Chautari' was adopted after the late 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-six 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.

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.

Early Developments in Telephones and Electricity in Nepal
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