

WORKING PAPER 2019/7

# Industry under the open sky

An exploration of the political economy of brick making in Nepal



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At all three levels – kiln, local, and national – there are complex power dynamics among various actors with various power centres that regulate the brick industry.

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# Abbreviations and acronyms

**DANIDA** Danish International Development Agency

**DBEA** Dhading Brick Entrepreneurs' Association

**DFID** Department for International Development

**DoCSI** Department of Cottage and Small Industries

**DoE** Department of Environment

**DoF** Department of Forests

**DoI** Department of Industries

**DoL** Department of Labour

**EIA** Environmental Impact Assessment

**FCBTK** Fixed Chimney Bull's Trench Kiln

**FNBI** Federation of Nepal Brick Industries

**FNCCI** Federation of Nepalese Chamber of Commerce and Industry

**FNCSI** Federation of Nepalese Cottage and Small Industries

**GDP** Gross Domestic Product

**GEFONT** General Federation of Nepalese Trade Unions

**GFI** Global Fairness Initiative

**GHG** Greenhouse Gases

**GIZ** German Corporation for International Cooperation

**GoN** Government of Nepal

**HHK** Hybrid Hoffman Kiln

**ICIMOD** International Centre for Integrated Mountain Development

**IEA** Initial Environmental Examination

**ILO** International Labour Organization

**INGO** International Non-Governmental Organization

**IRD** Inland Revenue Department

**KBEA** Koshi Brick Entrepreneurs' Association  
**MBEA** Mahakali Brick Entrepreneurs' Association

**MCBTK** Movable Chimney Bull's Trench Kiln

**MITFE** Ministry for Industry, Tourism, Forest and Environment

**MoF** Ministry of Finance

**MoFE** Ministry of Forests and Environment

**MoICS** Ministry of Industries, Commerce and Supplies

**MoLESS** Ministry of Labour, Employment and Social Security

**NCME** National Census of Manufacturing Establishments

**NGO** Non-Governmental Organization

**NLFS** Nepal Labour Force Survey

**NPR** Nepali Rupees

**OSH** Occupational Safety and Health

**PDNA** Post Disaster Needs Assessment

**RaBEA** Rautahat Brick Entrepreneurs' Association

**RuBEA** Rupandehi Brick Entrepreneurs' Association

**SAARC** South Asian Association for Regional Cooperation

**SDC** Swiss Agency for Development and Cooperation

**SEZ** Special Economic Zones

**SMSEE** SMS Environment and Engineering

**TRDC** Technical Research and Development Committee

**USD** United States Dollar

**VAT** Value Added Tax

**VSBK** Vertical Shaft Brick Kiln

**WHO** World Health Organization

# Executive summary

To gain a nuanced understanding of the political economy of brick making, this study examines the brick sector at three levels: kiln, local and national level. At the lowest level is the brick factory, which includes brick kiln workers, labour suppliers, brokers, and owners. The local level comprises brick kiln owners, transporters, the local government and other stakeholders, and the relations and power dynamics between them. At the national level, the study analyses relationships between government bodies (ministries and line agencies, revenue office), the national brick kiln association, financial institutions, non-governments actors, activists, and policy makers. The study has identified the following major actors at the three different levels.

An estimated 1000 brick factories are currently operating in Nepal, creating about 300,000 jobs. With an average initial investment of NPR 5 million per factory, the industry carries out transactions worth about 60 million per year; this amounts to about two percent of the country's GDP.

## At the kiln

Workers from the hilly areas of Nepal generally work at brick factories in the hill region, mostly the Kathmandu valley and neighbouring areas. For instance, brick transporters in the valley and Dhading hail mostly from Rukum and Rolpa.

Workers with brick making experience know that drudgery is high in the sector and the living and working conditions are far from ideal, but they keep coming back to the kilns. One of the biggest motivating factors is the advance payment that workers get. They can save the money or use it to pay off loans or even start their own micro enterprises.

As the brick making industry is an informal sector, recruitment of workers is non-contractual. Workers are not given a formal contract, nor do they ask for one. This puts both workers and employers at risk. From the perspective of workers, employers can refrain from providing them assistance when needed – for example, during workplace accidents. From the perspective of employers, they cannot file a legal complaint against the workers if they flee with the advance payment. At the end of the season some 'naikes' (supervisors or labour contractors) get an advance after promising to bring a certain number of workers in the new season, but they sometimes run away with the money. At a brick industry in Rupandehi, employees were provided better living facilities and were hence more satisfied than brick workers in other factories; the industry was able to retain workers for multiple years with very few cases of workers fleeing.

The naike holds a lot of power in the brick industry. Both the labourers and the kiln owners are dependent on the naike. As the owner is generally unapproachable to the worker, they find it easy to go through the naike if they have any grievances. Therefore, the naike acts as a bridge between the workers and the owner. The workers bargain with the naike, who in turn bargain with the owners.

If a worker has a certain skill set, he/she is better able to negotiate his/her pay and other benefits. His/her previous work experience can also be an advantage. The longer a worker's experience in the brick-making sector, especially with the same owner, the stronger his/her position. Also, the naikes get a higher commission when they bring better skilled and more experienced workers.

Brick entrepreneurs often prefer Indian workers to Nepalis. They say that Indian workers demand less remuneration and facilities than their Nepali counterparts. A group of Indian baked brick transporters in Dhading mentioned that the owner had "provided them with everything" and they faced no problems. As brick factories in Nepal pay higher wages than brick factories in India, Indians from the border districts prefer to come and work in Nepal.

Brick making is seasonal work. Workers return home after working for about six months and use their earnings to meet basic needs or engage in other types of work such as agriculture.

Only a few entrepreneurs are ahead of the rest not just in providing facilities to their workers, but also in introducing newer technologies in their industries. However, these two things are not directly related; there are some entrepreneurs who have introduced highly sophisticated technology in their industries but provide very little for their workers.

Most brick entrepreneurs mentioned that 'raksi' (liquor) is a major problem at the kilns. Workers like to unwind with liquor after working hard all day long. However, some men tend to over drink, and a few end up having to take loans from kiln owners at the end of the season to pay back liquor shop owners. A Dhading-based entrepreneur claimed that some families can earn up to NPR 1 million in a single brick-making season; however, this example probably represents only exceptional cases. It appeared that the entrepreneurs were using alcohol as an excuse to not pay workers wages on time or provide even basic facilities. Further research on the (ab)use of alcohol is needed to assess workers' health, workplace safety, and their daily workload.

## The local level

Brick entrepreneurs claim they provide workers NPR 200,000–300,000 every week for their weekly grocery shopping. Given that each factory has about 200–300 workers, brick factories are thus contributing to the local economy. This is especially

true in the Terai, where there are weekly 'haat bazaars' (weekly markets), and cash liquidity is regular and high. Workers get their day off on the day of the haat bazaar so that they make use of their wages and time.

With the expansion of urban residential areas, landowners who lease land to brick factories during the brick making season have started selling their lands. Real estate is more lucrative than leasing land to brick factories. Housing plots are being made and houses being built near brick industries, and they might eventually displace the industries. This is especially true for rapidly urbanizing areas in the Terai and the outskirts of Kathmandu.

An entrepreneur mentioned that factory owners bribe revenue officers and load more bricks than they are allowed to. But the traffic police get hold of the overloaded trucks and tipper trucks and ask them for bribes before they let them pass. Entrepreneurs reportedly maintain two sets of records; the one they keep for tax and VAT purposes shows less than half the amount of bricks they sell to customers. They then bribe revenue officers and get away with it. The bribe amount is then added to the sale price of bricks, and the cycle goes on, thereby making bricks more and more expensive.

There is very little sharing of knowledge among brick factory owners. Some entrepreneurs confessed that "outsiders are not allowed inside the factories" as they fear "technology theft" and believe that unless they reach the breakeven point or start making profit, they would not share the newer technologies or innovative ideas with fellow entrepreneurs.

## The national level

As a primary building material, bricks are in demand across the country. Consumers are mostly concentrated in the urban centres, primarily in the Kathmandu valley and a few major cities in the Terai. The demand for bricks and other construction materials has also increased since post-earthquake reconstruction. With road networks connecting most parts of the country, bricks should have been able to travel easily from one end to the other. This would increase competition, allowing consumers to get high-quality bricks at low prices. However, cartels exist to ensure that this does not happen. Consequently, it is very difficult for customers in the Kathmandu valley to access bricks from the Terai, which are said to be bigger and better.

Kiln level actors	Local level actors	National level actors
Moulders	Brick factory owners	FNBI
Green brick transporters	Brick entrepreneurs' association	FNCSI
Animals, owners, caretakers	Transporters	FNCCI
Stackers	Construction contractors	MoICS and line agencies
Coal grinders and transporters	Local government	MoFE and line agencies
Firepersons	Local tax collectors	MoL and line agencies
Machine operators	Traffic/police officers	IRD
Vehicle drivers	Brick consumers	Financial institutions
Naike (supervisors)		I/NGOs
Munsi		Donors
Factory managers		
Dispute settlers		
Brick factory owners		

According to the Federation of Nepal Brick Industries (FNBI), district associations and overall brick sector stakeholders, “irregular factories” that are not registered with the district brick associations or the government tend to sell bricks at lower rates, thereby “distorting” market rates. There is no mechanism for checking the quality of such bricks.

The relationship between the financial sector and the brick industry could be improved by ensuring better flow of loans to the latter. An entrepreneur based in Kanchanpur who owns a straight-line chimney and wishes to adopt a hybrid Hoffman kiln mentioned that financial institutions would not give him loans based on his annual turnover but want fixed asset. However, as brick factories stand on leased land, they have very little fixed asset that they could use as collateral.

While in some districts (e.g., Rupandehi and Morang), many kilns have adopted the zig-zag technology, in others (e.g., Kanchanpur and Rautahat) they have lagged behind in adopting new technology. Introduction of new technology depends on available investment, demand for bricks at the local level, and the length of time since the factory was established. Not all brick entrepreneurs are interested in introducing new technology as they are satisfied with their production and turnover using traditional methods.

Bidders who construct public buildings are least concerned with the quality of bricks. With help from corrupt government officers, they get away with using low-grade bricks. The government should instead incentivise brick entrepreneurs by ensuring that bidders buy bricks from socially- and technologically-sound factories. They should also provide tax subsidies to model factories.

Most policies are designed in Kathmandu with very little consultation with relevant stakeholders, who are again centred in the valley. Consequently, those at the margins like Kanchanpur receive very little attention in terms of both policy and technology. This is especially true for the directive on occupational safety and health (OSH) issued by the government, as it is almost impossible to adopt the policy word by word.

## Acknowledgements

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Similarly, Sunil Thapa’s technical support in producing GIS maps and making the working paper look infographically sound is equally commendable. The support of FNBI authorities, especially Mahendra Bahadur Chitrakar and Badri Karki, and the district/zonal chapter presidents Mahendra Prasad Sah (Koshi), Ram Binod Sah (Rautahat), Ek Raj Luitel (Dhading), Thaneshwor Ghimire (Rupandehi) and Hem Raj Pandey (Mahakali) and other officials and entrepreneurs made the fieldwork for this study possible.

### KEY MESSAGES

This exploratory research aims to look into economic relations emerging out of the power dynamics among the actors involved in the brick industry.

Since there are very few scholarly works on the relationships within and beyond the brick factories, this working paper at times goes beyond the boundaries of political economy to analyse social, cultural, environmental, and policy-related issues.

The study presents an overarching analysis of the political economy of brick factories, thereby paving the way forward for further research.

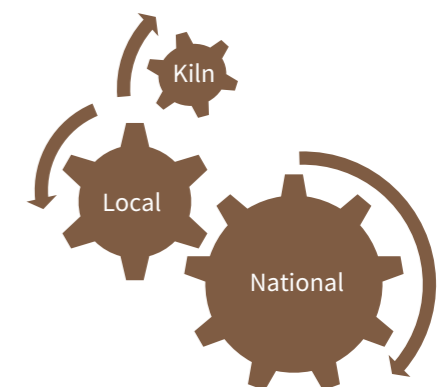
### SECTION 1

## Introduction

This section discusses the workings of the brick industry at three levels: the kiln as a unit, local level, and national level.

As a primary building material, bricks are associated with almost every Nepali urban and periurban household. Speaking to the *The Guardian*, Federation of Nepal Brick Industries (FNBI) President Mahendra Bahadur Chitrakar said: “Each and every man [and woman] wants to come to Kathmandu and build a house here” (Pattison and Kelly, 2015)<sup>1</sup>. This statement is true not just for Kathmandu but also to the newly urbanizing areas in the country. Although Nepal has not witnessed substantial economic growth in recent times, the rise in internal migration to urban centres as a consequence of the decade-long conflict and growing international remittances has led to the growth of the real estate sector and its prices at an alarming rate (Sharma et al., 2014). An analysis of the political economy of brick kilns would thus need to examine different levels of the society and highlight various phenomena associated with the brick industries. It also aims to look into

FIGURE 1 INTERPLAY OF LOWER TO UPPER LEVELS



<sup>1</sup>Pattison, P. and Kelly, A. (2015, February 12). How Nepal is trying to solve its blood brick problem. *The Guardian*. Retrieved from <https://www.theguardian.com/global-development/2015/feb/12/how-nepal-is-trying-to-solve-its-blood-brick-problem>

economic relations emerging out of the power dynamics among the actors. Since there are very few scholarly works on the relationships within and beyond the brick factories, the working paper at times goes beyond the boundaries of political economy to analyse social, cultural, environmental, and policy-related issues. An interesting historical study of bricks and culture was published by Tiwari (2002). Apart from Tiwari (2002) and Brun (2013), the brick sector of Nepal has seldom received scholarly attention. This working paper presents an overarching analysis of the political economy of the brick factories, thereby paving the way forward for further research.

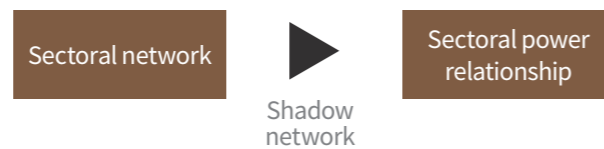
To gain a nuanced understanding of the political economy of the brick industry, the study will focus on three different levels: kiln as a unit, and local and national levels. At the kiln level, the working paper looks at relationships between brick kiln worker, labour supplier, broker, owner, and others. The local level comprises brick kiln owners, transporters and state mechanisms, and the economic relations and resulting power dynamics between them. At the national level the study analyses relationships between government bodies (ministries and line agencies, revenue office), national brick kiln association, financial institutions, non-governmental actors, activists, and policymakers. The unit of analysis here will mostly be the institution.

In an attempt to analyse overt and covert relationships, the study has identified various actors at the three different levels. The study seeks to do a social network analysis of the actors. The aim of the social network analysis is to help understand the sectoral power relations and shadow networks, if any, involved at these various levels. Various sectors with differential powers work in collaboration within and beyond the brick industries. Consequently, there could be direct and indirect networks that make use of sectoral powers. Through a social network analysis, the research aims to analyse key power centres at the national, local and kiln level and examine the roles of these actors in the manifest and latent relationships between various actors.

The research tries to address the following questions:

- Who are the actors involved in the brick sector at the kiln, local and national levels?

**FIGURE 2** SOCIAL NETWORKS, SECTORAL POWER RELATIONSHIPS, AND SHADOW NETWORKS



- How does a social network of the actors affect power dynamics and what kind of shadow networks, if any, arise out of that?
- How do economic impacts and power dynamics interact with each other?

### 1.1 Rapid urbanization and growing demand for bricks

The population of Nepal has increased substantially over the past decades and an increasing number of Nepalis now live in urban spaces. The rural to urban migration is quite high in Nepal, and the number of houses being built in the urban centres has risen significantly.

While only about three percentage of the population lived in urban centres in 1952/54, this increased to about 17 percent in 2011. After the government increased the number of municipalities in 2014, the population living in municipalities (read: urban areas) increased substantially.<sup>3</sup> The recent Nepal Labour Force Survey (NLFS) 2017/18 mentions that 63 percent (18.3 million) of the total Nepali population lives in urban areas (CBS, 2019).

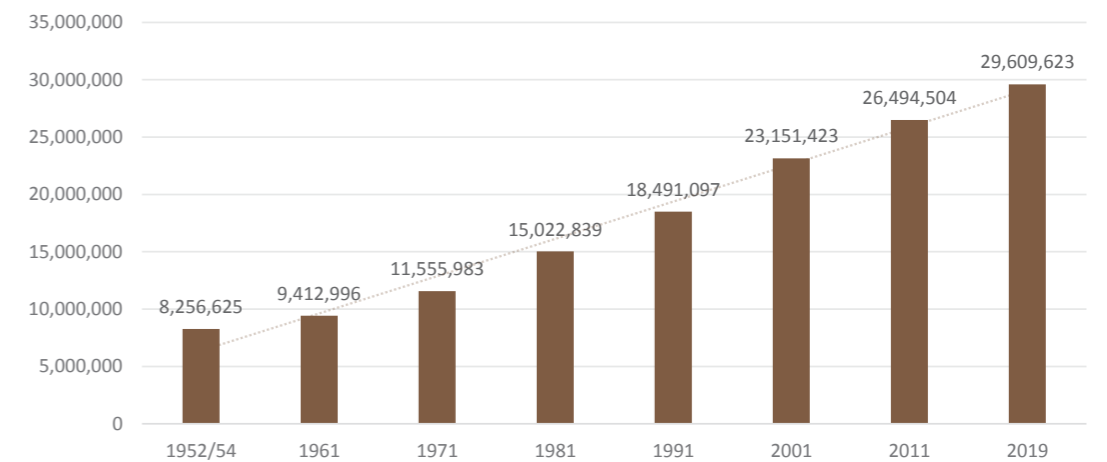
The rapidly growing population in the urban spaces means that construction in these areas has been expanding. The figure below shows a suggestive case of the districts within the Kathmandu valley – Kathmandu, Lalitpur, and Bhaktapur – where the built-up area has increased massively over three decades. While built-up areas covered only about 5

<sup>2</sup>The data for 2019 is projected by the Central Bureau of Statistics. More here: <https://cbs.gov.np/wp-content/uploads/2018/12/PopulationProjection2011-2031.pdf>

<sup>3</sup>If access to urban resources is considered, the population proportion living in urban areas might be very small as municipalities are declared on the basis of the number of people inhabiting a particular area, and not on the kinds of services and facilities available there.

<sup>4</sup>Built-up area here means all human constructed structures that are used for residential, industrial and commercial purposes including airports, roads and highways.

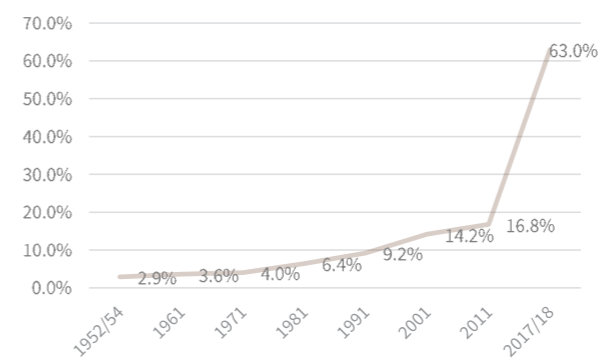
**FIGURE 3** POPULATION OF NEPAL OVER THE YEARS<sup>2</sup>



Source: CBS, 2014

percent (2153.79 hectares) of the Kathmandu valley<sup>4</sup> in 1989, this increased to more than 26 percent (11,020.62 hectares) in 2016 (Ishtiaque, Shrestha and Chhetri, 2017, p. 6). The high demand for construction has increased the demand for bricks and consequently the number of brick factories. In view of the massive demand, production and supply of bricks, the following sections examine the brick factories from a political economy lens.

**FIGURE 4** PERCENTAGE OF POPULATION LIVING IN URBAN AREAS OVER THE YEARS



Source: CBS, 2014; CBS, 2019

### 1.2 Political economy of brick kilns

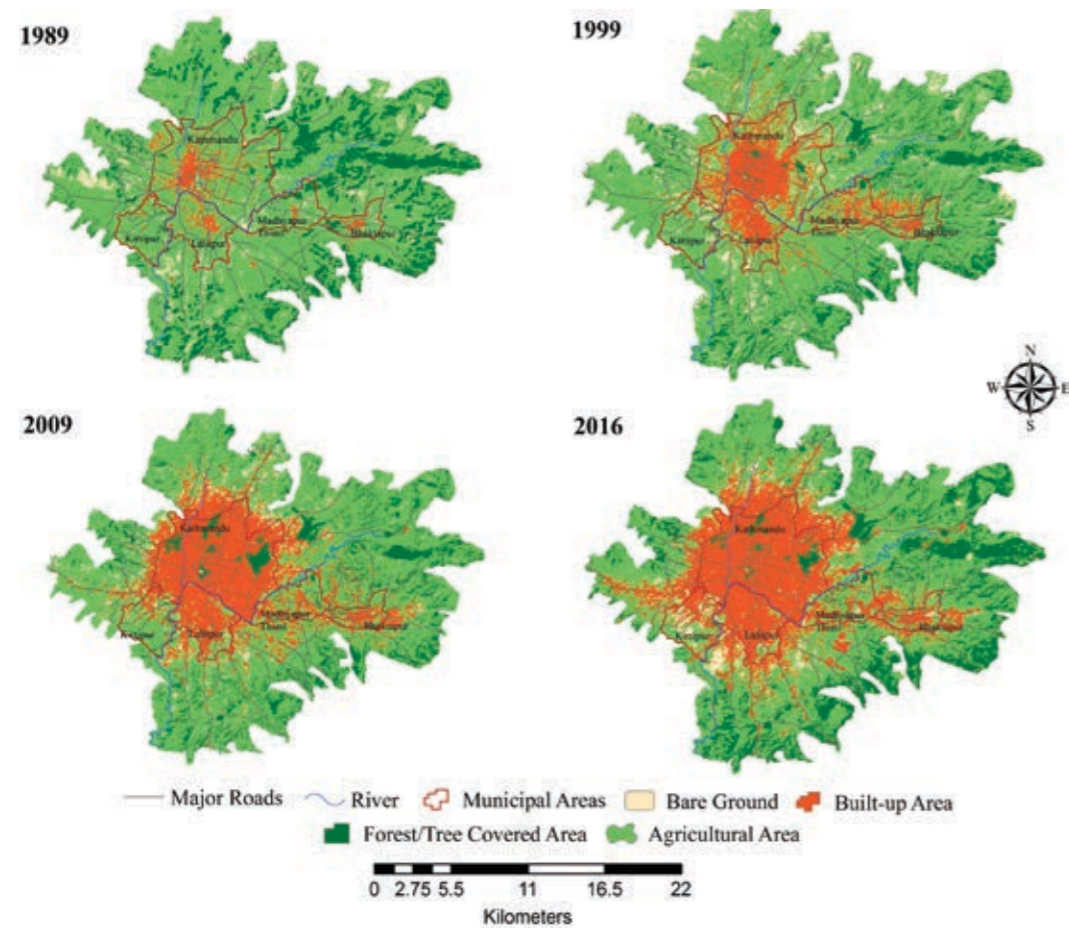
The typical consumer in an urban centre who is constructing his/her house with his/her hard earned money is least bothered with the means of production. Such a consumer tends to choose the most economical option, even if it means compromising on the quality. A free market

economy is supposed to promote open competition and increase the quality of products, but cartels hinder such competition. Not only do consumers suffer, the mode of production might become extractive and exploitative as those who own the means of production become more capital centred and start accumulating wealth. Moreover, rent-seeking attitudes of both the society and the state prevent resource distribution as those in power hoard most of the resources (Krueger, 1974). Furthermore, as the focus is on profits, everyone wants to earn money as quickly as possible, even if it involves compromising on social, environmental and human capital.

Political economy has several definitions, all of which suggest an interplay between economics and politics. With respect to the brick sector, political economy could be defined as “the study of the social relations, particularly the power relations, that mutually constitute the production, distribution, and consumption of resources” (Mosco, 2009, p. 24). Those in power control resources, people, and policies. Uneven distribution of power and wealth reproduces social inequalities. This working paper regards political economy as a system in which political and economic structures and processes interact with each other. It attempts to understand the political economy of bricks on two fronts. First, the working paper analyses power dynamics (politics) shaped by economic transactions related to bricks. Second, it aims to understand the economic impacts of such dynamics on bricks.

Politics has penetrated every sphere of Nepali society including economics. There is rampant

**FIGURE 5** LAND-USE PATTERN IN THE KATHMANDU VALLEY OVER THE YEARS



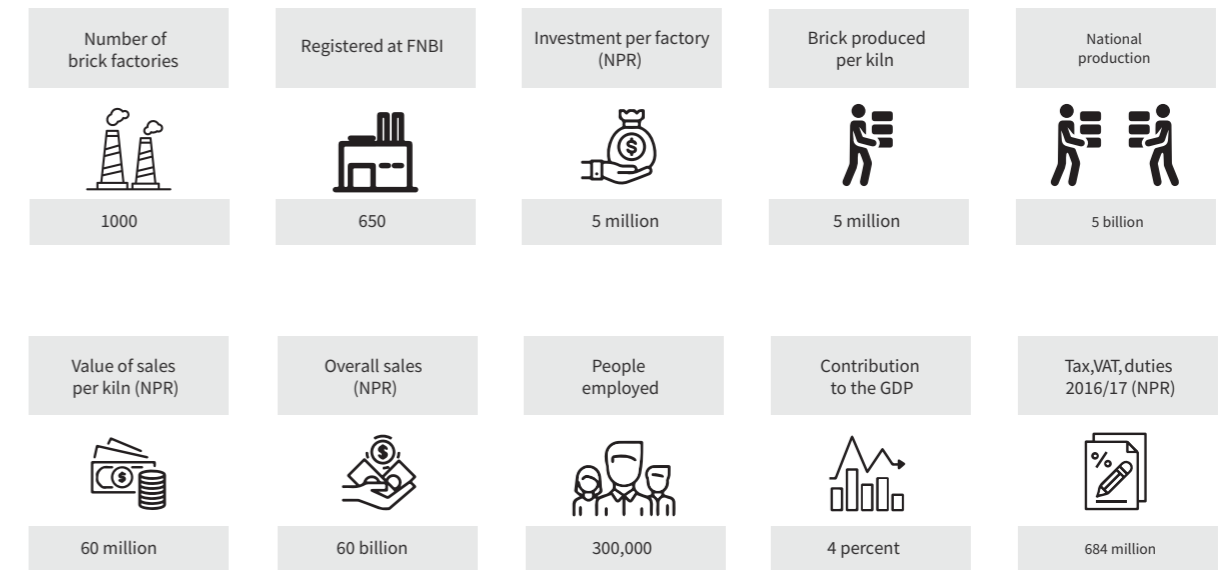
Source: Ishtiaque, Shrestha and Chhetri, 2017, p. 9.

nepotism, which means that one's access to resources and services depends on the strength of one's social network (Bista, 1991). Nepali society is divided along political and economic lines, and social hierarchy plays an important role in that. For instance, about 40 percent of Dalits were believed to be living under poverty in 2010/11 (Hatlebakk, 2017, p. 5). Similarly, while inhabitants of the Kathmandu valley are mostly non-poor (in 2010/11 the poverty rate was 11.5 percent against the national average of 25.2 percent), about a quarter of the population in the rural areas of the Terai and hill region, and one-third of the population in the rural western hills – from where a majority of manual workers find seasonal employment in the brick factories – are living under the poverty line (Hatlebakk, 2017, p. 4). Those who own industries are often urban dwellers from privileged socioeconomic backgrounds, whereas those who work for them represent the rural poor. Those from the lower strata of the society have dim prospects for upward mobility and

have to choose difficult options, such as migrating to another place or country, or working at the brick industries.

Over the years Nepal's economy has seen slow and steady growth. The country's GDP stood at about NPR 400 billion at the climax of the civil war in 2001/02, reached about NPR 1400 billion in 2010/11, and crossed NPR 3000 billion in 2017/18 (MoF, 2018). Per capita income recently crossed the USD 1000 mark. Remittances made up 26.3 percent of the GDP in the fiscal year 2016/17 (MoF, 2018). By the end of 2013/14, more than 200,000 cottage and small industries were registered with the government of Nepal including brick industries; their capital investment amounted to more than NPR 230 billion and generated about 2.2 million jobs (MoF, 2015). On the one hand, people cite lack of employment opportunities and lower wages as a factor for increasing international migration; on the other hand, migrants from India are coming to work

**FIGURE 6** CONTRIBUTION OF THE BRICK INDUSTRIES TO THE NATIONAL ECONOMY



Source: Estimation based on authors' calculations.

in sectors like the brick industry. Nevertheless, remittances have played a crucial role in lowering poverty in Nepal (The World Bank, 2016).

There is no proper research or record keeping or monitoring to gauge the brick sector's contribution to Nepal's economy. Neither the government nor the Federation of Nepal Brick Industries (FNBI) nor any research institution knows exactly how many brick factories there are in Nepal, how many bricks they send to the market annually, how much the annual turnover is, what proportion of the GDP is contributed by brick factories, and how

many individuals are employed in the brick sector. Government mechanisms such as the National Census of Manufacturing Establishments and the Inland Revenue Department (IRD), which collects income tax and VAT, merges brick factories with other sectors like tiles, and therefore exact data on brick factories is not available. Available figures are just approximations. Among the estimated 1000 brick factories operating in the country, about one-third are not affiliated to the FNBI. It is believed that some of these industries are operating without government license. With an average initial investment of more than NPR 5 million per

**TABLE 1** CONTRIBUTION OF THE BRICK INDUSTRIES TO THE NATIONAL ECONOMY

	NCME (2006-07)	Heierli (2007)	CBS (2008)	CEN (2009)	FNBI (2011) (informal source)	CBS 2014 (NCME 2011-12)	Manandhar and Dangol (2013)	Current estimates (2018)
Number of brick industries	429		429		700	606	728	1000
Annual quantity of bricks sold	872 million	4 billion	753 million	2 billion	2 billion	Not mentioned	3.2 billion	5 billion
Value of sales (NPR)			2.3 billion		14 billion	11 billion (?)	22.4 billion	60 billion
Price per brick			NPR 3.1		NPR 7		NPR 7	NPR 12
Persons employed			42,003			77,883	140,000	300,000

Source: Manandhar and Dangol, 2013; and (last column) estimation based on authors' calculations.



GREEN BRICK TRANSPORTERS USING EQUINES TO TRANSPORT STACKED GREEN BRICKS

industry, brick industries carry out transactions worth about 60 million per year, which amounts to about 2 percent of the country's GDP. A brick factory produces about 5 million bricks on an average, which makes the total national production around 50 billion. The industry generates about 300,000 jobs. The brick industry contributes more than NPR 700 million annual revenue to the government.

According to Manandhar and Dangol (2013, p. 8) and current estimates, the production of bricks has been increasing substantially in Nepal over the years. While bricks were sold at roughly NPR 3 per brick a decade back, the price had more than doubled by 2013 (NPR 7) and quadrupled by 2018 (NPR 12). As seen in the table below, this substantial increase is attributed to the 2015 earthquake and the growing demand for bricks.

### 1.3 Methodology of the study

Given the scarcity of literature on this subject, this research is largely exploratory and qualitative in nature. It lays the groundwork for future research on the social, economic and political aspects of the brick industry. It is based on informal individual interviews, direct observation and a review of secondary literature. Field trips were organized in eight districts, namely – Bhaktapur, Dhading, Lalitpur, Kanchanpur, Kathmandu, Morang, Rautahat, and Rupandehi. These districts were chosen in consultation with the FNBI, to cover factories across different provinces. Most of the informants for the interviews were people directly involved in the brick industry, such as brick factory workers, naike, managers, entrepreneurs, presidents, members, and other officials of the district brick entrepreneurs' associations. Regular

consultations were also held with FNBI officials. Interviews were conducted with both men and women workers. However, certain sections of the brick making sector are entirely male dominated (e.g., brick entrepreneurs<sup>5</sup> and firemen are always men) and some brick factories have no women workers (as seen at a factory in Rautahat); in such cases interviews were taken only with men. The study team visited a total of 21 brick industries, of which 5 each were located in Dhading and Rautahat, 4 in Kanchanpur, 3 in Rupandehi, 2 in Morang, and 1 each in Bhaktapur and Lalitpur. Additional interviews were conducted with a mayor of a municipality on the outskirts of Kathmandu, which accommodated 29 brick industries at the time of the research. Additionally, the team interviewed two INGO representatives and one NGO staff working in kilns, mainly in the Kathmandu valley and surrounding areas; a police officer based in Rautahat; two consumers in Kathmandu (one who constructed his house in 1993 and the other who was building her house in 2018); a donor agency that funds projects aimed at "improving" the brick

TABLE 2 SOCIAL NETWORKS, SECTORAL POWER RELATIONSHIPS, AND SHADOW NETWORKS

Particulars	Number
<b>Fieldwork by district</b>	
1. Dhading	5
2. Rautahat	5
3. Kanchanpur	4
4. Rupandehi	3
5. Morang	2
6. Bhaktapur	1
7. Lalitpur	1
<b>Additional formal and informal interviews</b>	
8. Municipality mayor	1
9. INGO representatives	2
10. NGO representative	1
11. Police officer	1
12. Consumers	2
13. IRD officer	1
14. Veterinary doctor	1
15. Insurance officer	1
16. Environmental researcher	1
17. FNBI representatives	4

industries; an officer from the Inland Revenue Department; a veterinary doctor who was affiliated with an NGO that worked with equines in the brick kilns; an insurance officer; and an environmental researcher who had been examining the technology and environment related aspects of brick industries in Nepal.

Almost all of these individuals and institutions were approached through the FNBI, district brick entrepreneurs' associations, or ICIMOD. In five of the districts, except the two in Kathmandu valley, the district association was first contacted and based on their time availability, a research trip was subsequently organized. Before proceeding towards the brick industries, a meeting was held with the entrepreneurs through the district brick entrepreneurs' associations. A specific number of brick factories were selected for visit only after the brick entrepreneurs agreed to participate in the research. Consent was also obtained from the workers and staff at the brick industries prior to interviews. Considering the sensitive nature of the sector and as suggested by the entrepreneurs, no interview was recorded.

### 1.4 Limitations of the study

The study is limited in a number of ways. First, the research was conducted in a limited period of time and in a very few districts. Hence the ideas captured here are not necessarily representative of all the brick factories throughout the country. Second, most of the places visited and individuals interviewed were introduced by the brick entrepreneurs or the district brick entrepreneurs' association. Naturally, there are some biases in that approach. Third, there is a huge gender imbalance in the brick sector. All brick entrepreneurs except one were men, and there were very few women brick workers. This might have also led to some biases; at the same time it reflects the nature of the sector.

## SECTION 1 | KEY TAKEAWAYS

### Introduction

#### SECTION 1.1

##### RAPID URBANIZATION AND GROWING DEMAND FOR BRICKS

The rapidly growing population in the urban spaces means that construction in these areas has been expanding. The high demand for construction has increased the demand for bricks and consequently the number of brick factories.

#### SECTION 1.2

##### POLITICAL ECONOMY OF BRICK KILNS

With respect to the brick sector, political economy could be defined as "the study of the social relations, particularly the power relations, that mutually constitute the production, distribution, and consumption of resources" (Mosco, 2009, p. 24).

#### SECTION 1.3

##### METHODOLOGY OF THE STUDY

Given the scarcity of literature on the subject, this research is largely exploratory and qualitative in nature. It lays the groundwork for future research on the social, economic and political aspects of the brick industry.

#### SECTION 1.4

##### LIMITATIONS OF THE STUDY

The study is limited in a number of ways. Hence the ideas captured here are not necessarily representative of all the brick factories throughout the country.

<sup>5</sup>The only woman brick entrepreneur in Nepal who hails from Rupandehi was interviewed for this research.



## Review of existing literature

This section presents a review of literature on the brick sector in Nepal, starting with sources that address the environmental aspects and proceeding towards those that focus on social aspects.

Existing literature on brick industries in Nepal can broadly be divided into two categories. The first includes studies that look at the environmental impacts of brick industries, analyse the GHG release, and suggest technological and policy changes to mitigate carbon and particulate matter emission. The second category focuses on the social and rights perspectives of workers in brick industries and analyses the situation of brick workers, primarily children. Most of these studies are funded by donor agencies and carried out by I/NGOs with a focus on a particular area. Some of the studies are conducted by universities but are confined to the environmental aspects of brick industries. There are both I/NGO reports and journal articles on brick industries. The ones that look into the social aspects also touch on the environmental impacts; however, publications that focus on environmental impacts do not generally address the social aspects. Additionally, analyses of environmental impacts are largely limited to the Kathmandu valley and rarely look at the impacts of brick industries outside the valley. There could be three primary reasons for that. First, the Kathmandu valley is the most urbanized area in Nepal, with brick industries existing amidst human settlements. Second, as brick industries in the country were largely concentrated in the Kathmandu valley until recently, it was logical to take the valley as the most representative sample. Third, because most of the research institutions are located in Kathmandu, it is economically and technically more feasible for them to conduct the research there. Also, there are numerous newspaper articles and news reports on the brick sector in Nepal. Nepali media generally portrays the brick industry in negative light, as a major contributor of

air pollution and a sector where human and animal rights abuse is prevalent. There is barely any news piece that explores the sector's contribution to the country's economy and to job creation.

The section below provides a review of literature on the brick sector in Nepal, starting with sources that address the environmental aspects and proceeding towards those that focus on social aspects.

Joshi and Dudani (2008) identify brick factories as leading causes of environmental (air) pollution in the Kathmandu valley. In a report submitted to the Department of Environment (DoE), SMSEE (2017) recommends that efficient technologies like zig-zag kiln (FCBTK-forced draught), tunnel kiln and HHK help reduce unburnt carbon and lessen fly ash, thereby lowering environmental pollution. The report also suggests that the government should increase pollution control standards at brick industries. In another report on the valley's air quality, submitted to the DoE in the same year, Quest Forum (2017) stresses that the built-up area in the Kathmandu valley increased from 3 to 21 percent between 1967 and 2011. The report identifies brick factories as a key contributor to environmental pollution in the valley and suggests policy changes to monitor brick industries. Some of the recommendations specific to the brick industries are: identifying and promoting alternatives to bricks; stopping new registration of brick industries inside the valley; effective taxation; promoting cleaner brick technologies; and levying tax on bricks and on coal.

I/NGO reports dominate the literature that highlights the social aspects of brick industries. According to a study conducted in 10 districts of Nepal by Gyawali et al. (2012) for World Education and Plan Nepal, children from poor families are forced to work in brick industries and are subjected to various forms of child labour that ranges from bonded labour to high-risk work. Larmer et al. (2017) also emphasise the issue of child labour inside brick factories and analyse 16 different programme interventions being carried out at brick industries to support child rescue, rehabilitation, and education. The paper recommends financing education support, promoting harm-reduction interventions, and supporting poor migrant households. GEFONT (2007a) highlights that economically deprived workers are attracted to brick industries as there are provisions of advance payment and loans. The report mentions that the lack of labour unions in brick industries make the workers vulnerable. The GEFONT study found 48 percent of the individuals

at the kilns to be 18 years and younger. However, not all of these children were working actively in the kilns; some were accompanying their parents. No cases of sexual misconduct were found in the brick industries covered by the study; this was probably linked to the overwhelming presence of women naikes and strict monitoring. The workers are bound to the employers, who pay them in advance and wield the power to withhold wages and salaries. Upadhyaya (2004) mentions that Indian workers dominate the brick industry labour force in Nepal and are recruited through brokers and middlemen; they are motivated to work because of the advance payment they receive. KC and Suwal (2013) suggest that the brick sector is likely to use forced child labour; child workers land in hazardous situations because of the weak socioeconomic background of their parents.

### KEY MESSAGES

Existing literature is divided into two categories. The first looks at the environmental impacts of brick industries, analyzes greenhouse gas release, and suggests technological and policy changes to mitigate carbon and particulate matter emission. The second category focuses on the social and rights perspectives of brick industry workers.

# Review of existing policies

This section discusses policies specific to brick industries, generic policies related to the environment and labour, and miscellaneous policies that could influence the brick industries.

There are very few policies specific to the brick industry. However, a number of policies indirectly govern the brick factories. The following section will discuss policies specific to brick industries, generic policies related to the environment and labour, and miscellaneous policies that could reflect on the brick industries.

## 3.1 Policies specific to brick industries

The following policies specifically govern brick industries:

**Minimum Occupational Safety and Health (OSH) Standards for Brick Industry Workers, 2017:** The directive sets benchmarks regarding the working hours of adult and child labourers, compensation



A FIREPERSON FEEDING COAL IN A STRAIGHT LINE KILN

for injuries, the weight they should be allowed to carry, provisions of basic amenities like drinking water, safety gear, medical support, living rooms, canteen, temperature and sound regulation, personal hygiene, etc.

**Standard on Chimney Height and Emission for Brick Kiln Industry, 2007:** For FCBTK natural draught (straight line), the maximum particular emission standard has been set at 700 mg/Nm<sup>3</sup> and the minimum height of the chimney should be 30 metres. For FCBTK forced draught (zig-zag), emission standard is 600 mg/Nm<sup>3</sup> and chimney height should be at least 17 metres. For VSBK, the numbers are set at 400 mg/Nm<sup>3</sup> and 15 metres respectively.

**Nepal National Building Code (NBC) 2015:** The minimum brick size for machine-made bricks is 24.0 cm x 11.2 cm x 5.7 cm, with a tolerance of ± 3mm in each direction and compressive strength of at least 3.5 N/mm<sup>2</sup>. The tolerance and compressive strength for non-mechanised bricks are the same except for the dimension, which stands at 22.9 cm x 11.2 cm x 5.5 cm.

## 3.2 Environment-related policies

Environment policies specifically related to delete brick industries are:

**Environment Protection Act 1997 and Rules 1997:** Brick industries that produce more than 20 million bricks per year need to conduct an Environmental Impact Assessment (EIA). Industries producing less than that are required to conduct an Initial Environmental Examination (IEE). Similarly, the MCBTK (movable chimney) were deemed illegal in 2009 by the Industrial Promotion Board. For technology except VSBK, a one kilometre radius was set as the minimum allowable distance between the forest and the brick factory.

**National Ambient Air Quality Standards, 2012:** This document set particulate emission standards for industries; these standards are flexible compared to the WHO standards.

For instance, while the WHO emission standard for PM<sub>10</sub> is 50 per day, the national standard is 120.

**Nepal Climate Change Policy, 2011:** The policy advocates the promotion of cleaner energy sources and reduction of carbon emission.

## 3.3 Labour-related policies

There following policies related to labour apply to brick enterprises:

**Labour Act, 1992 and Rules, 1993:** The Act aims to promote labour safety and security by specifying rights and privileges, working hours, remuneration, and occupational safety and health measures, among others. The Rules specify the maximum weight that a worker can carry (55 kg for adult male and 45 kg for adult female). As per the Rules, it is mandatory for the industry owner to pay compensation for work-related accidents and deaths. The Act and Rules were used as a benchmark to devise the Minimum Occupational Safety and Health (OSH) Standards for Brick Industry Workers, 2017 discussed above.

**Bonded Labour (prohibition) Act, 2002 and Rules, 2010:** This law was passed with the aim to free bonded labourers, including Kamaiyas; it envisions the elimination of all forms of bonded labour from Nepal and the abolition of the practice of employing workers without pay or with insufficient pay.

**Child Labour (Prohibition and Regulation) Act, 1999 and Rules, 2006:** The Act and Rules state that no child below 14 years of age should be engaged in any work as a labourer, and a breach could result in the imprisonment of the employer for up to three months or a fine of up to NPR 10,000 or both. There is also a monitoring system where officials from the Labour Office can inspect industries. To serve the best interests of the child, the policy also requires that the employer provide minors (14 years and under) access to educational facilities.

**Labour and Employment Policy, 2005:** The Policy sets labour and employment standards for both formal and informal enterprises as per ILO standards, and seeks to ensure equal access to employment for different social groups.

### KEY MESSAGE S

There are very few policies specific to the brick industry. However, a number of policies indirectly govern the brick factories.

### 3.4 Other policies

The following policy instruments pertain to the brick sector, though not directly:

**Industrial Enterprises Act, 2016:** The government of Nepal regards industries as one of the primary forces for the country's economic development. As a result, the earlier Industrial Enterprises Act, 1992 was recently replaced by a new Act. The previous Act defined small industries as those having fixed assets of up to NPR 30 million; the new Act has increased that figure to NPR 100 million, making it more difficult for the brick industries to "graduate" to the medium- or large-scale ranks. To incentivise pollution free technology, the Act allows reduction of up to 50 percent in the taxable income if such money is used in adopting technologies that lessen industrial pollution or for entrepreneurship development, research and technology related initiatives.

**Industrial Policy, 2010:** The new Policy replaced the old one that had been in place since 1992 and aimed to promote industrial growth in the country. It adopts a flexible "no pay for no work" policy and promotes special economic zones (SEZ).

**Land Use Policy, 2012:** The government has adopted plans to lessen land abuse by allocating six specific zones for particular purposes – agricultural area, residential area, commercial area, industrial area, forest area, and public use area. The zoning of industries would make sure that they do not encroach upon the other areas and vice versa, thereby enabling industries to operate independently in their own pocket areas.

**Value Added Tax Act, 1995 and Rules, 1996:** The VAT Act sets the rate of tax levied on all brick industries at 13 percent. Taxpayers who do not submit their monthly revenue and cross the time limit are subjected to an annual fine of 10 percent.

**Excise Duty Act, 2002 and Rules, 2003, and the 10th Amendment to the Rules, 2009:** After all the brick industries are brought into the VAT system, they are not supposed to pay excise duty. However, if some brick industries pay VAT less than the excise duty mark of NPR 150,000, they need to pay the extra amount in the form of excise duty.<sup>6</sup>

**Animal Welfare Directive, 2016:** The Directive makes animal welfare and care mandatory for hazardous conditions and mentions that no animal should be made to work for more than eight hours a day, and be given proper diet and rest. It also

sets standards for animal shelter and specifies that female animals be given special care and protection.

**Local Self Governance Act, 1999:** Although the newly restructured state mechanisms and policies governing them are still taking shape, the 1999 Act allows local governments to devise various programmes for environmental protection, and promote small- and medium-scale industries locally. The decentralised state mechanism should now allocate more responsibilities to the local governments.

<sup>6</sup>Data received from the IRD for the fiscal year 2016/17 suggests that the brick and tile industries paid an excise duty of NPR 4,120,097.

#### SECTION 4

## Political economy at the kiln level

This section analyses the political economy of the brick sector at the kiln level. The unit of analysis here is the individual – the brick worker.

#### KEY MESSAGES

Power dynamics and economic relations at the kiln level, i.e. between the makers and sellers of bricks, are influenced by the actors involved, the labour recruitment process, the bargaining power of workers vis-a-vis the naike and the owner, the push and pull factors that bring the worker to the kilns, and the living and working conditions in the brick factories.

The key actors involved at the kiln level include kiln workers, naike, munsu, factory managers, dispute settlers, and brick factory owners.

Brick making involves various processes, from preparing clay, to moulding raw green bricks, to dispatching baked bricks for consumption. The section attempts to capture the power dynamics and economic relations between the makers and sellers of bricks. The section is divided into five sub-sections – the actors involved; the labour recruitment process; the bargaining power of workers vis-à-vis the naike and the owner; the push and pull factors that bring the workers to the kilns; and the living and working conditions in the brick factories.

### 4.1 The actors involved

**Moulders ('pathera'):** Generally, pathera are responsible not only for moulding clay dough to the shape of bricks, but also for preparing the clay dough from dry mud that is either dug from the field or brought near the moulders' 'jhyauli' by trucks/ tipper trucks. A jhyauli is a tiny temporary shelter for moulders with only enough space for a family to sleep and cook. It is often made of green/raw bricks, which are taken away for baking at the end of the season after the moulding period is over and the pathera return home. Pathera are seldom provided permanent structures to live in. This is primarily because moulding is done on leased land and the owners cannot build permanent structures there. In some mechanised brick industries, machine-made clay dough is transported to the pathera's jhyauli where they just have to mould, dry, and stack. Free accommodation, albeit of very poor condition, was cited as one of the key reason, why pathera and other kiln workers come to work at brick industries for about half a year. Pathera come with their families, often with their spouse and small children. For this reasons the male to female ratio among

pathera is almost 50/50, except at a few factories (e.g. in Rautahat) that employ exclusively male workers. The pathera earn their wages based on the number of bricks they produce. A family of pathera makes about 1000–4000 bricks per day depending on the family size. Some highly mechanised industries do not employ pathera or employ them partly while brick moulding machines prepare the bricks. In such factories, only a few workers are employed to operate the machines. The dried green bricks are transported to the chimney by green brick transporters.

**Brick transporters/porters ('reza'):** The dried green/raw bricks that are stacked near pathera's jhyauli are taken to the chimney by the reza, who could be male or female. Later, after the bricks are baked, they carry them for storage or for dispatch. While carrying bricks involves a lot of drudgery, it is a job that requires physical strength rather than technical skills. Reza are paid at a fixed rate per 1000 bricks transported and on the basis of the distance from where they fetch the bricks. Reza in Dhading and Rautahat mostly carried bricks on their heads or on their backs using a strap for support. In other districts, they used cycles, rickshaws, and wheelbarrows. In brick factories that we visited in Morang, no animal was used as the owners were determined to make the factories "animal and child labour free" and had provided the reza with rickshaws and wheelbarrows to reduce the drudgery. However, not all owners were equally sensitive everywhere and the reza too had their own ways of making their task less strenuous.

**Animals and their owners/caretakers:** Horses, mules, and donkeys work at brick factories as brick transporters. Animal owners use animals as well as employ caretakers to load and unload bricks and steer the animals. Equines at brick kilns carry about 40 bricks per trip on their backs (mostly donkeys and mules) or pull carts loaded with about 200–300 bricks (mostly horses and mules). Their pay depends on the distance they cover while carrying bricks. Such rates are fixed at the start of the season in the presence of the animal owners' naike and the brick kiln owner. Most of the animals are brought in from Uttar Pradesh (UP) in India and Nepalgunj. The Kasgar community is known for raising and

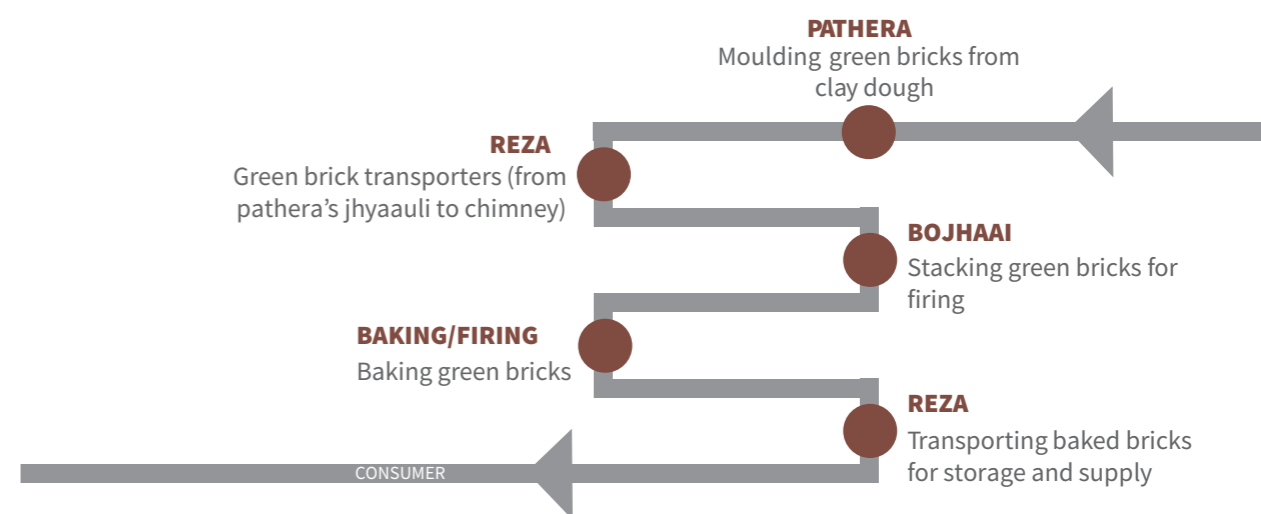
trading equines.<sup>7</sup> Also, at the Barabanki fair in Uttar Pradesh (India), many equine owners go and buy the required number of horses, mules, and donkeys.<sup>8</sup> An international organization named Donkey Sanctuary is working in collaboration with Animal Nepal to improve the health and working conditions of equines in some brick factories in Nepal. However, animals at the brick industries are largely ignored. Only the owners and caretakers take care of the animals. There aren't many veterinary doctors outside the Kathmandu valley and government appointed doctors do not have enough time to attend to sick equines. As a result, several animals at brick factories die every brick-making season. According to one report from the Donkey Sanctuary, an overwhelming 21 equines died in one single kiln due to lack of animal care.<sup>9</sup>

**Stackers:** After the reza bring dry green bricks to the kiln, the stackers arrange them for baking. Unlike pathera and reza, stackers are exclusively male. Female reza are unheard of, probably because they are not trained to stack green bricks. Stacking (colloquially: 'bojhaai') is considered to be a highly skilled job as the straight-line and zig-zag system each involves a specific type of arrangement. Some of the stackers interviewed for this research had learned stacking in Kolkata, India, some in Kathmandu, and others at the kiln they were working at. Some stackers had also "promoted" themselves to stacking after working as a reza for some time. The reza pass green bricks to stackers, so they might acquire stacking skills in the process. Stackers are either salaried or paid at a rate of per 1000 bricks stacked.

**Coal grinders and transporters:** In the modern zig-zag chimney, coal is used for baking bricks instead of wood, which is used primarily in straight-line kilns. Coal brought from India, Indonesia, the Philippines, and the US is then finely crushed using grinding machines that operate both on diesel and electricity. Coal transporters refill the pulverized coal in containers near the feeders, which are used by firepersons to burn bricks. Like stackers, coal transporters are also exclusively men.

**Firepersons:** Firepersons specialize in baking green bricks. Their role at the kilns is very

FIGURE 7 MAIN STEPS IN THE BRICK MAKING PROCESS



important as they need to be watchful 24 hours a day and throughout the season to maintain optimal temperature inside the kiln for baking bricks. The firepersons and coal transporters act as a team and have the same naike. As firepersons are exclusively male, this working paper often refers to them as firemen.

**Dust transporters:** There are workers assigned to manage the orange dust that rise from the baked bricks. The dust workers do two major tasks. First, they remove excess dust from the chimney area after the baked bricks are taken out, and second, they help layer the orange dust above the stacked green bricks for insulation before baking.

**Machine operators:** Only a few brick industries in Nepal have machines to produce clay dough or mould bricks. Most of the sophisticated technology is used in tunnel brick factories that require minimal human resources. Machine operators learn their skills through the owners who invite mechanical engineers to introduce and install new technologies.

**Vehicle drivers:** Within the kiln, vehicle drivers either transport machine-made clay dough and deposit near the jhyauli for moulding, or help in transporting green bricks for baking, or carry baked bricks for supply or storage. Vehicles are rarely used inside brick industries as most of the work is done manually. Tractors, trucks, tipper trucks, and electric auto-rickshaws operate within the kiln.

**Naike:** Naike are supervisors who act as an important bridge between workers and owners. They are known by different names in different localities. For example, the term naike is used in the Kathmandu valley and nearby hill districts; 'sardaar' is used in central Terai districts, 'thekedaar' in eastern Terai districts, and 'meth' in western Terai districts. There are separate naike/sardaar/thekedaar/meth for each labour category, be it pathera, firepersons, or reza. On the one hand, naike ensure that the owners are regularly supplied with labourers who regularly work for the entire season and do not drop out in the middle. On the other hand, naike also ensure that the grievances of workers are addressed in time, workers regularly receive their grocery allowance, are paid satisfactorily at the end of the season, are given advance payment when they need it or at the end of the season so that they come back during the next season, and are given leaves once in a while or during emergencies. Some naike, like those who connect brick entrepreneurs to animal owners, do not necessarily stay at brick factories throughout the season, while all other naike, like the naike for firemen, closely monitor their activity throughout the day. A naike supervises and oversees a number of workers, from a handful (for pathera) to several dozens (for reza). Generally, the naike are men, but there are also women naike managing the pathera. Also, the wife of a naike working for her husband, colloquially known as 'naikeni', helps deal with the grievances of female workers. As brick factories are growing all over the country, some workers can

<sup>7</sup>Pandey, S. (2013, December 6–12). Beasts of burden. *Nepali Times*. Retrieved from <http://nepalitimes.com/article/Nepali-Times-Buzz/donkey-sanctuary-retirement-home-kathmandu,939>

<sup>8</sup>The Donkey Sanctuary. Barabanki equine fair. (n.d.) Retrieved from <https://www.thedonkeysanctuary.org.uk/what-we-do/issues/donkeys-and-livelihoods/barabanki-equine-fair>

<sup>9</sup>Donkey Sanctuary. (2018, June 11). Brick kilns of neglect in Nepal. Retrieved from <https://www.thedonkeysanctuary.org.uk/news/life-and-death-in-nepals-brick-kilns/brick-kilns-of-neglect-in-nepal>

eventually “graduate” to the naike position and start bringing in and supervising workers under them. Naike, in addition to receiving a salary, are generally paid a lump sum or receive commissions based on the productivity of the workers they supervise. For this reason, both the naike and the worker have an incentive to produce more and thus have to deal with more physical drudgery.

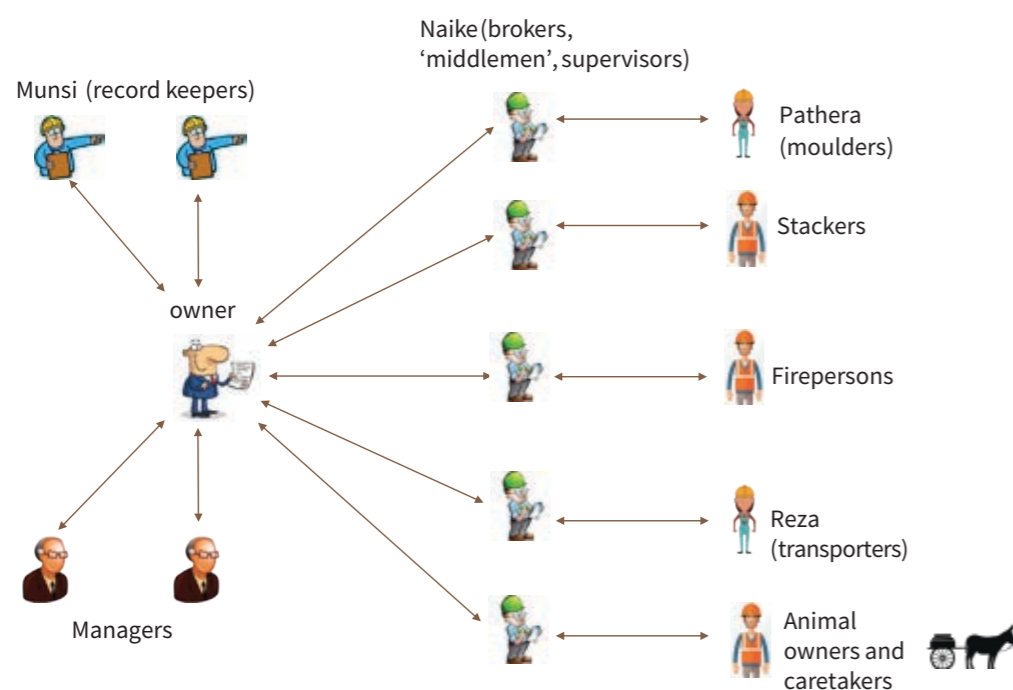
**Munsi:** The ‘munsi’ keeps a record of worker productivity and deals with financial matters at brick factories. There is a double record keeping system at brick factories where workers are given log-books or capsules to document their work/earnings. Every week or every ten days when the workers are given a day off, they reach out to the munsi and check their records. The final calculation of the earnings is generally done at the end of the season. The munsi also keeps track of the advance payment that workers have received, the weekly allowances for groceries, payments that the factory made when workers suffered serious injuries, etc., and deduct these while paying them at the end. However, records maintained for internal auditing of the brick factory differ from the ones used for tax purposes. The latter is doctored in order to show lesser annual sales and turnover, while the former represents the actual transactions within the factory. No woman munsi was encountered during this research.

**Factory managers:** In every brick factory, there are a few managers, also men, who help the owner to get the business going. Factory managers are generally family members, relatives, or close acquaintances of the owner. They look after the daily functioning of the factory and make sure that everything runs smoothly even when the owner is not around. The factory managers may also eventually start their own brick factories after getting ample experience and accumulating required funds.

**Dispute settlers:** In addition to the aforementioned actors, there are dispute settlers, often groups of local men, who come and intervene in disputes within the factory or with outsiders. While these individuals are not necessarily affiliated to the brick factory, they work in close collaboration with the factory owner and receive a certain sum of money as remuneration or “contribution”.

**Brick factory owners:** Brick factory owners, almost always men, are businesspersons with ample property and funds who run the factories for profit. Brick entrepreneurs do not necessarily confine themselves to managing their industries. Many of the brick entrepreneurs we talked to were affiliated to various political parties; some had vied in the 2017 election at local, provincial, and federal level; and some had also won the elections. That way they were able to accumulate political power and diversify risks.

FIGURE 8 MAJOR ACTORS INSIDE THE BRICK FACTORY



The following table provides the estimated numbers of individuals working at the brick factories (Brun, 2013, p. 5). On an average, almost 300 individuals and 20 animals work at one brick factory.

## 4.2 Labour recruitment process

Labour is recruited mostly through social networks. New entrepreneurs who have recently established brick factories use their social network – mostly those already managing brick factories – to get in touch with a naike. An entrepreneur in Kanchanpur said that in addition to a huge sum of money to start an establishment, it takes multiple years for a novice to understand the technicalities involved in managing brick factories and to build networks. Similarly, naike, who act as intermediaries between brick entrepreneurs and workers, also use their social networks to recruit workers. A naike at a brick factory in Dhading mentioned that many of the 120 brick transporters whom he was supervising in two nearby kilns were mostly from his village in Rolpa and primarily Dalits. Being a Dalit himself, the naike found it easy to convince people within his network to work at the two factories. The other workers were friends and relatives of his neighbours and hailed from Rolpa, Rukum, Salyan, and Dang; they had been looking for seasonal work. As work

in brick industries is seasonal, workers stay at the factory for about six months. Most of the Nepali workers said they return home after the brick-making season and resume farming or other work during the rest of the year. Many Nepalis from farming households with a history of migrating to India during the off-season now work in brick factories in the urban areas of Kanchanpur, Rupandehi, Dhading, and Kathmandu. The decade-long conflict exacerbated the rate at which workers were migrating out of their villages. While those from the better-off households migrated abroad and used their incomes to build houses in urban and peri-urban areas of Nepal, workers from economically deprived families had to migrate to various parts of Nepal and India to work as wage labourers. With the rise of brick industries, it is natural for these migrant labourers to come and work at the kilns. Similarly, many Indian workers, primarily pathera and firemen, go to Kashmir in India and continue working in brick industries as monsoon rains in Kashmir are less heavy and brick industries run during summer because of extremely cold winters.

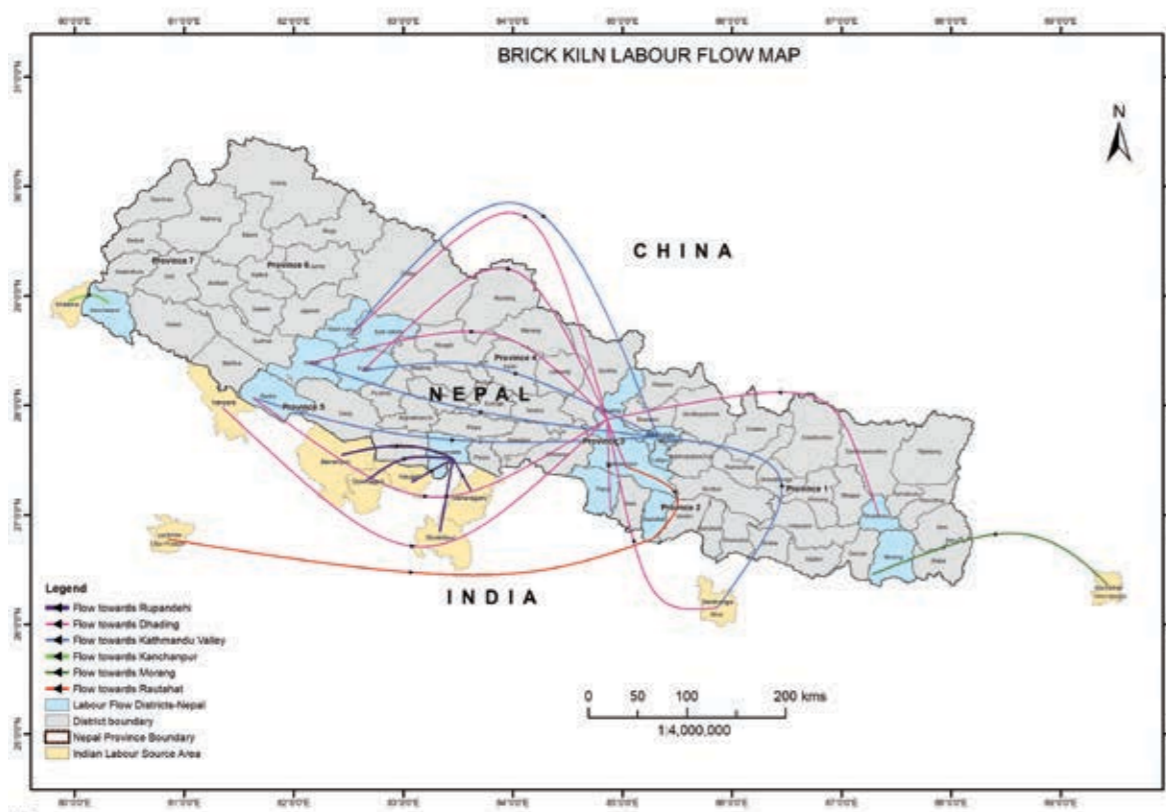
The following map (Fig 11) shows the use of social networks and traces the flow of migrants from various origins to the brick industries. Workers from hilly areas mostly work in other hilly areas near the Kathmandu valley or within the valley itself. For instance, brick transporters in the valley and Dhading hailed mostly from Rukum and Rolpa, both hill districts. The brick industries in the Terai are dominated by Indian workers, who also come from specific pocket areas across the border. For instance, an overwhelming majority of workers in Morang had come from Cooch Behar, north-east India. A detailed analysis of labour flows from within Nepal and from outside would be interesting not just for policy interventions, but also to help migrants get better services both at the destination and origin.

As the brick industry is an informal sector, recruitment of brick workers is non-contractual. Workers are neither given a formal contract, nor do they ask for one. This puts both the workers and employers at risk. From the perspective of workers, employers may refrain from providing them assistance when needed – e.g., in the event of a workplace accident. From the perspective of employers, they cannot file a legal complaint against the workers if they run away from the kilns or flee

Position	Average number	Range of workers
Brick moulders (pathera)	60 families (180 individuals)	40–90 persons
Green brick porters (reza)	50 persons	30–90 persons
Donkeys, horses and mules	20 animals	0–40 animals
Donkey caretakers and drivers	15 persons	0–35 persons
Stackers	8 persons	5–12 persons
Firepersons	4 persons	4–6 persons
Coal transporters	2 persons	2–3 persons
Dust carriers	3 persons	3–5 persons
Baked brick porters (reza)	25 persons	15–50 persons
Office workers (munsi and managers)	10 persons	
<b>Total</b>	<b>297 persons and 20 animals</b>	

Source: Brun, 2013, p. 5.

FIGURE 9 LABOUR FLOW INTO BRICK FACTORIES IN NEPAL



Map: Sunil Thapa, ICIMOD.

with advance payment. The situation becomes even trickier when the workers come from India as their whereabouts would be more difficult to trace compared to the Nepali workers. Also, there are additional legal provisions for employing Indian and Bangladeshi workers. Some brick factories, however, had devised their own system of documenting their workers and ensuring mutual trust between the workers and the employer. A brick factory in Rupandehi, for instance, had reportedly employed an overwhelmingly high number of Nepalis (95 percent) and all of them had to submit a copy of their citizenship certificate to the managers. Although this is not a formal system of contract, this helped the workers and naikes to negotiate better, if needed. Furthermore, the factory in Rupandehi had provided workers with better amenities for accommodation and work. The industry was also declared child labour free and had provisions for daycare and schooling. As employee satisfaction was higher, the industry was able to retain workers for multiple years with a very few cases of fleeing. However, such best practices represent the exception rather than the norm.

The naike's relationship with the owner is more formal as they generally, though not always, have some documentation that serves as a contract. Naikes take a large sum of money as an advance from the owners to distribute to workers; the goal is to motivate workers to return to the factory in the next season. Some naikes run away with the money they take at the end of the season promising to bring a certain number of workers in the next season. A Dhading-based employer said that one naike took NPR 1.2 million from him and never returned. The naike had taken the money promising to provide workers during the off season so that they could return to the same employer in the following brick-making season. All owners generally make such advance payments to the naikes and the workers. In addition, the brick sector is run mostly on trust. As an entrepreneur from Morang said, the industry is a "biswas ko business" (business run on trust). He stressed that there is no point suspecting that the worker or naike might run away with the advance payment. If they are not given the money, it is highly unlikely that they would return in the subsequent brick-making season. Therefore, entrepreneurs have to take the risk. Most workers, having

received advance payment, tend to go back to work. However, the practice of taking advance payment makes the worker bound to the employer and less able to bargain for timely and regular pay. As one pathera from Rautahat said, he could not ask for his wages because he had taken advance payment in the previous season. He would have to wait for five to six months to receive his wages. Given that brick workers come from very poor economic backgrounds, they often use the advance payment to pay off debt. In fact it is to escape the debt trap and poverty that many leave their home and migrate to distant towns and cities. While advance payment is a very good way to attract workers, it puts them in a precarious situation. If they had access to banking or financial services, they could have deposited their daily wages in a bank and earned an interest at the end of the season.

### 4.3 Bargaining power

Both the labourers and kiln owners heavily depend on the naike. As a result naikes have strong bargaining power. Also, their income is far higher than that of the labourer. A naike in Dhading said that he gets a commission of NPR 30 for every 1000 bricks carried by a brick transporter (from the kiln to the trucks) working under him. He had 120 such workers working at two nearby factories. While a worker would earn NPR 330 per 1000 bricks and has the capacity to carry about 2000 bricks, thereby earning about NPR 660 per day, the naike may earn NPR 7200 per day (NPR 60 for 2000 bricks carried by one worker multiplied by 120 workers). Additionally, he mentioned that he earned a salary of NPR 8000. This is a huge disparity in payment. Regarding this, a brick kiln owner from Dhading said that an entrepreneur cannot manage hundreds of workers; it is much easier to deal with one naike

The recruitment of brick workers is non-contractual. Workers are neither given a formal contract, nor do they ask for one. This puts both the workers and employers at risk.



TWO GREEN BRICK TRANSPORTERS RUSH TO FETCH BRICKS TO BE TAKEN TO THE FURNACE FOR BAKING, KANCHANPUR

who has several workers working under them. Even workers do not directly approach the owner and like to go through the naike if they have grievances. This places the naike in a politically superior and strategically important position.

Many things affect workers' bargaining power at the brick factories. The higher their bargaining power, the better their remuneration. A major determinant of their bargaining power is how the workers have reached the kilns. As mentioned above, many workers are taken to the kilns by the naike, while others reach there on their own. Some of the workers interviewed said that those who come to the kiln through the naike have higher bargaining power than those who come directly. The naikes act as a bridge between the worker and the owner; the worker can bargain with the naike, who in turn would bargain with the owner on the worker's behalf. Some of the owners go to villages during the off-season and pay potential workers a certain sum as an advance so that they come to the brick factory in the following season. These workers reach the kilns without a naike. The owners are generally unapproachable to the workers; therefore, the workers cannot raise their concerns with the owners directly. Moreover, many workers live with their family including small kids, so they cannot easily leave the factory. This reduces their bargaining power. At the same time their spouse and children can also help them with brickmaking work, which is an advantage. A family at a kiln in Kanchanpur, for example, moulded about 4000 bricks in a day. The kiln had employed 25 Muslim families from India and altogether they produced 100,000 bricks per day. None of the children from those families went to school, primarily because of the language barrier, and instead helped their parents produce bricks.

**TABLE 4 ANALYSIS OF BARGAINING POWER**

What increases bargaining power?	What decreases bargaining power?
Broker as the recruiter	Coming to the factory on their own
Documentation or other written contracts	Verbal contract
Skills (e.g., firemen, stackers, moulders)	Lack of skills
Experience	Lack of experience
No advance payment	Advance payment
Working family members	Family with minor children

Similarly, if workers come with a certain skill set, they are in a stronger position. Firing is considered to be one of the most skilled jobs at brick industries along with stacking. These are salaried posts where payment doesn't depend on the amount of bricks they deal with. Until recently, Nepalis preferred not to work in extreme heat, and an overwhelming number of firepersons were Indian. In contrast, the task of transporting green and baked bricks is considered to be an unskilled job. Workers' previous experience also increases their bargaining power. The longer one has worked in the brick-making sector, or with the same owner, the stronger their relations with the owner and the higher their ability to ask for better remuneration. When the naike brings more skilled and experienced workers, they also get a higher commission. As mentioned earlier, the workers take advance payment – anywhere up to NPR 50,000 – from the owners at the end of the season, promising to return it in the subsequent season. Many of them do not receive regular payment and instead collect their accumulated wages at the end of the season. They therefore cannot leave the factory at their will. This creates a kind of bondage that cannot easily be broken. On the surface the arrangement appears financially more secure for the worker and creates an incentive for them to work at the factory, but this puts them in a powerless position, especially during emergencies.

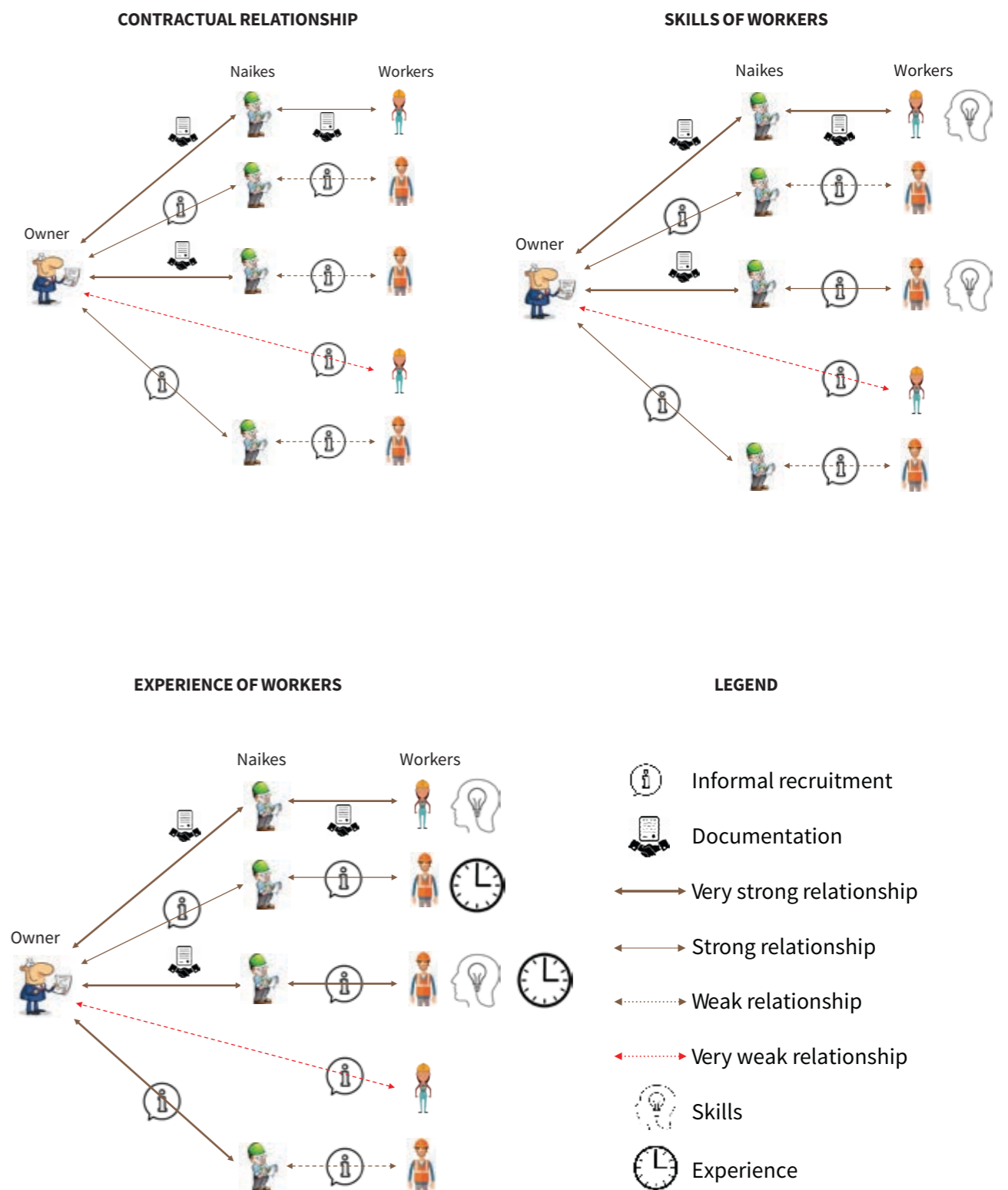
#### 4.4 Pull and push factors

Workers are aware of the drudgery involved in brick making and the poor living and working conditions at the factories, but they keep coming back to the kilns. One of the biggest motivating factors, as mentioned earlier, is the advance payment they

receive. They can save the money for future or use it to pay off loans or even start their own micro enterprises. However, even considering the amount of money that a labourer makes at the end of a brick making season, the human cost involved (e.g., drudgery, occupational hazards) is very high. Some of the tasks involved in the brick making process are so demanding that some workers would rather forgo the wages than carry out such work. This is especially true for Nepali workers. For instance, brick transporters from Rukum and Rolpa said that they cannot work as brick moulders despite the latter making more money because they have to get up at odd hours (sometimes 2 am) and work. An entrepreneur from Rautahat also supported this: “Workers from Rolpa and Rukum do not come to work here because it is too hot here.” A KBEA member mentioned that they have not actively looked for workers and depend on whoever comes looking for work or whoever the naike brings. Some naike do not bring workers to Morang because the kilns there are bigger than in most other places, and consequently the work is more strenuous. In the experience of entrepreneurs, Indian workers demand less than their Nepali counterparts. An FNBI board member who also owns a brick factory suggested his preference for the Indian workers: “Indians are hardworking compared to Nepalis. Nepali workers tend to go abroad for foreign employment because they think there is easy money there.” There could be three possible reasons why Indian workers are preferred in the Nepali brick sector: one, the open border between Nepal and India makes the movement of workers relatively hassle free; two, as cross-border migrants Indian workers have no political support system in Nepal and are hence less demanding; and three, the remuneration they get and other subsistence facilities like sanitation and health services are better in Nepal than in their villages, so they are satisfied with what the employer offers them. A group of Indian baked brick transporters in Dhading mentioned that the owner had “provided them with everything” and they had no problems whatsoever, while some Nepali workers in the same factory demanded clay-dough making machines for moulding, drinking water facilities, and educational support programmes for their children.

Brick making is seasonal work. Workers return home after working for about six months and use their earnings to meet subsistence needs or engage in other livelihood activities such as farming. In many Nepali societies, migrating for seasonal work is not just an important livelihood strategy, it is also a part of their culture (Thieme, 2006). In

**FIGURE 10 ANALYSIS OF RELATIONSHIPS AND BARGAINING POWER**



the past men mostly migrated to India during the agricultural off-season, but now many of them work as seasonal labourers in brick industries across Nepal. An increasing number of women have started joining the brick industry workforce. Those who go to work in brick factories mostly come from poor and disadvantaged backgrounds and lack the means to access loans. They work at brick factories, make some money, and use it to migrate abroad. Some women brick workers who hailed from the western hills of Nepal mentioned that they came to brick kilns in the Kathmandu valley and Dhading because they could access better health facilities there. Unlike other sectors, brick kilns provide on-site accommodation and access to basic amenities, which could otherwise be a drain on a worker's earnings in urban areas. According to one news report, some workers had joined the brick industry wanting to experience Kathmandu but were considering not coming back because of the drudgery.

#### 4.5 Living and working conditions

Living and working conditions are crucial for worker productivity. As an entrepreneur in Morang said: "Labourers are the most important asset at a brick factory. To retain them, we are paying them more and providing them with facilities." However, because brick making is a money-making business, brick entrepreneurs, naikes, and workers are primarily concerned with earning more, and living and working conditions are generally not given much importance. Although most entrepreneurs claim that they are investing a lot to ensure workers' satisfaction, workers are generally unhappy with their remuneration, living conditions, and lack of facilities for their children's education. It was alarming that most of the workers in brick factories throughout the country were either not provided proper safety gear or preferred not to use them saying they worked much faster when they were not using them. Only a few brick factories, mainly in Morang and Rupandehi, had provided workers with safety gear and relatively adequate living and working facilities. Entrepreneurs at these factories seemed proactive both in providing facilities to their workers and in introducing newer technologies. However, these two things are not necessarily correlated, as there are entrepreneurs who have introduced highly sophisticated technology in their factory but done very little for their workers.

Even if some entrepreneurs want to provide better living conditions, they cannot actually do so. Much of the land around the brick factory is used by pathera for making, drying, and stacking raw bricks. Entrepreneurs generally lease this land from landowners as brick making is a seasonal enterprise and the same land can be used for agricultural purposes when the brick factory is not in operation. For landowners, leasing out land to brick entrepreneurs is more lucrative and hassle free than farming. However, some brick factories in Rupandehi and Morang have built day-care centres and permanent houses for some workers on the factory premises. Even the temporary structures they have built for other workers were better managed compared to the factories elsewhere. Some entrepreneurs have chosen to introduce other forms of incentives at the industries. Highlighting the need for life insurance, a member of the MBEA said that "about two to three brick workers die every year in Kanchapur district." The member suggested that insuring workers could be a good way to mitigate the loss to some extent. However, it should be noted that with better living and working conditions, deaths and accidents at brick industries can decrease drastically. The owner pays for the treatment of minor accidents and illnesses like cuts and bruises or fever, but if workers suffer serious injuries, the entrepreneur provides the money for treatment but deducts it from the workers' accumulated wages at the end of the season. This is against the labour policy, which specifies that occupational hazards should be compensated by the employer. But since brick making is an informal economy that is hardly monitored by the governmental and non-governmental sector and trade unions, workers who are not aware of their rights are left to fend for themselves. Neither entrepreneurs nor workers seem to be taking any step towards increasing occupational safety. This makes workers more vulnerable in the long run.

Most of the brick entrepreneurs said raksi (alcohol) is a major problem at the kilns. At a brick factory in Rautahat, when the research team was talking to a brick moulder, the owner came and told the research team that the worker drank too much alcohol and therefore could not do well. The worker's wife then came out and strongly opposed his statement. She said that her husband did not drink alcohol at all; rather, it was the owner who neither paid the workers on time nor provided them with basic amenities like drinking water and electricity. Her major concern was that their

children, who were playing in the mud, were not able to go to school; she believed that the owner should have made arrangements for their education. Later, the owner said that he would work towards ensuring the children's education and improving the working conditions at the factory; he added it would take some time as such provisions require a lot of money.



A BRICK WORKER POSES FOR A PHOTO AT A BRICK FACTORY

#### SECTION 4 | KEY TAKEAWAYS

### Political economy at the kiln level

#### SECTION 4.1

##### THE ACTORS INVOLVED

A range of actors – from brick kiln workers, brick factory owners, and brick federations and financial institutions – are involved at the kiln, local and national levels.

#### SECTION 4.2

##### LABOUR RECRUITMENT PROCESS

Labour is recruited mostly through social networks. New entrepreneurs who have recently established brick factories use their social network – mostly those already managing brick factories – to get in touch with a naike (supervisor).

#### SECTION 4.3

##### BARGAINING POWER

If workers come with a certain skill set, they are in a stronger position to bargain. For instance, firing and stacking are two of the most skilled jobs at brick kilns and command salaried positions.

#### SECTION 4.4

##### PULL AND PUSH FACTORS

Workers are aware of the drudgery involved in brick making and the poor living and working conditions at the factories, but they keep coming back to the kilns. One of the biggest motivating factors is the advance payment they receive.

#### SECTION 4.5

##### LIVING AND WORKING CONDITIONS

Because brick making is a money-making business, brick entrepreneurs, naikes, and workers are primarily concerned with earning more, and living and working conditions are generally not given much importance.



# Political economy at the local level

This section analyses the political economy at the local level and takes the individual or the institution as the unit of analysis. It examines the interplay between the brick factory and the neighbourhood, local government, government authorities, and others.

The section is divided into five sub-sections: actors involved at the local level; the role of brick factories in the promotion of the local economy; conflict of interest between the factory and neighbourhood; between the factory and state authorities at the local level; and among brick entrepreneurs themselves.

## 5.1 The actors involved

**Brick factory owners:** In addition to owning brick factories, brick entrepreneurs are also involved in other businesses, mostly real estate, and are affiliated to political parties. While the former (real estate) is a means of diversifying risks, the latter (party affiliation) represents a defining feature of Nepali society, where politics has penetrated every aspect of life. Moreover, being affiliated to a political party brings political and economic privileges too.

**Brick entrepreneurs' association:** The factory owners have formed associations at the local (district, zonal, provincial) level – e.g., Rautahat Brick Entrepreneurs' Association (RaBEA), Koshi Brick Entrepreneurs' Association (KBEA); and the proposed Province 5 Brick Entrepreneurs' Association (P5BEA) respectively. Such associations are established to “protect the rights and benefits” of the entrepreneurs and collect levies from the member factories. Entrepreneurs get affiliated to the district associations and the district associations come together to form the only national association, the FNBI. However, not everyone is affiliated to

such associations. In Rautahat district, for instance, nearly half of the 133 brick industries were not registered with the RaBEA and hence not affiliated with the FNBI. In some cases, even brick factories that are part of the local and national association are not in good terms with the officials of the association. A brick factory in Lalitpur, for example, rarely communicated with the FNBI and did not participate in any of its activities despite being a member.

**Transporters:** Transporters supply bricks to consumers or to a depot where they store the bricks and distribute them locally as per the demand. In addition to dealing with consumers and brick entrepreneurs, they come into contact with tax collectors and traffic police officers who ask them for penalty or bribes for not maintaining proper bills or for overloading their vehicles.

### Construction contractors or real estate

**entrepreneurs:** Construction contractors fetch large numbers of bricks from brick entrepreneurs. While constructing big projects or government buildings, they can lobby and buy bricks from certain industries that have performed well by government standards.

**Local government:** The newly elected local level representatives, including the mayors, deputy mayors, municipal members, ward presidents, and ward members are key stakeholders of the brick making industry. They not only issue licenses for brick industries but also collect taxes. While brick industries can be an important source of revenue, local level representatives can create and promote an industry friendly environment for brick entrepreneurs. As seen during the 2017 elections, some brick entrepreneurs got elected into key positions at the local and provincial level and have become policymakers, thereby accumulating more power.

**Local tax collectors:** The local tax collectors are based at the district or municipal level and collect taxes from the industries. They can also collaborate with the Inland Revenue Department based in Kathmandu and conduct raids in industries that have allegedly failed to comply with government tax policies.

**Traffic police officers:** Traffic police officers encounter brick transporters (trucks, tippers, and tractors) on the road and charge them mostly for overloading. Traffic police officers ask transporters

for their papers and penalise the ones who do not meet the standards; this is in fact a common sight on the highways. This is also a source of corruption.

**Police officers:** As they are responsible for providing security and settling disputes, police officers are important agents at the local level. Brick entrepreneurs always want to have good relations with police officers, but complain that they do not show up when the entrepreneurs call them and ask for bribes. Bribes are paid in both cash and kind (e.g., bricks for personal use).

**Brick consumers:** Many Nepalis aspire to build at least one house in an urban or periurban area. Because of the growing economy and remittances earned by international migrants, as well as the decade-long conflict and the following political transition, urbanization in Nepal is increasing at a rapid pace. As a result the demand for bricks has been rising. The number of bricks produced has been growing especially since reconstruction began in the central hill districts affected by the 2015 earthquake. The price of bricks has shot up by more than 2000 percent over a 25-year period.

## 5.2 Promotion of local level economy

Brick entrepreneurs claim that every week about NPR 200,000–300,000 is provided to the workers for their grocery shopping. Given that each factory has about 200–300 workers, the brick factories are also contributing to the local economy. This is especially true in the Terai, where the weekly grocery allowance is distributed on the day of the ‘haat’ (weekly bazaar), so that the workers can make maximum use of their time and resources. Considering that there are about 1000 brick kilns in Nepal and assuming all of them distribute about NPR 200,000 every week for grocery shopping, about NPR 200–300 million is spent at the local level every week. A detailed analysis is needed to better understand the role of brick industries in boosting the local economy. Also, the small eateries serving alcohol to the workers also make a lot of money as many male workers tend to drink a lot.

## 5.3 Conflict with the neighbourhood

The neighbourhood plays a crucial role at the local level. As human settlements have increased multifold in recent decades, the interaction between locals and brick industries has increased too. Like in any other sector, having settlements near a brick

### KEY MESSAGES

Political economy at the local level, i.e. at the individual or institutional level, is determined by the actors involved; the role of brick factories in the promotion of the local economy; and conflicts of interest between the factory and neighbourhood, between the factory and state authorities at the local level, and among brick entrepreneurs themselves.

The actors involved at the local level include brick factory owners, brick entrepreneurs' associations, transporters, construction contractors, local government, local tax collectors, traffic police officers, police officers, and brick consumers.

factory comes with certain pros and cons. On the positive side, the locals get to buy bricks at cheaper rates from the factories and get employment opportunities. Brick entrepreneurs also donate bricks for social causes like constructing a public building. On the negative side, locals are subjected to smoke and dust pollution caused by brick kilns. A dissatisfied group of locals near Bhalu Khola in Dhading, for instance, blocked the road leading to brick factories in the area and stopped vehicles, mostly trucks carrying bricks from the kilns and bringing mud into the kilns. They let the vehicles pass only after the President of the Dhading Brick Entrepreneurs' Association (DBEA) promised to take action against the person who had been contracted by the factory owners to sprinkle water over the length of the dirt road to manage the dust. The locals pressured the brick entrepreneurs to make sure that they arranged for water to be sprinkled over the length of all dirt roads leading up to Dhading's brick kilns twice every day – once in the morning and once in the afternoon. A kiln owner in Dhading said that about NPR 60,000 is spent on this activity every month. The salaries of the driver and his assistant amount to around NPR 50,000. And the rest is the cost of fuel, vehicle maintenance, and water. No such problems were encountered in the Terai, which has better road connectivity and where the roads that lead to brick factories are mostly tarred.

With the expansion of residential areas, landowners have started selling land traditionally leased by brick factories during the brick-making season. As there is more money in real estate than in leasing out land to brick factories, housing plots are being constructed in urban areas. The enactment of the Land Use Policy should come to the rescue of both the locals and the entrepreneurs, where industries would be separated from agricultural lands and residential areas. However, the situation is not that simple. As an entrepreneur in Dhading said, the areas in the district where brick industries are currently thriving are listed under the government's special economic zone (SEZ) for agricultural development. As a result, uncertainty hangs over the future of brick industries that lease farmland during the off-season. Similarly, currently in many areas that are not inhabited, the brick industries build roads and install electricity for industrial purposes. This means the expanding human settlements may reach near brick kilns, and gradually the brick industries would have to move out. The enactment of the Land Use Policy and the segregation of various sectors is the need of the hour.



PROTECTING STACKED GREEN BRICKS FROM THE RAIN IN PROVINCE 1

#### 5.4 Local state mechanisms and governance-related issues

Local state mechanisms and brick entrepreneurs have their own dynamics, which generally involves conflicts of interest. The most often cited conflict that the entrepreneurs have is with the Revenue Office and the Traffic Police. DBEA brick entrepreneurs said that the Revenue Office collects tax based on the number of bricks they sell. An RaBEA representative and an FNBI official, however, noted that factory owners bribe tax officers and load more bricks than they are allowed to, but that the Traffic Police get hold of them and ask for bribes for letting vehicles carry more than what is permitted. The DBEA members stressed that the government should have consistent laws. Similarly, an animal owner interviewed in Lalitpur said that while transporting his equines between Kathmandu and his hometown Nepalgunj, he has to pay different tax amounts to revenue collectors in different municipalities. While some ask him for NPR 500, others ask up to NPR 6000. Due to the lack of concrete policies, corruption and mismanagement have hurt such animal owners who do not necessarily make much money. Furthermore, a police officer interviewed for this research said: "I had very good relations with the brick entrepreneurs. I used to show up as soon as they called to complain of a drunk worker. Now if I were to build a house of my own, I can easily get 10,000 bricks for free from different factory owners." While police officers provide security to brick entrepreneurs, they are also a source of corruption and it is consumers who pay for all the

corruption while buying bricks. One entrepreneur in Kanchapur said, "In the end, it is customers who pay for all the bribery."

#### 5.5 Conflict among entrepreneurs

Brick entrepreneurs who come together at the district or national level and ask for a better environment for operating industries are themselves mired in internal conflict. This was most obvious in the KBEA, where the brick entrepreneurs were unhappy with the selling price of bricks. According to a brick researcher, a few individuals dominate brick production in Morang. One entrepreneur, for instance, was running 11 brick factories simultaneously until recently and has brought it down to 7 after getting elected as a mayor at a local municipality. Because of the massive amount of production from the multiple factories, he had dominated the market in the district. Also, local consumers trusted his production as the bricks were bigger and heavier than the government set standards (dimensions: 22.9 x 11.2 x 5.5 cm for

non-mechanised bricks) and bricks from other industries. Others could not compete with him and had to sell their bricks at a lower rate. Only if and after he increased the rate of his bricks could others follow suit.

Similarly, there is very little sharing of knowledge between kiln owners. Owners of kilns with better technologies confessed that other brick entrepreneurs are not allowed inside their factories as they feared "technology theft" and believed that unless they reach the breakeven point, they should not share the newer technologies with others. Although the Technical Research and Development Committee (TRDC) at the FNBI is headed by brick entrepreneurs, not every brick entrepreneur is open to investing in newer technologies. Brick entrepreneurs, therefore, have a long way to go before they promote healthy competition among themselves.



AN EXCAVATOR IN RUPANDEHI ARRANGES SOIL FOR MOULDING

# Political economy at the national level

This section analyses political economy of brick industries at the national level and takes the institution as the unit of analysis.

Relationships among national level institutions such as relevant ministries and their line agencies, the federation of various industries, non-government sector, donors, and the private sector have been analysed. The section is divided into seven sub-sections that look at national level actors, map the brick factories of Nepal, and discuss related topics such as revenue and taxation, technological advancements, the effects of the 2015 earthquake, the brick industry's relationship with the government and policymakers, and finally the relationship with donors, and non-governmental sector.

## 6.1 The actors involved

**Federation of Nepal Brick Industries (FNBI):** The district/zonal brick entrepreneurs' associations get affiliated to the FNBI, which works for the welfare of brick entrepreneurs. Currently, the federation hosts 24 such associations. The FNBI charges each association an annual fee based on the number of brick factories in the corresponding district/zone. Getting affiliated to the FNBI or a regional association is not mandatory, but factories do need approval from the government. Some brick entrepreneurs claim, however, that some factories are operating without a government license. However, no such factories were interviewed for this research.

**Ministry of Industry, Commerce and Supply (MoICS) and the line agencies:** Brick industries fall under the Department of Cottage and Small Industries (DoCSI) under the MoICS. In the newly formed state structures, it is highly likely that the DoCSI will get dissolved and the authority of

monitoring and licensing of brick industries will come under the provincial Ministry for Industry, Tourism, Forest and Environment (MITFE). However, no legal provisions have been made yet.

**Ministry of Forests and Environment (MoFE) and the line agencies:** As brick industries produce high carbon emissions, they also have to report to the MoFE and the Department of Forests (DoF) and Department of Environment (DoE) while obtaining and renewing their licenses.

**Ministry of Labour and the line agencies:** Being a sector that employs thousands of workers, the brick industry is answerable to the Department of Labour (DoL) under the Ministry of Labour, Employment and Social Security (MoLESS).

**Inland Revenue Department (IRD):** The IRD and the district/municipality based revenue offices collect and maintain records of tax, VAT, and excise duty submitted by the brick industries. Occasionally, they also raid suspect factories in collaboration with local revenue officers, bureaucrats, and police.

**Federation of Nepalese Cottage and Small Industries (FNCSI):** The FNCSI is the umbrella organization of small-scale industries in Nepal. Being a small industry with fixed assets worth less than NPR 100 million, the brick industry can also become a member of the FNCSI. The FNBI is an institutional member of the FNCSI.

**Federation of Nepalese Chamber of Commerce and Industry (FNCCI):** Like the FNCSI, the FNCCI is the umbrella organization for large-scale industries in Nepal. Industries with fixed assets worth more than NPR 250 million are regarded as large industries and operate under the Department of Industry (DoI) and get FNCCI membership. Brick factories with sophisticated technology can get affiliated to the FNCCI based on high evaluation of their fixed assets.

**Financial institutions:** The presence of financial institutions in the brick sector is very slim. As brick factories have very limited fixed assets, accessing loans from financial institutions is difficult for them. However, the rise of local level cooperatives has opened a new avenue for brick entrepreneurs and workers. Also, as the brick industry is considered a "risky" business, financial institutions are very sceptical about investing in them. This also applies to insurance companies that generally avoid high-risk businesses and their employees. Only a few insurance companies in Nepal were found to be positive about working with brick industry workers.

There are no provisions yet for buying insurance for green bricks that are subjected to damage under the open sky.

**I/NGOs:** A number of international, national and local non-government organizations are working with brick factories; they treat brick factories from a variety of perspectives. While most of their work is donor driven, they can also use their own area of expertise and complement donor' priorities.

**Donors:** Donors are motivated to fund projects through I/NGOs or the private sector from the human rights perspective or are committed to curbing environmental degradation and climate change through the introduction and adoption of new technologies. A number of donor organizations work directly and indirectly in the brick sector; among them are, GIZ, the World Bank, SDC, DFID, and DANIDA.

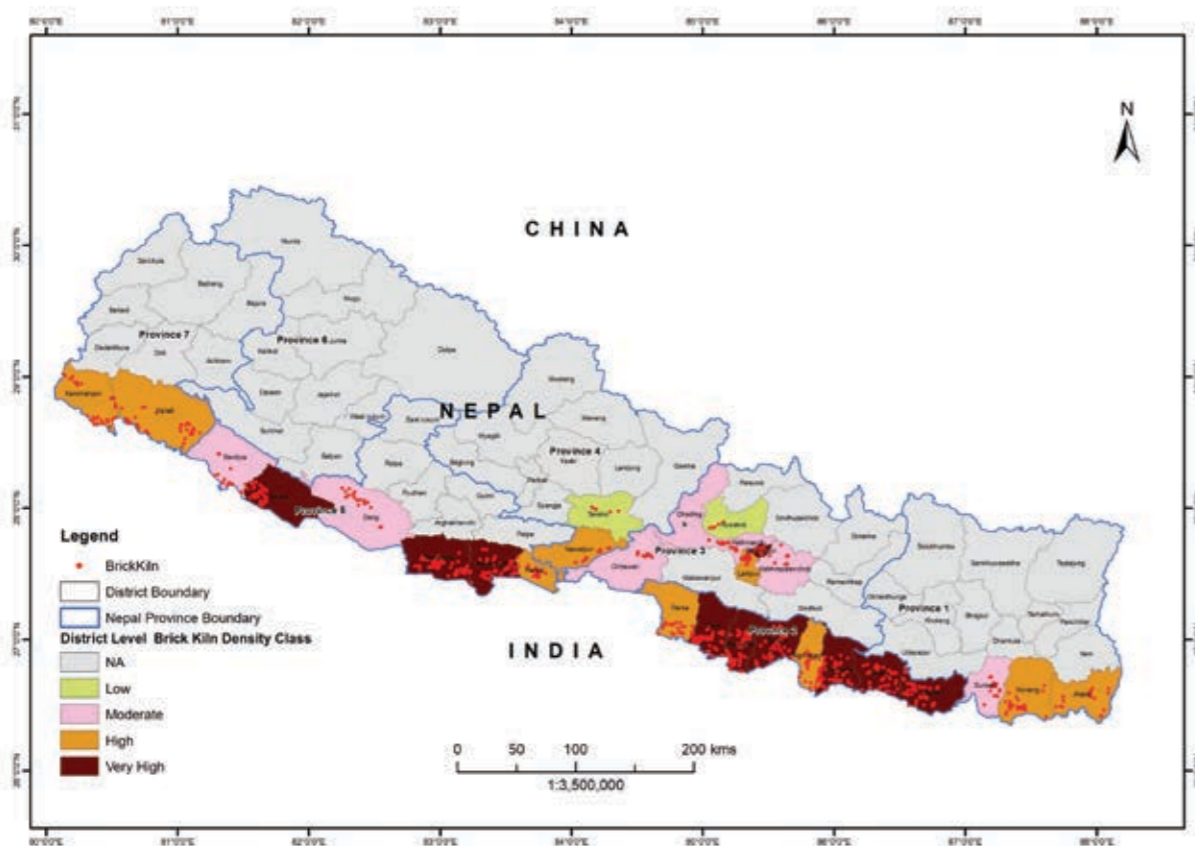
## 6.2 Mapping of brick industries

The fact that brick factories are almost wholly concentrated in the Terai and the Kathmandu valley says a lot about the country's political economy. As seen in the map below, brick industries are based in all of the Terai districts, and a few of them are located in areas from where it is easier to supply bricks to Kathmandu. Most consumers are located in the urban centres, mostly in the valley and a few Terai cities, and therefore, that is where the primary market is. Because of rapid urbanization, bricks are in high demand all over the country. The demand for bricks and other construction materials has further increased since post-earthquake rebuilding began; eligible quake-affected households can get cash compensation from the government only after they complete certain stages of rebuilding. As most areas in the Terai are connected to the urban centres and areas under reconstruction, bricks from one end of the country can reach the other end within hours. Ideally, this should have increased competition, enabling consumers to get best quality bricks at cheap prices. However, that would not always be beneficial to all the producers. Therefore, district and national associations come to the entrepreneurs' rescue and fix the price of bricks. This substantially lowers open competition and consumers suffer as a result. This is probably why the cost of bricks has skyrocketed in the past decade or so. According to two consumers interviewed for this research, in the last 25 years the price of bricks in the Kathmandu valley has increased by more than 2000 percent. While bricks in 1993 could

### KEY MESSAGES

The political economy at the national level involves relationships between national level institutions such as relevant ministries and their line agencies, the federation of industries, the non-governmental sector, donors, and the private sector.

FIGURE 11 BRICK FACTORIES IN NEPAL



Map: Sunil Thapa, ICIMOD.

be purchased at NPR 0.5 per brick, now in 2019 it costs anywhere between NPR 12 and 16 per brick. Consumers also have a perception that the quality, including the volume and weight, of bricks in the Kathmandu valley over the years has deteriorated.

An FNBI official said that although not all factories are obliged to sell bricks at the rate set by the cartel, such rates would set a benchmark and the prices would fall dramatically if they stray from this benchmark. The brick researcher we spoke to said that as the district associations or the FNBI cannot control factories that are not their members, some entrepreneurs who run such factories drop the price, especially in the peak brick-producing season. Factories operating without a license are beyond the reach of the state because of poor governance and corruption, which makes monitoring even more ineffective. Most such factories were found in Rautahat and Kanchanpur. In the eyes of the FNBI and district associations and the brick sector in general, these “irregular” factories tend to sell bricks at lower rates, thereby distorting market rates and affecting other brick factories. There is no mechanism for checking the quality of the

bricks they produce. However, for the customer, these brick sellers provide competitive rates, thereby offering cheaper bricks. As the government recently declared cartels illegal, the FNBI or district associations can no longer fix the rate of bricks; the price should be based on market demand and free competition. With critical self-reflection, an entrepreneur in Kanchanpur, who is also an FNBI official, said that any association such as the MBEA or FNBI is a form of cartel. “The existence of such associations hinders the promotion of free market competition,” he added.

Additionally, when bricks from the Terai, which are “better, bigger, heavier and cheaper,” started coming to Kathmandu, some entrepreneurs in Rautahat, Rupandehi, and Kanchanpur claimed that the FNBI lobbied the government to increase taxes so that the rate of bricks from the Terai would be similar to that of bricks produced in Kathmandu. Consumers who are not aware of the superior quality of the Terai bricks would naturally buy the Kathmandu bricks. Only after the Terai bricks started coming to Kathmandu did owners in Kathmandu start grading their bricks as Number One and Number

Two, a practice that was already established in the Terai. However, the FNBI officials did not agree with the claim that VAT was imposed by Kathmandu entrepreneurs with FNBI’s support.

### 6.3 Revenue, taxation, and finance

Two related ideas dominate the portrayal of brick factories: the brick factory as an environmental polluter, and as a labour exploiter. A quick Google search of brick kilns in South Asia, including Nepal, indicates that working in the industry involves a lot of hardship as it operates under the open sky. However, a lot of people go to work in brick industries every year and come out satisfied with the money they make at the end of a brick-making season. An entrepreneur in Kanchanpur said: “Positive stories about brick kilns are rarely heard in the media because such news does not sell. They need issues to talk about and therefore brick factories are portrayed negatively.” This working paper does not argue that all stories in the brick industry have a happy ending. However, it offers a multifaceted perspective on the brick industry by analysing various aspects of the brick industry. As mentioned earlier, each season the brick industry employs an estimated 300,000 people directly and indirectly and pays about NPR 700 million as revenue. Nevertheless, brick entrepreneurs have a lot of concerns when it comes to the state’s response to them.

The brick industry is not regarded as an “industry” per se, not just by the government and non-government sectors, but also by entrepreneurs themselves. The June 2018 meeting at the FNBI stressed the need to press the government to recognize the brick sector as an industry and get representation in the FNCCI for proper lobbying for policy changes. Currently, brick factories are registered with the Department of Cottage and Small Industries (and not the Department of Industries) under the Ministry of Industry, Commerce and Supplies. According to the Industrial Enterprises Act, 2016, industries with fixed assets worth up to NPR 100 million are regarded as small-scale industries; those with fixed assets between NPR 100 and 250 million are considered to be medium-scale industries; and industries with assets more than NPR 250 million are considered to be large-scale industries. As brick industries do not use heavy equipment (except the newer ones using highly sophisticated technology) and operate on leased farmland, they are considered to be

small-scale industries. Such farmlands are leased for about six months during the off-season and during summer; the area covered by the brick kiln, except the chimney area, is used for agricultural production. The seasonal nature of the industry poses various limitations.

Although most brick entrepreneurs claim that their annual turnover is more than NPR 100 million, because of limited fixed assets, they have problems accessing loans from banks. An entrepreneur in Kanchanpur, whose brick factory has a FCBTK (natural draught) and wishes to adopt an HHK, said that financial institutions would not give him money based on his annual turnover; they would only accept fixed assets as collateral. However, as he is leasing the land (except the chimney area), as most brick entrepreneurs do, he does not have any asset to put in the bank as collateral. He added that the government talks about technology transfer but has done very little to actually help entrepreneurs move towards cleaner options. Technology is costly in Nepal and there is hardly any mechanism for supporting brick entrepreneurs financially. The government has not come up with a substantial plan to fund technology. Most of the policies are designed in Kathmandu with no consultation with relevant stakeholders, who are again centred in the valley. As a result, little attention is given to districts at the margins, like Kanchanpur. Even districts like Rautahat, which are geographically very close to the Kathmandu valley, are still left at the margins. This is because the district associations and individual entrepreneurs rarely have the means or political connections to get their voices heard at the centre.

For instance, entrepreneurs in Kanchanpur and Rupandehi said that the government did not consult them properly before deciding to subject brick factories to income tax and VAT instead of excise duty in July 2013. The FNBI is believed to have advocated for income tax and VAT but brick entrepreneurs outside the Kathmandu valley defy this and agree that excise duty was better. On the one hand, maintaining records of all transactions is tedious and the brick industry is perceived to be shy in adopting technology to keep their records. More importantly, according to a news report published in *Kantipur*<sup>11</sup> that also cites district brick entrepreneurs’ association officials, brick industries reportedly maintain two sets of records, and

<sup>11</sup>Hariharshing Rathaur. 2018. “Rajaswa chhaldai ittabhatta” [in Nepali]. *Kantipur*. 17 June. Accessed 20 June 2018. <https://www.kantipurdaily.com/pradesh-3/2018/06/17/152920451629182477.html>

the one that they keep for tax and VAT purposes shows less than half the amount of bricks they sell to customers. On the other hand, entrepreneurs claim that taxation involves a lot of misgovernance, as bureaucrats are corrupt. Probably because entrepreneurs' records are generally not straight, they have to satisfy the corrupt government officials and consequently lose a lot of money. Instead, entrepreneurs argue there is flat taxation all over South Asia and that the Nepali government should impose income tax and VAT on them. A member of the MBEA said: "The rate of revenue generated through flat taxation will be more than what the government collects now (from the brick industries)." This is largely because, as he later added: "There is one account maintained for the government and the other is the original account." He said that the account maintained for tax purposes cannot reflect a number of administrative problems; about NPR 500,000–700,000 is lost, as many workers who take advance payment do not return to the kiln in the next season. The MBEA member further added: "Brick entrepreneurs have to pay [bribes to] government officials and please them in every way we can. We have to be scared even of low-level clerks, provide them vehicles when they need them and give them Dashain allowances." In the end the consumers have to pay for all the irregularities involved in dealings between brick entrepreneurs and government officials.

During three different discussions with KBEA, MBEA, and RuBEA members, the need for insurance was highlighted multiple times. An MBEA member said, "Insurance companies should expand their scope and make sure that they cater to the brick sector. Then entrepreneurs would not have to worry much. Insurance companies have mushroomed everywhere in the country. The government could have initiated a policy saying brick factories have to buy insurance." But given the high risks involved in the brick industry, it seems difficult to get insurance companies to curb brick-related losses. At least one insurance company interviewed for this research said they were not interested to sell their policy to brick factory workers; it is highly unlikely that they would be interested to insure green bricks, which could be damaged even by simple weather events like unexpected rainfall. Bricks are denied insurance not just in Nepal but across the globe. Previously, pathera used to get paid for dried stacked bricks; now they claim money as soon as they mould the bricks. In case of rain, bricks that are still drying



BRICKS DAMAGED BY THE PREVIOUS NIGHT'S RAIN

would become useless but the owner would still have to pay the pathera for moulding the bricks. In many factories, losses earlier incurred by patheras are now borne by entrepreneurs, who are looking for ways to mitigate such losses.

#### 6.4 Technology

In some districts, such as Rupandehi and Morang, many kilns have adopted the Fixed Bull's Trench Kiln (Forced Draught), popularly known as zig-zag chimney. Other districts, such as Kanchanpur and Rautahat, are lagging behind due to a lack of investment in technology. Not all brick entrepreneurs are interested in introducing newer technologies as they are satisfied with their production and turnover. Rupandehi and Morang have emerged as centres of brick related technology and innovation in Nepal. In addition to meeting government standards for providing workers with OSH equipment, a brick factory in Morang had arranged a Bengali teacher for the children of workers who come every year to his kiln from Cooch Behar in West Bengal, India. Pioneer brick entrepreneurs from Morang and Rupandehi tried automation of clay dough preparation but didn't find it useful and later discarded it. One of the reasons was that when machines didn't function, the brick moulders couldn't prepare bricks and the chain of brick production broke at the start. Brick entrepreneurs from all the districts covered by the research said that hand moulded bricks are the best because the workers mix clay better than the machines.

#### 6.5 Effects of the 2015 earthquake

The post disaster needs assessment (PDNA) following the 2015 earthquake suggested that the need for bricks in the Kathmandu valley would increase threefold for reconstruction purposes. Estimated annual production of burnt bricks in the valley before the earthquake was 430 million; in the post-quake scenario, nearly 1200 million bricks would be needed for reconstruction (NPC, 2015, p. 15). As the government already had plans to relocate brick industries outside the Kathmandu valley, factories mushroomed in surrounding hilly areas and especially in the Terai. The estimated number of brick factories in Nepal was about 728 in 2013 (Manandhar and Dangol, 2013); in 2018, the FNBI estimates that the number had reached well above 1000. In Rautahat alone, the number of kilns shot up to 133 by 2018, the highest number in any district. The district is in a highly strategic location for shipping bricks to all earthquake-affected areas. The newly established brick factories aimed to earn enormous profits by selling bricks in the earthquake-affected areas, but no one had actually done a demand-supply analysis. As a result, supply exceeded demand. During an informal discussion, an environmental researcher who has been studying brick kilns said that there was a time after the earthquake when Kathmandu imported lots of bricks from the Terai. Bricks from as far as Kanchanpur in the far-western Terai reached Kathmandu as they were cheaper than bricks from Kathmandu even after adding the transportation cost. Terai bricks were imported not because they were of better quality, but because the unsold bricks were being sold at wholesale prices. An FNBI official stressed that many brick factories set up after the earthquake used minimal technology and imported cheap labour from India. He said that as their investment was very low, they started selling bricks below the fixed rate. This affected the market price of bricks all over the country.

#### 6.6 State mechanisms and looming uncertainty

Post-earthquake reconstruction offers a big possibility for collaboration between government stakeholders and brick entrepreneurs. The government can promote socially and environmentally responsible brick industries by using their bricks to rebuild public buildings or even build new ones. But the government hasn't set such standards so far. An entrepreneur in Rupandehi

criticized the corrupt mentality of government officials: "Government officials accept tender from the lowest bidder and do not care about quality while constructing public buildings." Rather, the government should incentivize the brick sector and make sure that they buy bricks from socially and technologically sound factories. They can also provide tax subsidies to such model factories. However, there are no signs yet that the government might take such steps; on the contrary, it is the government's policy to buy from the lowest bidder regardless of the quality of bricks.

Some brick entrepreneurs believe the local government and the provincial government, especially in areas with a high number of kilns, engage in jurisdictional tussle over the brick industry, which is an important revenue source. Brick entrepreneurs are trying to ensure that there are no overlaps in taxation and licensing among the three tiers of government. In addition to VAT and tax, there are already various other forms of taxation such as 'itta nikasi kar' (inter-district brick export tax), 'sthaniya sanchalan kar' (local administration tax), 'mato nikasi kar' (soil export tax), 'samajik surkshya kar' (social security tax), 'itta bikri kar' (brick sales tax), and 'ghar/jagga bhada kar' (house/land rent tax). Many entrepreneurs claimed that the governments are eyeing the large amounts of tax that the brick factories pay every year and have become extractive. Some entrepreneurs, who are also political party members and stood for the 2017 local, regional and parliamentary elections, see local representatives as their counterparts, if not subordinates. They are in no mood to get registered at the local level and believe that licensing and taxation should be controlled by the federal government as that will ensure a hassle free "one-door policy."

Policy formulation in Nepal is a slow process and often controlled by the centre at the expense of the margins. Brick entrepreneurs in Rautahat said that as all the policies are made in Kathmandu, policy makers take kilns in Kathmandu as the representative sample. But the story in the Terai is completely different and the regulations are useless in the Terai. This was particularly true of the OSH directive. However, FNBI officials, who are mostly based in Kathmandu, were also equally critical of the OSH directive and complained that the government held only superficial consultations with them and did not take their suggestions seriously. Also, an FNBI official said that brick entrepreneurs at the district level are equally shy to suggest policy changes. Although the FNBI disseminates the

information to the district associations and requests regular feedback, he mentioned that they seldom get back to the FNBI with concrete comments and possible solutions.

## 6.7 Donors and their priorities

Various donors in Nepal are working on a variety of issues related to the brick sector, with I/NGOs as their implementing partners. Most donors and I/NGOs are working for children who generally come to the factories with their parents. Some donors fund technology improvement to lower particulate emission and other forms of air pollution from brick industries. Some claim to be working to eliminate the hazardous working conditions at brick industries. A few donors also work to improve the living and working conditions of working animals. There are foreign funded projects that work towards improving brick production while lowering environmental impacts. However, these projects are not necessarily sustainable as the brick factories seldom take ownership of the standards set by the project; this means that once the project phases out, the factories cannot maintain the standards. Further, as donors only focus on specific areas, their implementing partners miss out on other crucial fronts that are equally if not more important. For instance, the veterinary doctor who visited a Lalitpur-based factory talked to the animal owners and caretakers and supplied medicines to some diseased equines, adding that his organization's interventions were highly effective; but he did not raise concerns about the severely unhygienic toilet that was nearby.

### SECTION 6 | KEY TAKEAWAYS

## Political economy at the kiln level

### SECTION 6.1

#### THE ACTORS INVOLVED

The district/zonal brick entrepreneurs' associations are affiliated to the FNBI, which works for the welfare of brick entrepreneurs. Currently, the federation hosts 24 such associations.

### SECTION 6.2

#### MAPPING OF BRICK INDUSTRIES

The fact that brick factories are almost wholly concentrated in the Terai and the Kathmandu valley says a lot about the country's political economy.

### SECTION 6.3

#### REVENUE, TAXATION, AND FINANCE

The brick industry is not regarded as an "industry" per se, not just by the government and non-government sectors, but also by entrepreneurs themselves.

### SECTION 6.4

#### TECHNOLOGY

Not all brick entrepreneurs are interested in introducing newer technologies as they are satisfied with their production and turnover.

### SECTION 6.5

#### EFFECTS OF THE 2015 EARTHQUAKE

The estimated number of brick factories in Nepal was about 728 in 2013. In 2018, partly as a result of an increase in the number of brick kilns established after the 2015 earthquake, this number had reached well above 1000.

### SECTION 6.6

#### STATE MECHANISMS AND LOOMING UNCERTAINTY

Post-earthquake reconstruction offers a big possibility for collaboration between government stakeholders and brick entrepreneurs.

### SECTION 6.7

#### DONORS AND THEIR PRIORITIES

There are foreign funded projects that work towards improving brick production while lowering environmental impacts. However, once these projects phase out, the factories cannot maintain the standards established.

### KEY MESSAGES

The brick industry is precarious from a number of perspectives. The informal nature of the work, the growing demand for bricks, the interest of non-government actors, and the state's desire to extract tax are some of the defining features of the brick sector. At all three levels – kiln, local and national – there are complex power dynamics among various actors. This working paper highlighted the various power centres – within the industry, at the local level, and at the national level – that regulate the brick industry. For instance, brokers/supervisors (naike) hold maximum power within the industry. As a result, both the brick entrepreneurs and brick workers are bound to keep the naike happy. Given that workers cannot directly approach and bargain with factory owners, naikes play an important role in bargaining on behalf of workers. However, this also puts the workers in a precarious situation, as they are completely dependent on the naike for benefits and services. As workers come from underprivileged backgrounds and might be debt ridden, they take

### SECTION 7

## Conclusion

At all three levels – kiln, local, and national – there are complex power dynamics among various actors with various power centres that regulate the brick industry.

The brick industry is a very precarious industry from a number of perspectives. The informal nature of the work, the growing demand for bricks, the interest of non-government actors, and the state's desire to extract tax are some of the defining features of the brick sector. At all three levels – kiln, local and national – there are complex power dynamics among various actors. This working paper highlighted the various power centres – within the industry, at the local level, and at the national level – that regulate the brick industry. For instance, brokers/supervisors (naike) hold maximum power within the industry. As a result, both the brick entrepreneurs and brick workers are bound to keep the naike happy. Given that workers cannot directly approach and bargain with factory owners, naikes play an important role in bargaining on behalf of workers. However, this also puts the workers in a precarious situation, as they are completely dependent on the naike for benefits and services. As workers come from underprivileged backgrounds and might be debt ridden, they take



WORKERS PREPARING BAKED BRICKS TO BE TAKEN FOR STORAGE, MORANG

advance payment from the entrepreneurs at the end of the brick-making season, promising to return in the subsequent season. This, on the one hand, makes the workers bound to the employers, and on the other hand, makes the employers lose a few hundred thousand rupees every season because some workers flee.

To retain employees, a number of strategies can be put in place. Introducing various services for brick workers would help in reducing workplace injuries and occupational diseases. In addition to basic safety gear, life and medical insurance not only provides workers security, but also increase their chances of staying on at the job. Although brick factories have started using better technologies that make workers safer than ever before, the tasks of a fireperson are especially hazardous and those of others are also prone to accidents. There is a need for financial literacy training for brick workers so that they can save more at the end of the brick making season and make use of the financial services available to them. If possible, behavioural support would help them save better and get out of their drinking habits. Technology promotion has largely focused on lowering carbon emission and increasing productivity. It should also focus on worker safety and health and on minimizing occupational hazards. Many brick entrepreneurs prefer Indian workers to Nepalis as the former are perceived to work more and demand less. However, that should not be a justification for providing less to workers. Worker productivity would increase with better living and working conditions, and entrepreneurs should keep workers motivated irrespective of their nationality or the extent to which they make demands. Socially responsible branding and categorization of brick factories is a must to promote better living and working conditions of workers. The government should adopt a policy of categorizing brick industries based on their adoption of improved technologies, emission control, and adherence to labour laws. The government should make it mandatory for real estate and construction entrepreneurs to use bricks from industries that fall in the best category.

Non-government entities such as ICIMOD can act as a bridge between the government and entrepreneurs. Such organizations can introduce new technology and socially responsible business that takes the workers' needs into account. The FNBI should play the role of a liaison organization in technology transfer as most of the kiln entrepreneurs in areas like Rautahat and Kanchanpur are lagging behind in innovation

compared to other urban centres. Due to unhealthy competition and fears of technology theft, there is very little trust between entrepreneurs; FNBI can hence play a role in enhancing technology transfer and mutual sharing of ideas. Brick industries are highly dominated by men from the top to the bottom level. The role of women workers is limited to brick moulding and transporting; often these women workers land at kilns along with their family members and/or husbands. Only one kiln owner interviewed during this study was a woman; she had been managing the business since her husband passed away. The high level of employee satisfaction, high rate of worker retention, and the development of infrastructure including living spaces and schools for children at her factory indicate that there is a lot that others can learn from her. Her example shows that women are not only capable of running a business; sometimes they do it better than men.

Workers are attracted by the advance payment that they get from kiln owners. While this makes them financially more secure, it also binds them to the owner. Meanwhile owners are troubled by workers who take the advance but do not come back. Employers should think of other ways to retain the workers. The amount that is lost every year when workers do not come back can be used to improve working and living conditions and access to health and education facilities (for workers' children).

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## About ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD), is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalaya – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalisation and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.

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