

# **EXPLORING THE NATURE OF ENCROACHMENT OF STATE LAND IN THE KINGDOM OF BHUTAN**

**KARMA CHODEN TSHERING**

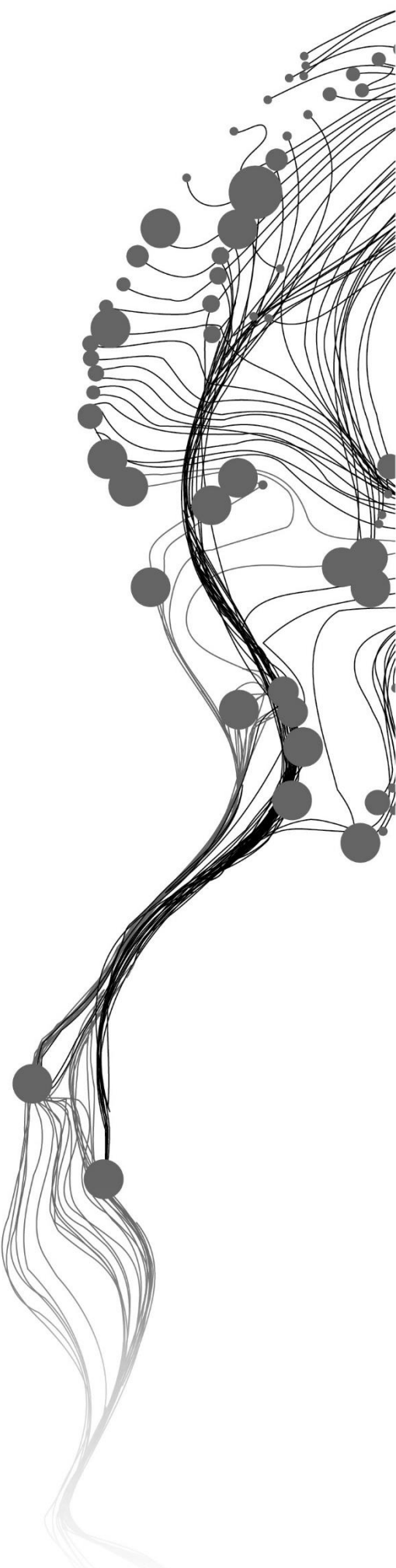
**February, 2018**

**SUPERVISORS:**

**Dr. Christine Richter**

**Prof. dr. P.Y. Georgiadou**





# Exploring the nature of encroachment of state land in the Kingdom of Bhutan

KARMA CHODEN TSHERING

Enschede, The Netherlands

February 2018

Thesis submitted to the Faculty of Geo-Information Science and Earth Observation of the University of Twente in partial fulfilment of the requirements for the degree of Master of Science in Geo-information Science and Earth Observation.

Specialization: Land Administration

## SUPERVISORS:

Dr. Christine Richter

Prof. dr. P.Y. Georgiadou

## THESIS ASSESSMENT BOARD:

Prof.dr. C.H.J. Lemmen (Chair)

Drs. C.L. Vegelin, University of Amsterdam (External examiner)

#### DISCLAIMER

This document describes work undertaken as part of a programme of study at the Faculty of Geo-Information Science and Earth Observation of the University of Twente. All views and opinions expressed therein remain the sole responsibility of the author, and do not necessarily represent those of the Faculty.

## ABSTRACT

State-owned land is managed in different ways across the world, but it is always a crucial element in the socio-economic development of any country. Especially due to increasing population pressure and urbanisation, the problem of so-called encroachment of state land has become recognised. There are various factors engendering encroachment of state land as well as many strategic interventions put in place to address the issue of encroachment. During the past ca. 10 years this problem has gained recognition in Bhutan, because of the Kingdom's very limited area of arable state land. As such the problem of encroachment is relatively new in Bhutan; and there is not one definition of what constitutes encroachment of state land. Also, the causes or the actors are not well known. Because no research has been conducted on this problem in the country, this study seeks to address these questions through an exploratory and qualitative approach.

Firstly, key informant interviews were conducted to identify the history, meaning of the term encroachment and the other dimensions of the phenomenon in the discourse of the public authorities. Secondly, Chhukha district was selected as the study area to understand the encroachment process in more detail and identify the actors and the causes behind the land use change labelled as encroachment by the public authorities. The different strategic interventions put in place by the Bhutanese authorities and the views of the occupants of state land regarding these strategies have been explored as well. A participatory mapping exercise was also carried out to describe and visualise the encroachment process and the location.

The results reveal that the term encroachment originates approximately from the time when Bhutan adopted the certificate of title system for land administration, which dates to the reign of His Majesty the First King. It subsequently became viewed as a problem in the public domain in the course of urbanisation, commercialisation of natural resources and agriculture and migration practices witnessed in the country in the past ten years. The evolution of the land administration system in Bhutan especially land survey, and the accompanying efforts of the concerned public authorities in developing a comprehensive planning regime and laws contributed in bringing encroachment to the spotlight. In the study area, many of the causes identified for encroachment can be categorised as the prominent push and pull factors, but the case studied here also highlights the importance of international economic dynamics influencing locally specific processes. Because types and causes of encroachment are very situation specific, the current strategies by the authorities to address encroachment are based on an incremental, case-by-case approach. While this strategy is participatory in nature and takes into consideration the needs of local communities and the history of settlements, it makes the development and maintenance of a more large-scale inventory of land use changes and potential encroachments difficult for urban and regional planning.

*Keywords: state land, state land management, encroachment, land use change, causes, occupants, Bhutanese/public authorities*

## ACKNOWLEDGEMENT

First and foremost, I would like to thank the Almighty God for giving me the strength and the courage to overcome every difficult phase in becoming who I am today. Though I must admit that this was by far the most difficult climb, but as we all know, hard work pays off, and the view is always beautiful after the hardest climb. So here I am today happy and satisfied, and ofcourse, extremely grateful for this amazing journey here at ITC.

I would like to extend my immeasurable heartfelt appreciation and gratitude to everyone who contributed in one way or the other in making this study a success:

- ❖ My supervisors: Dr. Christine Richter and Prof. dr. P.Y. Georgiadou for their continued support and encouragement right till the completion of my study. This would not have been possible without your unwavering support and cooperation. You inspire and encourage students and instill in them a true desire to learn. Even words are not enough to let you know how much I am grateful and will always be. Thank you.
- ❖ Secretary, Dasho Pema Chewang and Director, Mr. Tenzin Namgay and Mr. Gonpo Tenzin, Chief, PPD of the National Land Commission for their continued guidance and encouragement throughout the whole MSC period. Thank you.
- ❖ To all the participants at the national level and the study area for their time and providing me valuable information contributing to the study. Thank you.
- ❖ Ms. Karma Tshomo for her words of encouragement and support right from applying for this MSC scholarship till the completion. Thank you. And Ms. Gyem, LR, Chhukha district and my dear friend Ms. Kinley for their great help during my fieldwork. Thank you.
- ❖ Mr. Salifu Waah for your continued friendship, assistance and encouragement right from the academic modules, thesis to the completion of the MSC. Thank you.
- ❖ Mr. Sravan Shrestha for assisting me with all the technical aspects of this study and especially for your continued friendship and encouragement throughout my stay here. Thank you.
- ❖ Land Administration family especially to Dr. D. Todorovski for his encouragement and valuable advice from the initial stage of my study. Also, to my LA colleagues for this amazing journey and support. Looking back, it was indeed a very happy exciting journey, and I will miss you all. You guys are the best. Thank you.
- ❖ Finally, my profound gratitude to my family for all your unconditional love and support most importantly your prayers for my good health and successful completion of the MSC. Thank you.

*I would like to dedicate this work to my late brother, Mr.Sonam Tsbering. I miss you*

# TABLE OF CONTENT

---

Abstract.....	i
Acknowledgement.....	ii
List of figures .....	v
List of tables .....	vi
List of abbreviations & glossary .....	vii
1. INTRODUCTION.....	1
1.1. Background.....	1
1.2. Research problem and motivation .....	2
1.3. Research Objectives and Questions.....	3
1.4. Thesis structure.....	4
1.5. Summary .....	5
2. LITERATURE REVIEW.....	6
2.1. Introduction .....	6
2.2. Definition of state land.....	6
2.3. State Land Management.....	6
2.4. Challenges in state land management .....	8
2.5. Land use changes.....	9
2.6. Definition of encroachment .....	11
2.7. Development of the settlement process in the encroached area .....	12
2.8. Approach of public authorities towards the occupants of state land.....	13
2.9. Causes of encroachment .....	14
2.10. Summary .....	18
3. RESEARCH METHODS .....	20
3.1. Introduction .....	20
3.2. Selection of study area .....	20
3.3. Methods .....	22
3.4. Research design matrix.....	26
3.5. Limitations of the research .....	27
3.6. Summary .....	27
4. STUDY CONTEXT: STATE LAND MANAGEMENT IN BHUTAN.....	28
4.1. Introduction .....	28
4.2. State land in Bhutan.....	28
4.3. Allocation of state land.....	29
5. RESULTS .....	30
5.1. Introduction .....	30
5.2. Sub-objective 1: To describe how the public authorities approach encroachment in Bhutan .....	30
5.3. Sub-objective 2: To identify the processes, actors and causes behind the land use change labelled as encroachment by public authorities in Chhukha district.....	39
5.4. Sub-objective 3: To identify the strategic interventions to address encroachment of state land in the country.....	46
6. DISCUSSION.....	49
6.1. Introduction .....	49
6.2. Historical roots and the meanings of the “encroachment” problem in Bhutan .....	49
6.3. Socio-economic causes of encroachment: similarities with global trends.....	50
6.4. Influences of the Bhutanese institutional context on the process of encroachment .....	51
6.5. Strategies to address encroachment incrementally and the participation of the occupants.....	52
6.6. Summary .....	54

7. CONCLUSION AND RECOMMENDATION .....	56
7.1. Introduction .....	56
7.2. Conclusion .....	56
7.3. Recommendation .....	57
7.4. Future research .....	59
List of references .....	61
List of appendices.....	68



## LIST OF FIGURES

---

Figure 1. Conceptual framework.....	18
Figure 2. Location of the Study area .....	21
Figure 3. Methodology flowchart.....	22
Figure 4. Sketch maps produced from the p-mapping exercise at Tsimalakha and Wangchhu .....	25
Figure 5. Timeline of the evolution of Bhutanese cadastre .....	30
Figure 6. Media coverage on encroachment of state land in Bhutan from 2008 .....	32
Figure 7. Encroachment of state land for cardamom plantation.....	35
Figure 8. Map showing the encroachment process and present location at Tsimalakha community.....	40
Figure 9. Map showing the encroachment process and present location at Wangchhu community.....	41
Figure 10. Images of structures categorized according to economic status.....	43
Figure 11. Updated conceptual scheme based on the results and discussions .....	54

## LIST OF TABLES

---

Table 1. List of respondents for the key-informant interview .....	24
Table 2. List of respondents for focus group discussion.....	24
Table 3. Main analysis themes of each research objectives .....	26
Table 4. Research design matrix.....	26
Table 5. Different definitions of encroachment.....	33
Table 6. Causes of the encroachment of state land identified by public authority representatives of various sectors.....	34
Table 7. Actors behind the land use changes labelled as encroachment in the study area.....	42

## LIST OF ABBREVIATIONS & GLOSSARY

---

### ABBREVIATIONS

BPC	Bhutan Power Corporation
CHPC	Chhukha Hydro Power Corporation
MoAF	Ministry of Agriculture and Forests
MoWHS	Ministry of Works and Human Settlement
MoEA	Ministry of Economic Affairs
NLC	National Land Commission
OGZ	Office of Gyalpoi Zimpoen
RICB	Royal Insurance Corporation of Bhutan

### GLOSSARY

Gewog	Village block
Dzongkha	National language of Bhutan
Dzongkhag	District
Kidu land	Land granted by His Majesty the King through the issuance of Kasho (Edict)
OGZ	Office for People's Welfare and Wellbeing
Sathram	Land title for record keeping
Thram	Land title record/data
Thromde	Municipality



# 1. INTRODUCTION

## 1.1. Background

The land is a finite resource, a major factor of production and a crucial element in the socio-economic development of any country (Ndehedehe & Kolawole, 2012). A large proportion of land in many countries around the world is in state-ownership (Dells, Andreas, & Gabel, 2012). State land includes both government-owned and public lands which are controlled by the state (Manandhar, Joshi, & Ghimire, 2016). Grover and Elia (2011) indicated that when the land is being controlled by the state, it is likely to have a significant bearing upon the standards of living and well-being as well as who controls the state land can have significant consequences on the welfare of society. Thus, when resources such as land are available in finite quantities to satisfy human wants, management of such limited resources becomes necessary (Alabi, Alabi, & Mohammed, 2014).

Proper management of state land supports the alleviation of poverty, food sovereignty, protection of human rights and peace and security (Manandhar, Joshi, & Ghimire, 2016). If state lands are secured, responsibilities and rules are well-defined and publicly enforced, no time and resources will be wasted guarding them (Kaganova & McKellar, 2006). However, if not it will lead to what Palmer et al. (2009) call a 'de facto open access situation' where anybody can use, sell, lease and claim rights to it. Despite realising the importance of the proper management of state lands, the common problem shared by many countries is poor management of state lands due to its low priority in the national agenda and insufficient policy, and institutional framework which not only decreases its efficiency in land management but also increases encroachment options (Manandhar & Joshi, 2015). Land management according to UNECE (1996) is the processes by which a country's resources are put to good use. State land management is inseparably linked with the elusive concept of public interest that seeks to advocate the welfare of collective social ownership rather than private interests (Brown, De Bie, & Weber, 2015). It also encompasses the procedures and institutional means to locate, evaluate, conserve, distribute and manage the resources in a sustainable manner (Ramkissoon, 2000).

As indicated, the management of state land is a complicated process because state land does not exist in isolation. There may be adjacent owners or users of land. Other agencies and groups of people may have rights over state land, or the state may have rights over their land. Such situations can pave the way for conflict as well as the potential for encroachment on state land or for the state to try to extend its powers over land controlled by other groups (Grover & Elia, 2011). This is where the concept of encroachment emerges.

There are various definitions of encroachment. For example, Bouvier (1856, p. 468) defined encroachment as an "unlawful gaining upon the right or possession of another; as, when a man sets his fence beyond his line; the proper remedy for the injured party is an action of ejectment or an action of trespass". According to Blomley (2005, p. 285), encroachment occurs in "an apparently more benign way, when private owners, intentionally or not, extend their gardens into the public street". Further, Ploeger and Groetelaers (2006) observed that the concept of encroachment, informal settlements, slums, illegal settlements, squatter settlements, shanty towns are comparable concepts. These settlements are usually

developed on private or state land occupied by the people without holding any title contrary to the laid down rules and regulations (UN-Habitat, 2003) and is developed in a haphazard manner (Ishtiyak & Kumar, 2011)

There are several factors identified causing encroachment of state land. According to Niroula and Thapa (2005), even though its magnitude differs from country to country, the increasing population and poverty in South Asia are among other factors leading to encroachment on state land. This usually occurs due to demand for residential space and agricultural production (Walker, 2001). In addition, some of the other factors that drive encroachment on state land are pressures from urbanisation and infrastructures developments (Chitrakar, Baker, & Guaralda, 2016). The typical phenomenon of land fragmentation prevalent in South Asia (Niroula & Thapa, 2005) and the inability of the small farms to compete with the large farms (Ellis, 1992) are also some of the identified causes. Similarly, in Nepal, a high rate of migration from the mountains to the plains (Acharya, 2009) and the rural-urban migration (Thapa, 1993) are the other factors leading to encroachment. Also, one of the major problems is the permanent conversion of forestland due to encroachment (Ali, 2002). This competitive demand for land results in the encroachment of state lands such as waterways, school lands, public utility areas and open spaces (Brefo, 2012). According to Aiken (2009), people choose to appropriate and occupy the state land rather than private registered land because there is less fear of eviction from the former compared to the latter. Numerous problems such as environmental degradation, loss of open space and especially conflicts between the government and the people are usually associated with such illegal settlements on the state land (Haack & Rafter, 2006).

Further, the attitude of the public authorities towards the people living in the encroached areas differ from country to country. According to Fekade (2000), despite their role in providing shelter needs of the poor, the government's attitude towards the occupants ranged from utter hostility to benign neglect. Some governments apply strict laws to exclude such settlements from infrastructure development plans and also order outright demolition (UNDP, 2005). However, it was observed at the beginning of the 1970s that the attitude towards the occupants in these settlements by most of the governments in the developing world began to change from being hostile towards viewing them as indispensable builders of cities (Fekade, 2000). Yet, attitude and responses still differ from country to country regarding how the concerned public authorities label or treat these occupants settling on state-owned land. Strategic interventions to address the issue of encroachment also vary from country to country.

## **1.2. Research problem and motivation**

Bhutan, officially the Kingdom of Bhutan is a landlocked country in South Asia. China borders Bhutan in the north, India in the south, the Sikkim state of India and the Chumbi valley of Tibet in the West, and Arunachal Pradesh, the state of India in the east and Assam in the south. The total area of Bhutan measures 38,394 kmsq with a population of 810,944 (Worldometers, 2018). Bhutan is a mountainous country, largely forested with a large ecological variability, limited agricultural area, and an economy that relies heavily on the sustainable utilisation and protection of the land resources. Most of the population is dependent on agriculture for their livelihood, but also other vital sectors, such as hydropower, forestry, and tourism, depend very much on the sustainable management of land-based natural resources (MoAF, 2011).

According to the LULC 2010, Bhutan has 664,000 acres (7% of the total land area) of arable land, out of which about 500,000 acres have been utilized and registered on freehold with a balance of approximately

less than 164,000 acres. Further, the state land is also being leased out for various socio-economic activities, such as mining, commercial, business, and pasture developments. Also, there are ever increasing pressures from accelerated socio-economic development activities mostly from the construction of farm roads, electricity transmission/distribution lines, industries and urbanization (NEC, 2016) on the already limited land resource. In addition, encroachment on state land in the country is another primary concern exerting <sup>1</sup>immense pressure on the limited land (Pokhrel, 2017; BBS, 2014). The scarcity of arable land is a huge concern for the country, which was explicitly highlighted by His Majesty the King during the 109<sup>th</sup> National Day on 17<sup>th</sup> December 2016. Even the Constitution of the Kingdom of Bhutan calls for sustainable use and management of land and efficient land administration.

The practice of converting arable land into other land uses are increasing in Bhutan. Furthermore, the Constitution of the Kingdom of Bhutan mandates 60% forest cover for all times to come. According to MoAF (2011), there are emerging signs of forest degradations within the 80.89 % forest cover area. The Forest management units (FMUs) are areas designated for scientifically managed timber production and are being over-harvested. More alarmingly, the supply of timber and fuelwood are much higher from forests falling outside of FMUs, indicating that there is overall, very high pressure on the forests and its resources.

Moreover, encroachment on any state-owned land or private registered land is strictly prohibited in Bhutan. There are laws such as the Land Act 2007, Local Government Act 2009, Land Rules and Regulations 2007 and Forest and Nature Conservation Rules 2007 which considers encroachment on any state-owned and private registered land as a violation of the law. Despite the presence of these laws, there has been a tremendous increase in encroachments on state land in Bhutan. There are many cases of encroachment in the country where people have encroached mainly for physical developments, commercial and religious purposes and for agricultural and livestock production without any legal permission. Encroachment of state land is considered a problem, and even though there are laws stipulating protection of state land from encroachment, the term encroachment has not been defined anywhere in the legislation.

Several studies such as (Iftekhar & Hoque, 2005; Asif, 2014; Hackenbroch & Hossain, 2012; Manandhar et al., 2016) have been carried out around the globe concerning encroachment of state land and the different causes engendering it. However, there has been no study done on encroachment of state land in the context of Bhutan, and why the public authorities view encroachment as a problem as well as how these changes in the land uses are addressed. Therefore, this study seeks to explore the nature of encroachment of state land in the context of the Kingdom of Bhutan. It does this by looking at how encroachment is approached by the public authorities mandated to deal with the encroachment of state lands such as the National Land Commission (NLC) and other stakeholders. The study also identifies the encroachment processes, causes and the actors involved in the land use changes labelled as encroachment.

### **1.3. Research Objectives and Questions**

With the overview of the literature review and the research problem in the case of Bhutan, general objectives, sub-objectives and related research questions are formulated as follows:

---

<sup>1</sup> The term encroachment in Dzongkha is written as “ཉམ་འཕྲུལ་” (pronounced as *ham-zuel*), where the literal translation of the term into English is; ham: “covet” and zuel: “enter”, enter-covetingly.

### 1.3.1. Research objective

This study seeks to explore the nature of encroachment of state land according to the public authorities and according to actors involved in the process of land use change in one study area.

**Sub-objective 1:** To describe how the public authorities approach encroachment of state land in Bhutan.

- RQ.1. How did the concept of encroachment in Bhutan evolve?
- RQ.2. How do the public authorities define the term encroachment?
- RQ.3. What do public authorities view as the causes of encroachment?
- RQ.4. What are the types of occupants according to the public authorities?
- RQ.5. What are the mechanisms to inventory and monitor encroachment in Bhutan?

**Sub-objective 2:** To identify the processes, actors and causes behind the land use changes labelled as encroachment by public authorities in Chhukha district.

- RQ.1. Where and how did the settlement develop?
- RQ.2. Who are the actors involved in land use changes labelled as encroachment in the study area?
- RQ.3. What are the causes leading the actors to engage in such land use changes labelled as encroachment?

**Sub-objective 3:** To identify the strategic interventions to address encroachment of state land in Bhutan.

- RQ.1. What are the current strategies that are being implemented by the public authorities?
- RQ.2. What are the views of the occupants of state land on the strategies?

### 1.4. Thesis structure

This thesis is structured into seven chapters. The content of the chapters is briefly summarized below.

#### Chapter 1: Introduction

This chapter offers the general information about the research background followed by the research problem and motivation. The main research objective, the sub-objectives and questions are also illustrated in this chapter along with the structure of the thesis.

#### Chapter 2: Literature review

This chapter presents the review of relevant literature to explore existing knowledge in the field of the study. This comprised review of existing literature on the main concepts in the field of study such as state land and management, the definition of encroachment, land use changes, and finally the different causes engendering encroachment of state land. The encroachment process and the approach of the public authorities towards the occupants in the encroached areas, and the different labels given to the occupants are also discussed. The chapter concludes with the description of the conceptual framework for this study.

#### Chapter 3: Research Methods

This chapter describes the selection and justification of the study area along with various data collection methods. It also gives detailed information about the different stages of conducting the study; pre-fieldwork, fieldwork and post-fieldwork. The limitations of the fieldwork are also highlighted in this chapter.



#### Chapter 4: State Land Management in Bhutan

This chapter presents an overview of state land and its management in Bhutan. The different means of allocating state land in Bhutan are also described in this chapter.

#### Chapter 5: Analysis and Results

This chapter presents the findings derived from the analysis of the data (both primary and secondary) obtained from the fieldwork. The results are demonstrated based on the research objectives and respective questions.

#### Chapter 6: Discussion

This chapter discusses the findings presented in chapter 5 in comparison to the existing scientific literature.

#### Chapter 7: Conclusion and Recommendation

This chapter concludes the findings and provides recommendations.

### **1.5. Summary**

This chapter served as an introductory chapter of the research. It described the research background, problem and justification of the research. The main research objective and its corresponding sub-objectives and research questions are discussed in this chapter. The next chapter shall explore the existing literature on the main concepts of the research.

## 2. LITERATURE REVIEW

### 2.1. Introduction

This chapter presents a review of the relevant literature that discusses the concepts related to state land, encroachment and the land use changes as introduced in chapter one. The causes engendering encroachment on state land including the settlement process are also discussed. Furthermore, the approach of the public authorities and the type and label given to the occupants are broadly elucidated in this chapter.

### 2.2. Definition of state land

There are different terminologies and definitions for the land belonging to the government or the state. Zimmermann (2007) defined the term public land in the same context as land owned by the state or by local authorities where the land rights are granted by the government. Similarly, Grover (2009) defined state land as the land belonging to the government who is also responsible for the control and management of the land.

However, the definition of state land is contextual, and the use of the terminologies vary from country to country. For example, the land owned by the state or the government is referred to as 'crown land' in several Commonwealth countries (DELWP, n.d.). Similarly, in Korea, state land refers to the land owned by the state; however, the ownership of public land is vested with the local administration body. This reveals that the use of these different terminologies and their system of tenure vary between different countries. In Nepal, the definition of government land and public land are different as denoted by the Government of Nepal. Government land means roads, railways, and housing government buildings or constructions and forest, rivers, lakes, canals, uncultivated land, unregistered land and other lands denoted explicitly by the Government of Nepal. On the contrary public land means land allocated for use by the general public such as paths, wells, grazing land, courtyards, market area, public entertainment grounds (Acharya, 2009). In Nordic countries like Norway, Sweden and Finland, all the natural areas are defined as public space. Madanipour (1996) describes public space as an area controlled by the public agency and which is provided and managed in the interest of the public giving them access to space and the activities within it. It includes all the parts of the urban fabric to which the public have physical and visual access extending from the streets, parks and squares of a town or city into the buildings which enclose and line them (Tibbalds, 2001). He further added that it is a place where the significant amount of human contact and interaction takes place, especially in the urban areas.

In these definitions, as mentioned above the terminologies are different; however, state land is characterized as land or space owned and controlled by the state or local authorities where the rights are vested in the government. Thus, for this study, the term 'state land' will be used because state land management discussed in the next section refers to the management of state land and public land. "State land" therefore in this study includes public spaces, forest, river banks, unregistered land which are all owned and controlled or managed by the state.

### 2.3. State Land Management

Land Management is the process by which the resources are put to good use. State land management includes the management of all state and public land (Thiel, 2009). It entails the procedures and

institutional means of ensuring that the state land is located, conserved, evaluated, distributed and managed, and utilised on a sustainable basis and to the greatest national advantage (Stanfield & Wijetunga, 2007).

State land encompasses a significant portion of the public property in most of the developed and developing countries (Zimmermann 2007). This requires the preservation and promotion of the use and development of the state land for different purposes and to balance the competing interests of various sectors such as agriculture, tourism, housing, recreation and commerce. Also, effective and efficient management of state and public land directly helps in alleviating poverty, food sovereignty and also in protection of human rights, peace and security (Manandhar et al., 2016). If state lands are not well managed, it can give rise to conflicts between the state and others claiming rights to it such as through encroachment, land grabbing, etc. (Grover, 2009). Further, Zakout, Wehrmann and Torhonen (2006a) also reiterate that incorporating the principles of good governance such as transparency, accountability, participation, equity and effectiveness into public land sector management, property rights of both individuals and the state are protected.

Before going into the main concept of encroachment of state land, it is important to get an insight of the importance of state land management. Thus, given that studies and good practices on state land management around the world emphasize on the institutional arrangement, state land policy and state land information, the discussion here is limited to these three aspects.

### **2.3.1. Institutional arrangement**

The need for a proper institutional setup is an essential aspect of state land management. In the management of state land, there should be clarity concerning which institution (ministry, municipality, administration) at what level (national, regional, local) is responsible for controlling, monitoring and maintaining the records of the state land (Zakout et al., 2006).

Different countries have different institutional settings for managing state land. For example, in the case of Egypt, the responsibilities for allocation of state land for lease, transfer and administration were fragmented across various sectoral ministries before the land reform. However, now the management of state land is all brought under one agency (Zakout et al., 2006). Similarly, in Korea, the state land management involves many different stakeholders such as central government, local government, related organization and individuals. Likewise, for Cambodia, state land management means the use of state land in the interest of the public and ensures access to land for all Cambodians for their private use (Thiel, 2009). The state lands are leased under limited conditions, and cannot be sold, exchanged or changed in terms of its existing land use. The state leases the state land for 15 years. However, the lease can be withdrawn anytime if required except for public interest (ODC, 2015).

The management of state land is mostly decentralized at the local level. In such cases, the basic principles and clear rules must be defined and enforced. This will avoid weak governance and corruption at the local level where corruption is most prevalent (Open Society Institute, 2002). However, though the importance of land management is widely known and is considered an issue at all national, international policy and decision making platforms, many developing countries could not exercise it due to lack of professional capacity (Magel, Espinoza, Klaus, & Masum, 2009).

### **2.3.2. Policy**

Another important aspect of state land management is a comprehensive state land policy. One of the main weaknesses witnessed in the public sector is having a weak land policy (Keith, 2012). The state should determine why it owns the land and whether it is needed to fulfil its policy objectives (Grover & FAO, 2007). Further, the policy should be supported by other subsidiary legislation on state land management specifying provisions on the way state land should be used. The responsibilities, decision-making processes, and provisions for allocating state land should be defined (Zimmermann, 2007). However, according to Brown et al. (2015), the issue is that the laws that govern state lands often identify their purpose, but seldom provides specific guidance concerning how to balance multiple and conflicting uses.

Different countries have different policies, and some have Acts in place of policy. In the case of Australia, the development of land policies is done at the state government level through planning policies while the implementation is carried out by local government. Planning policies provide statements on decision-making (Parker & Newnham, 2004). In the case of the developing countries, forest and other conservation policies reflect their distrust in the ability of the local people to manage the natural resources on which they depend. Even though the states have nationalised forests or other natural resources, state ownership has failed to prevent the land use change and degradation. Thus, many developing countries now embrace participatory approaches to managing the natural resources such as land and forests (Heltberg, 2017). The goal is to promote the involvement of the community in the forest land management (Kiss, 1990).

### **2.3.3. State Land Inventory**

A state land inventory or state land information system is the other major aspect to consider in state land management. Only when it is known and transparent to the public which land belongs to the state, can the land be utilized for the maximum benefit (Zakout et al., 2006). When there is a lack of information or in the absence of a transparent state land inventory, the way state land is allocated will not be known. This will result in situations whereby the state may lose its assets through illegal transfer of state land into the hands of wrong people, illegal logging, land grabbing and mining concessions (Grover & FAO, 2007).

## **2.4. Challenges in state land management**

There are many challenges encountered in the management of state land. Despite the huge differences in institutional contexts and policy solutions, the issues of state property management are common and similar in different countries. This is because almost all the countries manage their public land according to their own set of rules, often following conventional practices rather than exploring and assessing the appropriate type of management practices (Kaganova & McKellar, 2006).

One of the major challenges concerning the management of state land is weak land governance. Land governance mainly concerns the rules, processes and structures through which decisions regarding the use of and control over land are made as well as the implementation and enforcement of the decisions and the management of competing interests are accounted (Palmer et al., 2009). Otherwise, having a comprehensive legal and regulatory framework in place with clear procedures and mechanisms in and of itself cannot prevent illegal conversion if they are not enforced or implemented effectively (FAO, 2016).

Incorporating the principles of good governance such as transparency, accountability, participation, equity and effectiveness into land-related public sector management will protect the property rights of individuals as well as the state (Zakout et al., 2006). This is because the manner in which the state lands are managed may directly contribute to poverty and also undermine the human rights through people being

dispossessed of their land by the state (Grover, 2009). Also, weak governance in state land management will have a huge impact on all sectors such as economic development, poverty alleviation, the environment, political legitimacy, peace and security, and development cooperation (Zimmermann, 2007). Furthermore, another concern regarding the management of state land is often the vested interests of the officials at the central level and in local governments which disrupt the functioning of the management of state land. Meagher (1995) in her reassessment of the informal sector in sub-Saharan Africa argues that the increase in informality is not a process occurring outside the state, but it is the result of an environment of state complicity. She indicated that very often, the activities of the state also have a very close relationship with the interests of its officials. Similarly, Anjaria (2006) in her study also found that the state officials are actively interested and involved in continuing and modifying the relationship between the state and the population to fulfil their interests. In such situations, the state officials do not gain from legitimizing the street vendor's status. Instead, they keep the vendors in a 'constant state of flux' so that they can exercise their powers and exploit the street vendors financially by collecting informal payments known as 'hafta' outside official rules.

Similarly, politicians often build on patron-client relationships and in return ask for votes and political support (Banks, 2008; De Smedt, 2009). This shows how the state officials and institutions take advantage of inconsistencies and indeterminacies in statutory institutions and norms and the weakness of state enforcement strategies. Everybody has their vested interests. Further, another common problem encountered in the state land management is the issue of unclear roles and fragmented responsibilities for managing state land. When the roles of the actors managing state land are not well defined, and the responsibilities are fragmented across various institutions, it can easily result in problems like overlapping boundaries of responsibilities, the vagueness of land rights, inequity, inefficiency in land use and environmental issues (Zakout et al., 2006). For example, in Nepal, since the responsibilities for maintenance of records and protection of government and public land are fragmented across various institutions, it resulted in the main problems like overlapping in the responsibilities. Even there was no custodian to maintain and protect the government and public lands. Due to such weaknesses in the management, the river banks, roads and highways encroached, and gradually this resulted in the formation of slums and informal settlements.

Likewise, many governments share a common problem having a lack of information on where and how much state land they own and what rights are attached to it. There seems to be very little or no knowledge concerning who maintains the state land information in a complex institutional environment, whether the information is up to date, accurate or reliable for the decision makers and planners to adopt (Zimmermann, 2007). Furthermore, even the legal provisions concerning land-use change are most often not harmonized or coordinated between sectors. For example, the forest laws usually stipulate to the provisions related to the conversion of forests; however, there are instances where such relevant provisions are always stated in other land or agricultural laws. This results in inconsistencies and contradictions in the legal framework within the country (FAO, 2016).

## **2.5. Land use changes**

The change in land use is not the same as the change in land cover. Land cover is the biophysical state of the earth's surface, but the land use is driven by and reflection of human intentions and actions (Aiken, 2009).

Travisi, Camagni, Di Lavoro, Eni and Mattei (2005) proclaims that the rapid growth of population is the reason behind the extensive land-use changes in the Himalayas, mainly through the extension of cultivation and large-scale deforestation. Chawla (2012) also adds that population growth and migration of rural poor to urban areas for economic opportunities are the primary causes of land use changes. The accelerated growth of urbanisation in the past century elevated the demand for the built-up area which leads to increasingly severe conflicts between various types of land use. This was followed by continuous replacement of agricultural land and biodiversity hotspots especially in areas such as China, India and pan-tropical Africa where urbanisation is at its peak (Seto, Guneralp, & Hutyra, 2012). Zondag and Borsboom (2009) indicated that the areas which are of high value either ecologically or economically could easily change their functionality, and also other factors such as the availability of water, transport networks, ecology and culture strongly influences the choice of location for new developments, as do residential and commercial activities. Also, the occurrence of human activities and land use change along water bodies in growing towns and cities are a major concern in the developing countries (Ahmed & Dinye, 2012).

Further, many studies showed that the conversion of forest to non-forest uses is increasing. In South Asia, agriculture, cash cropping, shifting cultivation, pasture, forest product extraction and human settlement were the primary direct causes of forest encroachment (Thapa & Weber, 1995). South and Southeast Asia had net losses of forest and net gains in agriculture. In southern Asia, the forests were also converted to agricultural land to support the rapidly expanding population in that region. It is likely that the forest area in southern Asia has declined by more than half in the last 500 years (Aiken, 2009). The analysis carried out by De Sy et al. (2012) on the national data for 46 tropical and subtropical countries showed that the most common driver for deforestation in those domains was large-scale commercial agriculture. The consequences of such land use changes according to Lubowski, Vesterby, Bucholtz, Baez and Roberts (2006) not only reduce the quality of land resources but also diminish the agricultural productivity. Similarly, in Vietnam, environmental degradation (deforestation in particular) has often been associated with poverty among the ethnic minorities (UN-REDD, 2012). However, Traedal and Vedeld (2017, p. 17) argues that "to enable a more comprehensive understanding of land-use change and its management, the focus should be expanded beyond the poverty-environment nexus". The amount of urban development that occurs in an area and its impact on the forests will be determined by the land use policies that are in place and how various land use processes are managed (Diamond & Noonan, 1996).

According to Bittner and Sofer (2013), the 'rural-urban fringe' (RUF), the boundary between the urban area and the countryside, is the area where the transformation process is the most dynamic. It is situated relatively close to the cities which allow frequent commuting and commercial interactions between the urban and the rural areas. As a result, the cost of land increases, agricultural lands are lost, and the lifestyles of the people and the housing patterns are changed. However, in such situation of land use change, Masum (2009) indicates that the focus is usually given as to how to accommodate the increasing population instead of ensuring a better living standard and also the environmental concerns are neglected. The mix of uses in the RUF exhibits both the irregular growth and city encroachment into the rural space resulting to an incoherent land use pattern encompassing agricultural and non-agricultural activities, farms, open spaces, and service centres all of which compete for the same space (Bryant, 2002). Since the occurrence of such sprawl over the suburbs is disordered and unplanned, it leads to an inefficient and unsustainable urban expansion pattern (Travisi & Camagni, 2005).

In addition, land tenure has been recognized as one of the critical elements among the various underlying socioeconomic factors affecting land use change whereas a lack of access to land or a low return per area

of land, leads to the expansion of agriculture into forested areas and the degradation of natural resources (Wannasai & Shrestha, 2008). In a study carried out by Routray and Sahoo (1995), it was assumed that farmers who occupy land without title encountered issues related to eviction and land disputes. Having a secure land title has proven to have a positive effect on sustaining profitable farming that is less destructive to the environment. However, this may not relate to every farmer due to inadequate or fragmented farm size or shortage of labour that can undermine profitability (Arnold, 1983). Farmers may choose the land use system which is most appropriate within their financial capacity or other resources, as suggested by several studies that argue the development of different land use patterns is an outcome of multiple driving factors (Fox, Kanter, Yarnasarn, Ekasingh, & Jones, 1994).

## 2.6. Definition of encroachment

Shitima (2005) defines encroachment as entering some area or property without any permission from the property owners or the concerned authorities. Encroachment could also occur through an interstitial activity such as gardening where private landholders usually extend their gardens outside their legal boundary which could be intentional or not. Likewise, encroachment is also seen as an action of trespass whereby intruding or trespassing on other's property, and no matter how minor the boundary passing may be, it is treated as consequential. These activities entail a boundary crossing which Blomley (2005) calls it an encroachment. "The boundary, in particular, is said to be a remarkably succinct and efficient statement, serving as perhaps the only symbolic form that combines a statement about the direction in space and a statement about possession or exclusion" (Sack, 1986). This could occur on both private or public land but mostly on the latter land (Durand Lasserre & Royston, 2002).

As mentioned in the beginning, the concept of encroachment, informal settlements, slums, illegal settlements, squatter settlements, shanty towns is comparable concepts (Ploeger & Groetelaers, 2006). These settlements are usually developed on private or state land occupied by the people without holding any title contrary to the laid down rules and regulations (UN-Habitat, 2003). Fekade (2000) refer to such settlements as self-planned settlements while OECD (2001) approach it as an unauthorized/unplanned settlement. Since they do not adhere to the planning and building regulations, these settlements are known to grow faster than the formal ones which are built according to building standards and regulations (Munshifwa & Mooya, 2015). Also, it is very difficult to measure the extent or define the boundaries of these settlements, and particularly in finding out the total number of people living in these settlements since the boundaries are not officially recorded or even most of the people are not covered by formal censuses (WHO, 2009). However, there are distinct and different criteria and characteristics that define and distinguish these different terms. For example, the physical, spatial, social and behavioural criterion is used to define slums, and characteristics such as wide range of low-income settlements and poor human living conditions. As for squatter settlements, they comprise of simple shacks and permanent structures, with a population having a wide variety of social, tribal and economic backgrounds (UN-Habitat, 2003). On the other hand, "informal, or spontaneous settlements are settlements whereby persons, or squatters, assert land rights or occupy for exploitation of land which is not registered in their names or government land, or land legally owned by other individuals" (Kibwana, 2000, as cited in Traedal & Vedeld, 2017, p. 1).

The type and forms of such settlements vary from country to country (Ishtiyag & Kumar, 2011). Even the terms used is country contextual. For example, in Kenya, there is no official definition of slums or informal settlements, and these terms are used interchangeably (UN-Habitat, 2003). This kind of informal occupation/settlements are known by different names in different countries; "*barriers*(Peru), *Kachi*

*Abadis* (Pakistan), *kampung* (Indonesia), shanty towns (English-speaking Africa), a *favela* (Brazil), *bidonville* (French-speaking Africa) and so on” (Fekade, 2000, p. 139).

Further, Heltberg (2017) defined the term encroachment as an occupation without a legal title which takes place in all categories of land, including reserve, state forest, and commons. He further categorises the encroachment process into two categories; direct encroachment and indirect or pseudo encroachment. In the case of direct encroachment, local or migrant encroachers live in the invaded land whereas, in pseudo encroachment, local encroachers do not reside in the encroached land instead they lease or rent out the land to other local or migrant encroachers.

The degree and definition of encroachment are very contextual. Therefore, for the beginning of this study, the definition of encroachment would mean occupation or extension of boundaries into the state land without any permission.

## **2.7. Development of the settlement process in the encroached area**

The development of houses in the type of settlements described in the preceding section 2.6 is an incremental process. It is carried out by the occupants without any public assistance in spite of the eviction threats from public authorities in some cases. Information on the availability of such vacant lands is usually sourced through social connections such as family and friends (Winayanti & Lang, 2004). Such information is also obtained from the residents who could be the local landowners or the former settlers who came to the area earlier (Gough & Yankson, 2000).

As mentioned earlier, the houses are built incrementally according to the suitability of the occupants and with intents of residing, renting or both (Fekade, 2000). The method of construction is mainly self-built using an incremental approach which is responsive to the occupants (Steyn 2003). The dwelling units are usually makeshift and do not comply with the building, and land use regulations (UN-Habitat, 2003), and the building materials are mostly second-hand or sourced from the immediate environment (Steyn 2003). Setting up of simple shacks are the first stage in an incremental process of construction (Boyers & Turner, 1976). The houses exhibit high variations in types and quality of construction. They employ local building materials, skills, designs and indigenous technology and do not, especially during the earlier stages of settlement establishment, adhere to formal building codes and standards (Fekade, 2000). Some housing stock is of high quality, erected with concrete blocks, corrugated iron, aluminium, zinc or tin while others may consist of traditional rural construction materials (Fekade, 2000). The house in such settlements usually extends horizontally and vertically to 5 or 6 storeys (Dovey & King, 1978).

Regarding financing the construction, the houses in the settlements are built primarily with informal financing methods, i.e. borrowing from friends or family members, inheritance, sales of inherited land or jewellery and savings in informal credit associations (Malpezzi & Sa-Aadu, 1996). This is because the occupants receive little or no support from the financial institutions, and moreover, the “household’s economic characteristics and financing needs are incompatible with the operational procedures and lending requirements of the financial institutions” (Sheuya, 2007).

According to Fekade (2000), the occupants develop small informal commercial and retail activities in the informal buildings, providing services that increase settlement attractiveness. Besides, the shops not only become their source of income but also a meeting/communication place for the development of a good relationship with the locals and especially the statutory institutions. Gradually, the incremental process



traverses from what the author calls the scattered expansion to collective expansion stage, where approximately half of the settlement's land is built on (Hackenbroch & Hossain, 2012).

Moreover, having access to fundamental services such as electricity and water is very important for the occupants in these settlements. Such services have strong impact on the education and productive income-generating activities of the occupants (Federico, Caputo, Adhikari, & Facchini, 2016). However, since most of these settlements are illegal even though they have been in existence for a long time, having access to basic amenities such as electricity, water and legal right of the occupancy is still a problem in most of the countries (Ishtiyag & Kumar, 2011). Even if they get formal access to the services, the occupants may not afford the regular bill due to irregular income. This forces the occupants to make informal negotiations (Hossain, 2011) where they pay a small amount in return for a share of the power meter line or resort to unlicensed electricians/illegal local suppliers (Smith, 2004). Such type of informal negotiations is usually found in areas where statutory planning institutions are largely absent (Hackenbroch & Hossain, 2012). Illegal connections, therefore, reflect the desire of the vulnerable to have access to the benefits that electricity provides (Federico, Caputo, Adhikari, & Facchini, 2016).

Furthermore, there are many informal tenures emerging out of these settlements. Despite holding no title or legal rights to the land, several transactions such as buying and selling, renting, execution of agreements take place (Dovey & King, 1978). However, the constant fear of eviction instilled in the minds of these occupants impedes and discourages them from further development and maintenance of the structures. In some cases, even if the occupants may be financially in a position to improve their structures, yet they refuse and decide not to risk due to this fear of eviction. As for the tenant, they are indifferent because the structures and the land belong to somebody else. Similarly, the government and local authorities will be reluctant to provide any services given the informal status of these settlements (Hurskainen, 2004). For example in Africa, the illegal settlements such as the slums are usually excluded from the plan for extending the basic services (Federico et al., 2016) or as stated by Shatkin (2004), forgetting of informal settlements in the discourse and maps. This kind of settlement is not only vulnerable to fire hazards but is also considered to have an impact on the environment such as land degradation, eco-balance and air pollution (Wekesa, Steyn, & Otieno, 2011). Moreover, it also poses challenges to security and social cohesion (Trinity College, 2015).

## **2.8. Approach of public authorities towards the occupants of state land**

Despite their role in providing shelter needs of the poor, the government's attitude towards the occupants can range from utter hostility to benign neglect<sup>2</sup> (Fekade, 2000). Some governments apply strict laws to exclude such settlements from infrastructure development plans and also order outright demolition (UNDP, 2005). However, it was observed at the beginning of the 1970s that the attitude towards the occupants in these settlements by most of the governments in the developing world began to change from being hostile to viewing them as indispensable builders of cities (Fekade, 2000).

However, the way in which the public authorities or the government label the occupants settling on the state land without permission/legal rights is country contextual. For example, in Indonesia, the occupants in the squatter settlements are referred to as "*penduduk liar*" (meaning wild residents) which gives a negative connotation. If evicted, these occupants receive no compensation to resettle or build a new home

---

<sup>2</sup> According to Merriam Webster dictionary, benign neglect means "an attitude or policy of ignoring an often delicate or undesirable situation that one is held to be responsible for dealing with"

(Winayanti & Lang, 2004). According to Dovey and King (1978), such settlements cannot be considered as informal also since many of such settlements have grown in situ into well-serviced neighbourhoods and districts over time. Ishtiyag and Kumar (2011) also concur that this kind of settlements plays a vital role in building the city economy, particularly through their works in the informal sector, which is a vibrant support to the city economic system.

## **2.9. Causes of encroachment**

The major factors causing encroachment on state land as identified from the literature are discussed in this section.

### **2.9.1. Socio-economic factors**

#### **Urbanization and migration**

One of the main factors of land use changes and processes called encroachment on a global scale is urbanisation. It is one of the important social and economic phenomenon occurring around the world (Deng, Wang, Hong, & Qi, 2009). Urbanization by its very nature leads to massive conversion of the immediate peri-urban agricultural fields into urban residential use both formally and informally (Gough & Yankson, 2000).

Some of the major driving forces of urbanisation are population growth and rural-urban migration, and these internal migrations are always accompanied by 'push and pull factors'. The push factors of rural areas include the poor standard of housing and infrastructure, unemployment, lack of educational facilities, conflict, and surplus labour whereas the 'pull factors' of urban areas include economic opportunities, good jobs, better education and modern lifestyle (Kotter & Friesecke, 2009). However, the number of migrants in the urban areas accumulate with unemployment issues, and this is where a part of the population starts moving towards smaller towns. Some economists refer to this as Push Back factors. Similarly, the change in land use patterns also resulted from the development of increased commercial activities and mega projects (Swangiang & Iamaram, 2011) and access to employment opportunities (Magalhaes Fernanda & Eduardo, 2007).

Rural to urban migration is one cause intensifying the formation of slums and informal settlements (Hall & Pfeiffer, 2000) since a roof is the first thing any rural immigrant would look for (Turner, 1968). Similarly, Anjaria (2006) found that street hawking is an occupation predominantly taken up by the recently arrived rural migrants into the city with minimal capital and results in taking up informal economic activities ranging from home-based small-scale production to hawking household items, vegetables and cooked food on the street. The common problem of scarcity of housing in the urban centres makes the migrants appropriate state-owned land where there is less chance of being evicted compared to private land. Further, the existence of high-income group areas is surrounded by 'bosti' which was developed by encroaching on state land. These inhabitants of the bosti provide services such as rickshaw pullers (a two-wheeled passenger vehicle drawn by one or more people, chiefly common in Asian countries), housemaid, night guards, and day labourer to the high-income group areas. Every available space within the bosti was appropriated (Anjaria, 2006).

In the context of Nepal, for example, the practice has been to migrate from the extremely rural areas firstly to the local market areas, then slowly to the local towns, and ultimately to the capital city in search of a better livelihood. Thus, there is a heavy influx of rural poor migrants resulting in the appropriation of the public lands (Acharya, 2009). On the contrary to rural to urban migration which is especially in search

of employment, frontier migrants move to resettlement areas in search of land (Shrestha, 1989). Since landlessness and near-landlessness in an agrarian society like Nepal usually mean a lack of social status and poor economic viability, the appropriation of land naturally becomes an overriding socio-economic interest of the frontier migrants (Regmi, 1976; Kaplan & Shrestha, 1982). Such issues of migration according to Obeng (2017) are actually due to unequal access to land. He further argues that other than creating equal access to land, giving social protection and permanent status to the migrants, providing good public services and enabling them to contribute to the commonwealth in the destination settlement would prove to be a much better approach in addressing the migration crisis.

Regardless of urbanisation, another reason for encroachment on state land pertains to rural areas. For instance, farmers with fragmented land parcels find it difficult to compete with large farmers owning consolidated landholdings especially in a situation of competing demands for labour coupled with a high cost of labour and input. Even when there is abundant labour supply since all farmers pursue cultivation and harvesting operations simultaneously, the competition grows (Niroula & Thapa, 2005). Thus, they are often willing to sell landholdings and migrate to urban areas in search of a reasonable and better livelihood (Thapa & Weber, 1995).

### **Population pressure**

Encroachment of forests is usually done by individuals, group of individuals and institutions (Hermosilla, 2000). The increase in population leads to land scarcities forcing those with little or no land to convert forest regions to agricultural land (Little & Horowitz, 1987). In Bangladesh, population pressure and poverty are seen as the major factor engendering people's movement into the forests (Iftekhhar & Hoque, 2005). Schweik, Adhikari and Pandit (1997) also recognised the poor economic condition of the villagers coupled with the large family size as one of the forces leading to over-utilisation of forest resources. Furthermore, the type of agriculture practised like the practice of shifting cultivation can be another cause. In Nepal, farmers require additional land to feed their families and moreover, forest products are often required for cooking fuel, heating, animal feed and construction (Thapa & Weber, 1995). The increase in population which caused forest degradation stimulates further population growth and subsequent encroachment (Hermosilla, 2000).

### **Tenure insecurity**

The other cause for state land encroachment is due to lack of tenure security and related socioeconomic standing of property owners. Tenure insecurity is also found to be closely associated especially with deforestation and forest encroachment. Having secure land documents and titles are known to have a positive impact on sustainable, profitable farming which will be less destructive to the environment. In Thailand, with the hope to acquire basic land use rights and subsequent legal registration, the insecure landholders adopt the plantation of perennial crops (Wannasai & Shrestha, 2008). Furthermore, active cultivation whereby the land is fenced for a longer period in some countries is sufficient enough in cases of adverse possession (Anon, 1991, as cited in Blomley, 2005). It is accepted that secure land tenure provides access to credit that promotes investment and determines the efficient use of the land (Ali, Dercon, & Gautam, 2007). On the contrary, lack of access to land results in expansion of agriculture into forested areas and the degradation of natural resources (Wannasai & Shrestha, 2008). This kind of strategy in using crops as a tool to getting tenure-ship has been known as a common practice in the developing countries (Neef, 2001).

Winayanti and Lang (2004) also concur that because of the illegalities of their settlements, the occupants especially the urban poor encounter problems in getting access to appropriate infrastructure, education, jobs, credit and long-term certainty of occupancy. Similarly, Taher and Ibrahim (2014) also state that security of tenure is a critical factor contributing towards people's housing processes around the world. For instance, after the development of the property, the value of tenure sometimes becomes so high and unaffordable forcing the resident to pass it on and instead resort to informal settlements on state land. Having secured ownership and boundaries according to Tuladhar (2004) can be used as collateral at financing institutions and help the individual to invest and better utilise the land. This is because mortgage institutions nowadays require households to hold a full legal title to their properties to get loans (Sheuya & Burra, 2016). Further, in some countries, people pay land tax despite the informal status of the land. However, payment of tax here only indicates use and not long-term or permanent possession. Still, the occupants do not fear eviction or land disputes with other landholders or to some degree also invest in the land because they are paying land tax to the government and can use the land as long as they pay the tax (Wannasai & Shrestha, 2008).

### **Inheritance practice**

Inheritance practices coupled with population growth are also among the causes leading to encroachment on state land. A typical phenomenon in South Asia is the equal sub-division of different quality of land parcels comprising a landholding among household heirs. The pace of land fragmentation is very high because of the traditional practice of sub-dividing good and poor-quality land parcels among household heirs mainly when they separate. It is not just the parcels that become smaller and smaller with time, but such fragmentation leads to physical dispersion of parcels (Niroula & Thapa, 2005). Also, Uzun and Cete (2004) reinforces that such heritage system practice coupled with the lack of social amenities in the villages and job employment in the urban areas results in migration and appropriation of state land. As a consequence, the number of land parcels increases, however the size of land parcels decreases since it is a heredity tradition to divide the land equally among the inheritors (Thapa, 1993). Even a share of a very small parcel of land not only provides some additional food and cash income but also can be sold or mortgaged out in a time of need for cash. The insufficient small land parcels make the farmers primarily to expand their agricultural field into the nearby state land including forest, and cropping intensification wherever it was feasible (Thapa & Niroula, 2008).

### **Change in agricultural practices and technology**

Further, harvesting technologies and agricultural practices are also reported as influential factors that lead to such land use changes like forest conversion. Firstly, it is due to the switch in agricultural practices from shifting cultivation to the plantation of cash crops especially in southeast Asia (Chun-Lin et al., 1999). Secondly, the emergence of modern harvesting technologies, such as mechanization has been found to have a positive influence on the rate of land use changes like deforestation in developing countries (Ascher, 1995). High demand for good quality agriculture product has led to the conversion of forests to land-use for agriculture and plantations. This stimulates the farmers to take the illegal route to increase their agricultural products in opening more land for agriculture which involves felling trees and clearing land on the slope (Zin & Ahmad, 1992). Also, easy and swift access to a market which Pragtong and Thomas (1992) identifies as an economic variable that not only results in extreme forest consumption but also increases the temptation to over-harvest (Schweik et al., 1997).

### **2.9.2. Cultural**

Even the level of homogeneity of the people within a locality, the extent to which they share a common religious, ethnic or caste background or similar economic conditions, may influence what established norms and accepted behaviours existed within a community. These characteristics can influence how humans relate to one another and play a role in determining the set of socially accepted actions a villager may take regarding forest produce use (Ascher, 1995). A study by Adjei Mensah (2014) showed that religious reasons, family ties and marriage were the most dominant cultural factors influencing the majority of the respondents to live in informal settlements.

### **2.9.3. Political**

One of the identified factors leading to encroachment is due to political reasons. Especially in the cases where a country has an open border with the neighbouring country which usually results in a heavy influx of poor foreign immigrants (Acharya, 2009). The locals become landless by selling off their land to the migrants, and to become economically sustainable, the locals then resort to the protected areas on state land (Sunito & Sitorus, 2007). Further, due to the political instability (conflict) in the country, displacement of people and immigration contributed to higher pressure on the state land. Similarly, politicians often build on patron-client relationships and in return ask for votes and political support (Banks, 2008; De Smedt, 2009). Further, inadequate housing policy by the government and political instability are the two political factors identified engendering people to live in informal settlements. Since there was no housing policy, the only place the people could afford was in the informal settlements (Adjei Mensah, 2014)

### **2.9.4. Institutional**

Another factor causing encroachment is institutional in nature. The encroachment of state land is mostly affected by the institutional arrangement, policy (section 2.3.1 and 2.3.2 respectively) and processes that are in place (Manandhar et al., 2016). There is usually indefinite roles and responsibilities, lack of accountability and procedure in the manner in which the land is distributed, appropriated, disposed or use of state land, and a lack of information on state property (Zimmermann, 2008). All these contribute to the encroachment and construction of illegal structures on state land. Moreover, as elaborated in section 2.3, weak enforcement of the laws is another cause that contributed to the rise in such settlements (Magigi & K Majani, 2006).

Similarly, Fekade (2000) reinforced that institutional factors such as inefficiency of urban authorities, poor land management practices, and inadequate urban planning schemes create informal settlements in urban areas. Furthermore, Sakala (2016) adds that the existing legal and regulatory frameworks mainly give emphasis on the planned areas and do not consider the illegal occupants. “The existing land use control and regulations are becoming parts of the problem, and not of the solution, to find more rational and equitable alternatives” (Fekade, 2000, p. 130). On the other hand, the government and the local authorities do not have enough resources to provide adequate land management and administration and guide development especially the financial inefficiencies of the local authorities (Uzun & Cete, 2004).

Further, to echo section 2.3.3 (iii), the main essence of land administration is its land information system (Mukupu, 2011). A complete, updated and accurate information on state land is essential as inefficiencies in the management of state land can lead to informal allocation and occupation of state land. Also, the exchange of information flow between the national, provincial and municipal cadastres in many countries have not been developed yet (Tuladhar, 2004). Furthermore, “the policy ambiguity, procedural complexity

and prohibitive cost involved in obtaining documents (titles) which legalise ownership of urban land force to further proceed in the ‘informal’ or ‘illegal’ way” (McAuslan, 1985, as cited in Fekade, 2000, p. 131).

### 2.9.5. Conceptual framework

The literature review is summarized in the conceptual scheme depicted in figure 1 below. The scheme provides an overview of the fundamental concepts for this study. The main concepts for this study are encroachment of state land, land use change and the factors leading to this land use change called encroachment. This study seeks to explore the nature of encroachment of state land in the Bhutanese context and its causes. It does this by looking at the term encroachment, and its other dimensions in the discourse of public authorities mandated to deal with state lands, and the processes, causes and the actors involved in what is labelled as encroachment including their interests.

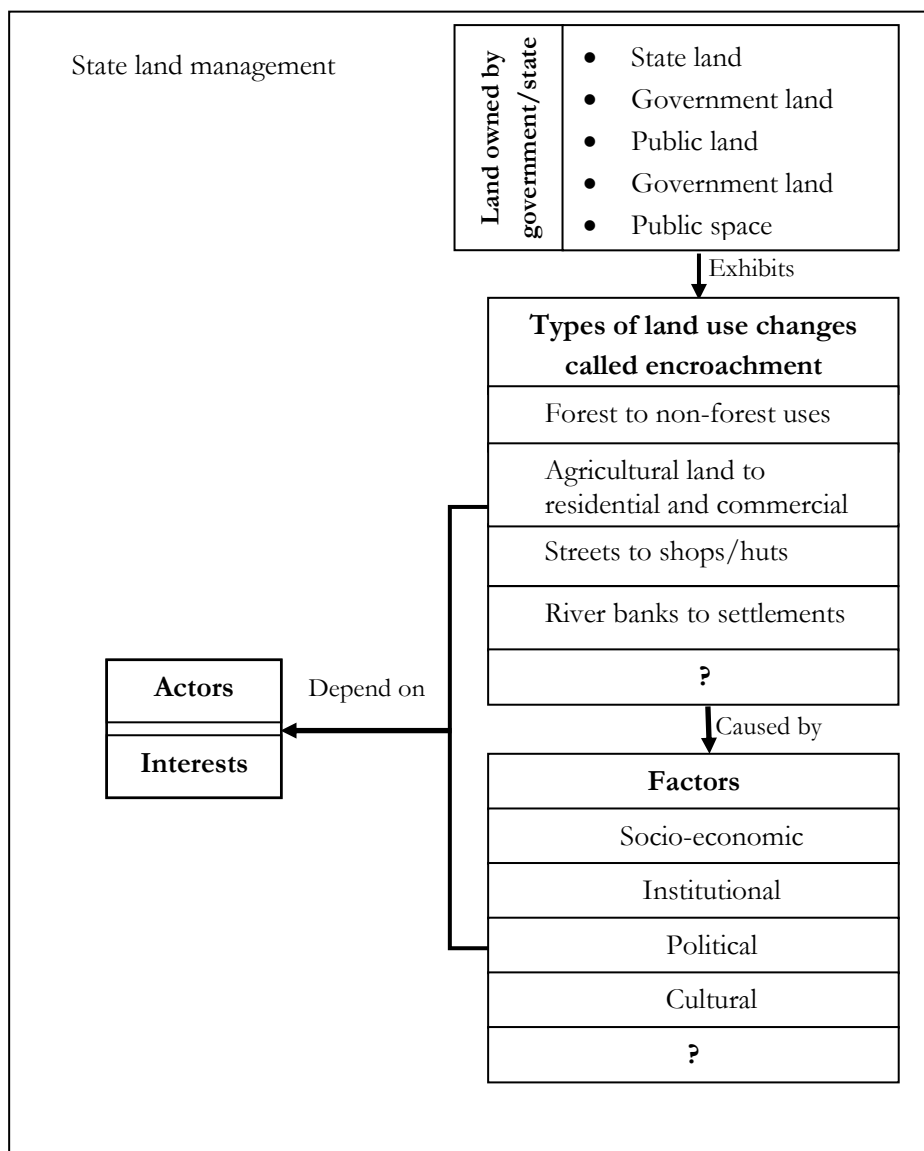


Figure 1. Conceptual framework

### 2.10. Summary

This chapter extensively reviewed existing literature concerning the key concepts for this study. To achieve the objective of this research, a wealth of literature was thoroughly reviewed on the main concepts of this

study at a global scale. Firstly, various definitions and terms associated with state land were discussed followed by the importance and challenges associated with the management of state land. Secondly, the different types of land use change considered encroachment were discussed followed by the definition of encroachment and factors causing it. Finally, it looked into the approach of the public authorities towards the occupants in these areas and also the encroachment processes.

## 3. RESEARCH METHODS

### 3.1. Introduction

This chapter provides insights into the various techniques that were used to answer the research objectives and its questions outlined in chapter one. Section 3.2 begins the chapter with the description and justification of the study area followed by section 3.3 presenting details on the data collection method. The research design matrix and the limitation of the research are described in section 3.4 and 3.5 respectively.

### 3.2. Selection of study area

Chhukha is a district in Bhutan comprising of 11 gewogs (blocks) with a total population of 74,387. It spans over an area of about 1882.38 sq.km and is located at an elevation ranging from 160 to 4480 meters above sea level. There are two main ethnic groups present in Chhukha, the Ngalops and the Lhotshampas. One of the sub-divisional districts of Chhukha is Phuentsholing which is considered as one of Bhutan's top commercial hub (Chhukha District Administration, n.d.) and is known as the gateway city connecting western part of Bhutan with India. There are four main reasons behind selecting Chhukha district as the study area for this research. The reasons are as follows:

- i. According to Land Registrar, NLCS (personal communication on September 11, 2017), Bjabcho gewog (block) under Chhukha district holds the second highest number of encroachment cases registered till date<sup>3</sup>.
- ii. The National Land Commission who is the primary custodian of state land along with its relevant stakeholders is in the process of developing and executing strategies to address the issue of encroachment in the study area. It is essential to know what the strategies are and how it is implemented.
- iii. The author's good acquaintance with the officials at the district level helped in carrying out the interviews and focus group discussions with the occupants of the state land successfully. This had to be taken into account given the relatively short duration of the fieldwork.
- iv. Most importantly, there were larger factors at play in the selected area. Chhukha district holds Bhutan's first and oldest mega power project of 366 megawatts called the Chhukha Hydro Power (CHP). It is historically one of the largest single investments undertaken in Bhutan, and it represents a significant step toward exploiting the country's huge hydroelectric potential. This was the most important project between the government of India and Bhutan where the latter relied heavily on India regarding financial, technical and labour assistance. Chhukha is the district which contributes the highest to the Gross Domestic Product (GDP) of the country. The CHP exports surplus power to India after meeting the requirement within Bhutan. The district also holds some of the country's oldest industrial companies like Bhutan Carbide Chemical Limited (BCCL) and Bhutan Boards Product Limited (BBPL).

The development of the hydropower project was one primary factor that triggered the whole encroachment process in the study area. It started in the 1970s, and since then a large community of illegal township has been developed in two communities namely Tsimalakha and Wangchhu under the village

---

<sup>3</sup> The District with the highest number of encroachment was dropped since it lies in the extreme south of the country, and the available time for the fieldwork was not sufficient.



block called Bjabcho within Chhukha district. There is a total of 75 occupants currently residing in the settlement developed on state land (Land Registrar, NLCS). Therefore, it is an interesting case to explore the different actors involved, the causes and the process of the land use change labelled as encroachment by the public authorities in the context of both rural-urban migration and urbanising effects of large-scale commercial development in Bhutan.

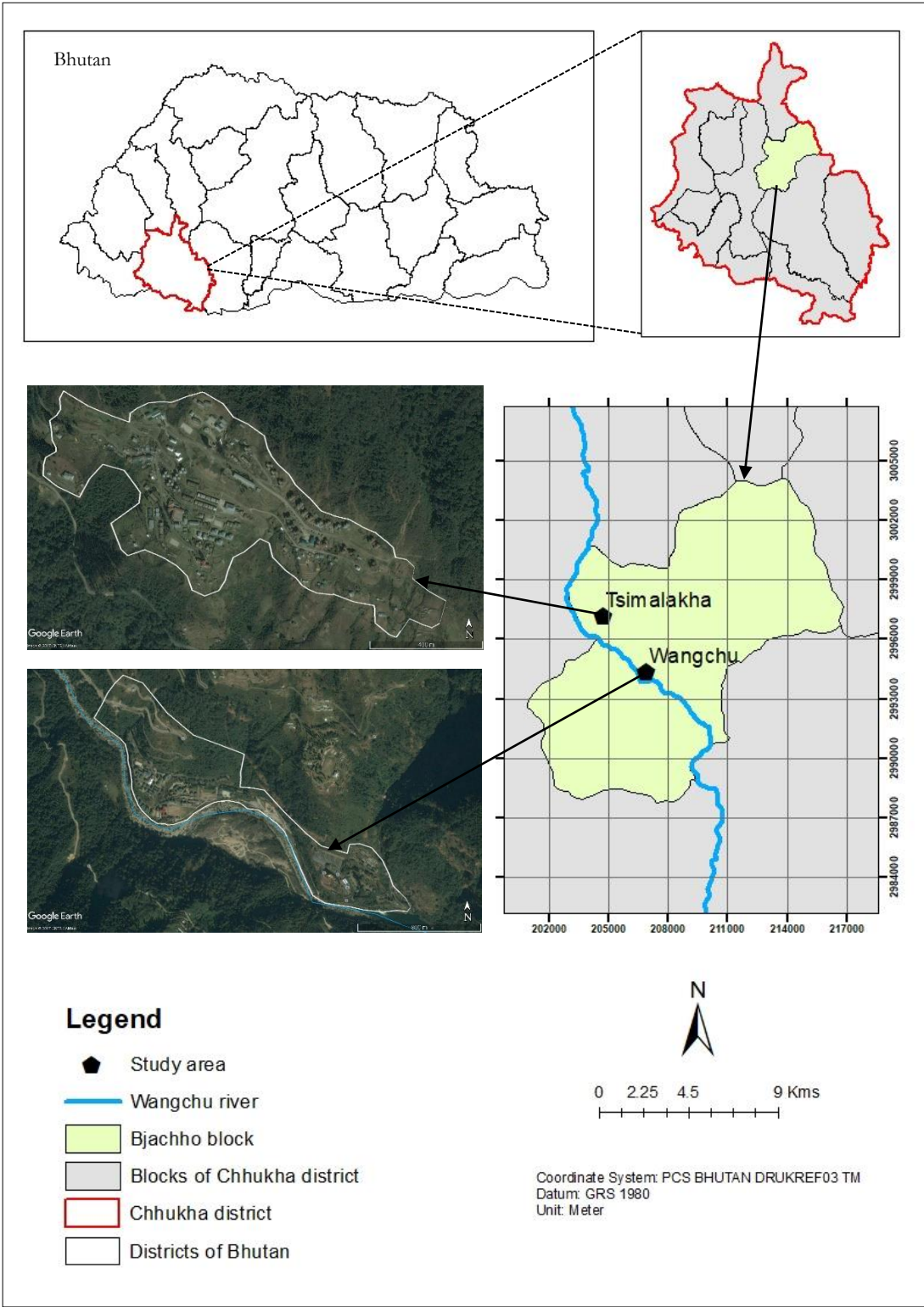


Figure 2. Location of the Study area

### 3.3. Methods

A qualitative method was used to furnish the research objectives and questions of this study. Creswell (2014, p. 195) stated that “qualitative research is an approach to exploring and understanding the meaning individuals or groups ascribe to a social problem. The process of research involves emerging questions and procedures, data typically collected in the participant’s setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data”. Since the phenomenon of encroachment is relatively new in the country, there are no new definitions drawn, neither are the causes nor the actors known to develop a structured questionnaire for the study. Thus, exploratory research was more appropriate to explore definitions, actors and causes first in a qualitative approach.

In this study, primary data was gathered through key-informant interviews with the authorities from the National, District and local level responsible for the management of state land in Bhutan. Also, focus group discussion (FGD), and participatory GIS was carried out with the occupants of the settlement in the study area. Secondary data such as reports and legislation was provided by the concerned authorities. The study was conducted in three phases namely; pre-fieldwork, fieldwork and post-fieldwork. A flowchart of the three phases is exhibited in Figure 3.

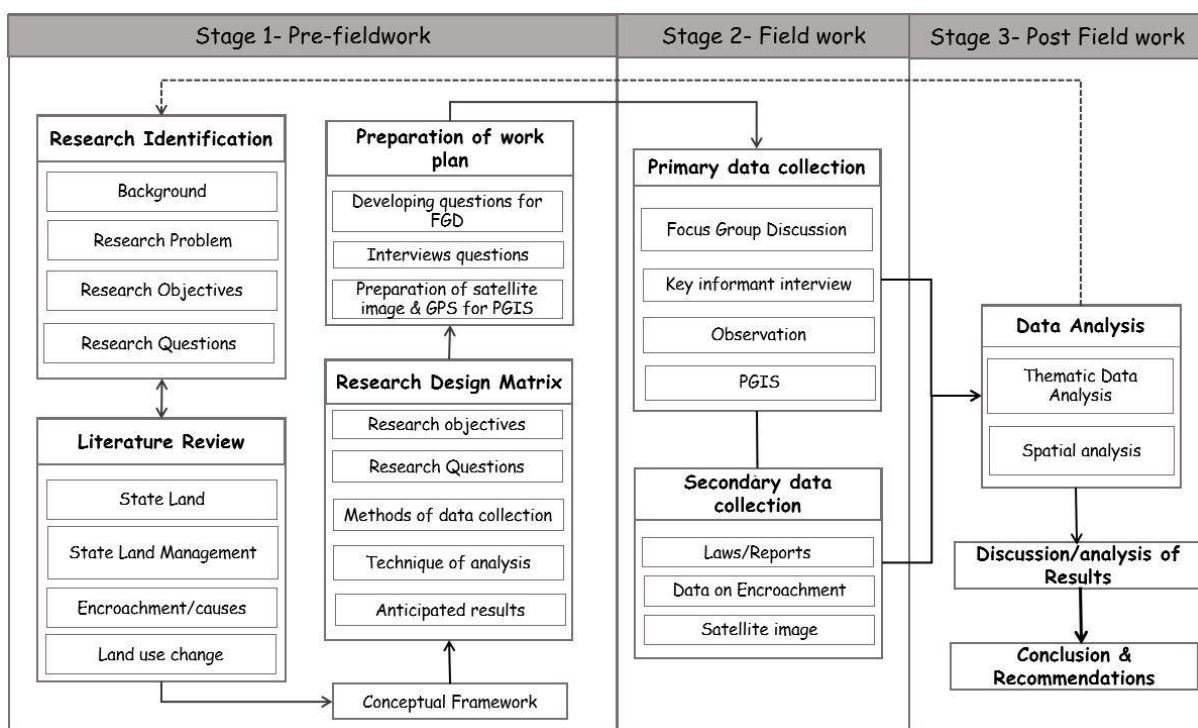


Figure 3. Methodology flowchart

#### 3.3.1. Pre-fieldwork

The pre-fieldwork phase of the study encompassed the introduction, identification of the research problem and the development of a conceptual framework and formulation of research objectives and research questions. For these purposes, the relevant literature was reviewed on the main concepts in the field of studies such as state land management, encroachment of state land and land use changes, and finally, the different causes engendering encroachment of state land including the encroachment process and approach of the public authorities towards the occupants. The selection of the study area and target respondents, developing topic guides for the interviews and focus group discussion informed by the

literature review was also done in this phase (refer appendix C, D and E) along with the preparation of satellite images for the participatory GIS. The topic guides were hinged on the respective research objectives; to describe how the public authorities approach encroachment and identify the processes, causes and actors behind the land use changes labelled as encroachment, and the strategies used to address the issue of encroachment in the country.

### **3.3.2. Fieldwork**

The fieldwork stage involved the use of both the primary and secondary data collection to gather data that enabled responding to the study's research questions. The three primary data collection methods are described in the following. Secondary data was collected during key informant interviews.

#### **Semi-structured key-informant interviews**

A key-informant interview is a qualitative approach to obtaining data from the experts dealing with state land. The flexibility of this method provides a suitable environment for getting in-depth data and especially with the freedom given to the respondent to respond, new concepts or themes can emerge from the interview contributing more to the study (Bryman, 2012). It is also considered a valuable method of gaining insight into the stakeholder's perceptions, understandings and experiences of a given phenomenon and provides in-depth and comprehensive information (Ritchie, Lewis, McNaughton Nicholls, & Ormston, 2014).

Respondents were selected by purposive sampling technique. In this type of sampling method, the researcher determines the type and size of the study respondents in relevance to the research objective and questions (Bryman, 2012). The researcher can also determine the time, places, events or interactions (Lynch, 2008). Due to the researcher's working experience in a land agency of the Bhutanese government, it was possible to select both internal and external experts who can respond to the objectives of this study based on their rich knowledge in a particular field. The respondents identified for the key-informant interviews are listed below in Table 1.

The key-informant interviewees included a mix of officials from the authorities at the Central, District and local level responsible for the management of state land in the country. From the interviews with these officials given their expert knowledge and experiences, information concerning encroachment of state land and its causes, types of occupants, as well as the mechanisms to inventory, report and monitor encroachment were explored. The strategies used to address encroachment in the country as well as in the study area were identified. Moreover, this method provided an insight into the institutional settings and management of state land in Bhutan. Also, the head of the Block was interviewed considering his responsibility as the representative of the people and especially his local knowledge on all the dynamics within his locality. Further, in the interest of the time, one local resident was interviewed who witnessed the development of the settlement. Secondary data such as laws and reports on encroachment, and legislation concerning state land was obtained from National Land Commission (NLC), Ministry of Agriculture and Forests (MoAF) and the Local Governments (LG). An interview guide (Appendix C) was used during the entire process.

Table 1. List of respondents for the key-informant interview

Interviewee	No of interviewee	Field of work
Director, Department of Land Administration & Management (NLCS)	1	State land management and administration
Sr. Survey Engineer, Department of Topographic& Survey Mapping (NLCS)	1	State land and encroachment inventory
Chief, Policy & Planning Division (NLCS)	1	State land policy and legislation
Forestry Officer, Ministry of Agriculture & Forests (MoAF)	2	Management of state forests
Urban Planner, Ministry of Works and Human Settlement (MoWHS)	1	Planning of infrastructure development and human settlement in the country
District Land Record Officer (Chhukha District)	1	Responsible for the management of land at district level
Head, Block (Bjabcho village block)	1	Head of the block
Resident	1	Resident of Bjabcho

### Focus group discussion

The next data collection method was focus group discussion conducted in the study area with two communities namely Tsimalakha and Wangchhu as described in section 3.2 and indicated in Table 2. This approach addressed sub-objective two, and it's research questions which were mainly targeted towards identifying the processes, causes and the actors involved in the land use changes labelled as encroachment in the study area. The Head of the village block assisted in forming the participants for the focus group discussion since his permission was required to conduct research in his jurisdiction. Also, given that the block headman is aware of all the dynamics within his jurisdiction, with his assistance a total of six and seven occupants comprising of both old and new occupants were selected for the focus group discussion in both the communities. The occupants were informed about the objective of the study before the start of the FGD.

This method has been selected because it encourages the respondents to interact, ask questions, share their experiences and views and encourages free discussion among the respondents (Kitzinger, 1995). According to Bryman (2012, p. 503), unlike in an interview, “the focus group approach offers the opportunity of allowing people to probe each other’s reasons for holding a certain view”. This enabled the researcher to discuss the current status of the occupants of the state land, the processes and reasons for moving to this area. All these questions were covered in a detailed manner through this focus group method providing a collective view rather than an individual view. A topic guide (Appendix E) was used in this exercise.

Table 2. List of respondents for focus group discussion

Occupants of state land	No of participants
Tsimalakha group	6
Wangchhu group	7

### Participatory GIS

Participatory mapping also often referred to as “community or indigenous mapping, is a map-making process that utilizes location-specific information acquired from people from a given geographic location,

in a bid to make visible the association between spaces and local communities by using the commonly understood and recognised language of cartography” (IFAD, 2009, p.6).

The main rationale behind the execution of PGIS in this study was to show the encroachment dynamics of the encroachment process, also internally with respect to the larger settlement spatially. The p-mapping exercise was carried out right after the focus group discussion. The participants were initially briefed on the objectives of the research as well as what is expected of them. During the execution of the p-mapping exercise, the participants were trained on the orientation of the maps, and the main key informants were assisted in identifying the major landmarks on the map. A mapping exercise was conducted in both the communities. The occupants were first asked to draw their knowledge of the village boundary and major landmarks such as the roads, river, hospital and school on a chart paper. Next, they were asked to locate the initial place of settlement followed by other areas they have encroached. The fundamental utilities such as access to water and electricity were also located on the map. After the completion of the sketching, the occupants were again asked to locate the same points on the satellite image to make the area more visible and coherent. These exercises are evident in Figure 4.

Post the p-mapping activity; an observatory walk was carried out with the occupants to observe and obtain some information on the ground. This observation also helped the author to verify and cross-check some of the data collected from the focus group discussion with the occupants. Simultaneously with the observation, the Global Positioning System (GPS) points of the areas marked by the occupants on the sketch map were collected.

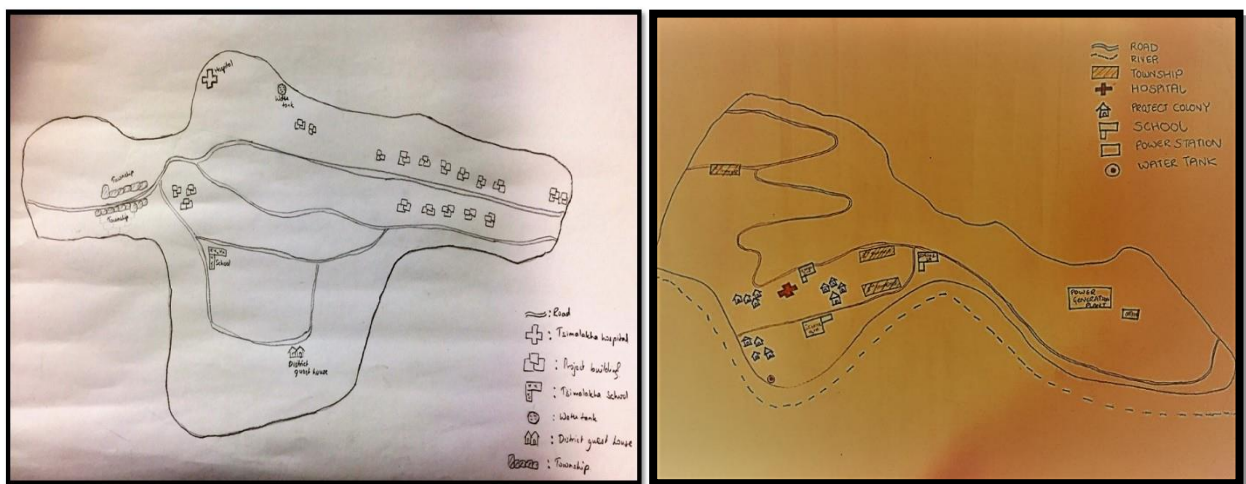


Figure 4. Sketch maps produced from the p-mapping exercise at Tsimalakha and Wangchhu

### 3.3.3. Post Fieldwork

Thematic analysis method has been applied to analyse the findings of this data. In qualitative research, thematic analysis is a method to analyse and categorise the findings into themes and sub-themes (Bryman, 2012). Along with thematic analysis, the method of open coding was also applied since this method provides “the analyst new insights by breaking through standard ways of thinking about or interpreting phenomena reflected in the data” (Corbin & Strauss, 2005, p. 12). The findings from the key-informant interviews and focus group discussions have been compiled, transcribed and analysed based on the research objectives and its questions. The main themes for analysis are shown in Table 3.

Table 3. Main analysis themes of each research objectives

Research objectives	Main analysis themes
To describe how the public authorities approach encroachment of state land in Bhutan	<ul style="list-style-type: none"> <li>• Description of historical evolution of the term and the concept of encroachment in Bhutan</li> <li>• Definition and dimensions of encroachment in Bhutan</li> <li>• List of causes of encroachment of state land</li> <li>• Types of occupants according to the public authorities</li> <li>• Description of the various mechanisms to inventory and monitor encroachment in Bhutan</li> </ul>
To identify the processes, causes and actors behind the land use changes labelled as encroachment by public authorities in Chhukha district.	<ul style="list-style-type: none"> <li>• Description of the settlement process in the study area</li> <li>• List of identified actors in the study area</li> <li>• List of causes in the study area</li> </ul>
To identify the strategies implemented to address encroachment of state land in Bhutan	<ul style="list-style-type: none"> <li>• Description of the various strategies/interventions to address encroachment</li> <li>• Views of the occupants on the strategies/interventions</li> </ul>

As for the p-mapping, the sketch maps of the p-mapping exercise were scanned. Next, the GPS points collected in the field were converted into shapefiles in ArcGIS followed by an overlay of these points in Google Earth. Based on the p-mapping sketch maps, the boundary of the study communities along with the encroached area was digitised. The final map of this whole exercise along with its objective is evident in figure 8 and 9 in section 5.3.

### 3.4. Research design matrix

The Table 4 below provides an overview of the research including the research objectives, questions, the methods applied for data collection, analysis and anticipated outcome.

Table 4. Research design matrix

<b>Main objective:</b> This study seeks to explore the nature of encroachment of state land according to the public authorities and according to actors involved in the process of land use change in one study area.				
Sub-objectives	Research questions	Methods of data collection	Technique of analysis	Anticipated outcome
1. To describe how the public authorities approach encroachment of state land in Bhutan	1.1 How did the concept of encroachment evolve?	<ul style="list-style-type: none"> <li>• Key informant interview</li> <li>• Document review</li> <li>• Online media</li> </ul>	Interpretation of interviews through additional historical (evolution of cadastre) and contextual (media) information	Description of historical evolution of the term and the concept of encroachment in Bhutan
	1.2 How do the public authorities define the term encroachment?	<ul style="list-style-type: none"> <li>• Key informant interview</li> <li>• Document review</li> </ul>	Thematic analysis through open coding	Definition and dimensions of encroachment
	1.3 What do public authorities view as the causes of encroachment?	<ul style="list-style-type: none"> <li>• Key informant interview</li> <li>• Document review</li> </ul>	Thematic analysis based on the main themes discussed in literature and new themes that emerge from the interviews	Identified causes of encroachment by the public authorities.

	1.4 What are the types of occupants according to the public authorities?	• Key informant interview	Classification based on open coding	Types of occupants according to the public authorities
	1.5 What are the mechanisms to inventory and monitor encroachment in Bhutan?	• Key informant interview • State land/ encroachment records	Thematic analysis based on open coding of the various mechanisms	Description of the various mechanisms to inventory and monitor encroachment in Bhutan
2. To understand the processes, causes and actors behind land use changes labelled as encroachment by public authorities	2.1 Where and how did the settlement develop?	• Focus Group Discussion • PGIS mapping • Observation	• Spatial analysis (ArcGIS) • Thematic analysis based on literature	Map showing the encroachment location and other aspects of the land use change process
	2.2 Who are the actors involved in land use changes considered as “encroachment” by public authorities?	• Focus Group Discussion • Key informant interviews	Thematic analysis based on themes from literature	List of identified actors engaged in land use changes labelled as encroachment
	2.3 What are the causes leading the actors to engage in such land use changes?	• Focus Group Discussion • Key informant interviews	Thematic analysis based on themes from literature	List of factors behind the land use changes in the study area
3. To identify the strategic interventions to address encroachment of state land in Bhutan	3.1 What are the current strategies implemented by the public authorities?	Semi-structured interview with key informants	Thematic analysis based on themes from literature	Description of the strategies/ interventions to address encroachment
	3.2 What are the views of the occupants on the strategies?	Focus group discussion	Thematic analysis based on open coding of the views	Views/concerns of the occupants on the strategies

### 3.5. Limitations of the research

There was no study carried out on encroachment of state land concerning Bhutan. This created difficulty in obtaining secondary data for this study, however, the laws along with few reports obtained from the National Land Commission (NLC) as well as the newspaper’s coverage came in handy. Further, given the time constraint, the focus of the study was confined to only one district. It would have been interesting to study the different forms of encroachments in other parts of the country and how they were addressed. However, this could be a basis for further study on state land encroachment in Bhutan.

### 3.6. Summary

The research methods outlined in this chapter provides a summary of the techniques used in undertaking this research. Each of the methods used for data collection was chosen in relation to the research sub-objectives and questions. Since all the questions were open-ended, the use of the interviews and focus group discussions provided the researcher with the required information to answer the research questions. The physical observation in the field enabled the researcher to cross-check and validate certain responses, and the execution of PGIS exercise enabled the visualisation of the encroachment process.



## 4. STUDY CONTEXT: STATE LAND MANAGEMENT IN BHUTAN

### 4.1. Introduction

In this chapter, the management of state land in the context of the Kingdom of Bhutan will be described in order to provide a contextual understanding of the findings of this study presented in Chapter 5. The description includes information such as the type of land tenure system, definition of state land, the laws governing the use of state land and the institutions involved in the management of state land. The various means of state land allotment are also described in this chapter.

### 4.2. State land in Bhutan

In Bhutan, there are two types of land tenure system namely freehold and leasehold. Freehold land means a state of tenure that confers the full right of use, management, transaction and control over the land; an estate held in fee simple or for life. Leasehold land refers to a state of tenure that confers only a right of use of land for a defined period and purpose; land or property held underuse (Land Act, 2007). Further, the National Land Commission (NLC) recently adopted the User Right System (URS) as a supplementary land tenure system in addition to freehold and leasehold specified in the Land Act 2007 of the Kingdom of Bhutan.

Currently, the terms state land and government land are used interchangeably within public authorities. Moreover, the term state land is not used in the current land laws or other sectoral laws in the country. Instead of state land, the term government land was used in the past, and the same has been used in all the documents or laws. The Land Act 2007 contains definitions of ‘Government Land (GL)’ and ‘Government Reserved Forest Land (GRFL)’. According to the Act, the term Government Land means any land and water body within the territory of a Thromde (municipal), the ownership of which is not vested in any person and is under the custody of the Municipal Authority. The term Government Reserved Forest Land is defined as any land or water body outside a Thromde (municipal), the ownership of which is not vested in any person and is under the custody of the Ministry. The land in the urban areas was termed GL and the land in the rural areas as GRFL. However, even though the terms government land and state land are both in use within public authorities and in most of the documents, the term state land has now been adopted and used consistently instead of government land by the NLC, and the other stakeholders are following suit.

In Bhutan, the land is not under the executive authority of the elected government or the politicians. According to the Constitution of the Kingdom of Bhutan, the land is under the prerogative of His Majesty the King who is the Head of the State. Currently, there is no national land policy although land management maybe directly addressed through various other sector policies such as the agriculture, forest, industrial and municipal policies. But there is the Land Act 2007 which constitutes the main law governing the use of state land in the country. There are many other sectoral laws that govern the use of state lands such as the Local Government Act, Municipal Act, Forest and Nature Conservation Act and other Acts. However, the Land Act 2007 is considered the umbrella Act which is the overall governing law for administration and management of state land in Bhutan and is regarded as the basis concerning all land-related issues in the country.



### **4.3. Allocation of state land**

The National Land Commission (NLC) is the main custodian for state land in Bhutan. The Land Act of Bhutan, 2007, places various responsibilities relating to the land administration on the NLC. Although the Land Act provides for a central coordinating agency, the problem of lack of overall policy framework on coordinated use and management of land prevails. The agencies responsible for the management of state land in Bhutan are Ministry of Agriculture and Forests (MoAF), National Environment Commission (NEC), Ministry of Works and Human Settlement (MoWHS), and the Ministry of Economic Affairs (MoEA). One of the most important stakeholders are the local governments (Gewogs, Districts and Thromdes) as well. All these stakeholders are more involved regarding the use of state land to meet specific national priorities. However, the main custodianship lies with the NLC. The following are the various means of allocating state land in Bhutan.

#### **4.3.1. State land leasing**

State land is also leased to individuals, companies and government and religious institutions. State land leasing is a state of tenure that confers only a right of use of land for a defined period and does not imply the ownership of land. State land is leased for various activities such as for mining, agriculture, business and developmental activities. The maximum duration of the lease is 30 years, and it is subject to extension. Further, the lease term is categorized into temporary (6 months), short-term (up to 5 years) and long-term (up to 30 years). The local governments have the authority to approve leasing of state land for temporary and short-term, but only the NLC can approve state land lease on a long-term basis.

#### **4.3.2. Land exchange**

Land exchange is another strategy put in place to allocate state land in Bhutan. In the event, a registered land is destroyed by natural calamities, or the land falls within critical watershed areas, the landowner can always apply for exchange with suitable vacant state land. Of course, there are few conditions to consider regarding the location of the new land.

#### **4.3.3. Land acquisition and substitution**

In the event a registered land is acquired by the government, the landowner is either compensated with cash or substituted with land from the state land. The technical working group comprises of the stakeholders such as the Ministry of Agriculture and Forests, National Environment Commission and the local governments who recommend and forward the cases to the NLC for approval. However, the final endorsement must be sought from the Office of Gyalpoi Zimpon (OGZ).

#### **4.3.4. National Rehabilitation Programme**

The National Rehabilitation Programme is one of the noble programs of His Majesty the King with the initiative of recognizing the linkages between land and poverty. It is targeted towards providing land grants and other supports to ensure smooth and successful rehabilitation for the landless and socio-economically disadvantaged household/communities. The approval will be accorded by Office of Gyalpoi Zimpon (OGZ) under His Majesty's Secretariat.

#### **4.3.5. Use Right Certificate**

The User Right land tenure system strives to provide more effective governance of limited state land in the country for the socio-economic development and environmental well-being. State land is provided on User Right System tenure only for social and religious purposes. Conversion of State land given on URS land tenure cannot be converted into freehold or leasehold. The construction of a permanent structure on land given on URS is permissible except for those allotted for agricultural purpose.

## 5. RESULTS

### 5.1. Introduction

In this chapter, the findings from the field are presented according to the sub-objectives and corresponding research questions. Section 5.2 describes the evolvement of the concept of encroachment, definitions of encroachment, the causes and the types of occupants residing on the state land according to the Bhutanese public authorities. Then in section 5.3, the processes, actors and the causes behind land use changes labelled as encroachment are described for one selected study area considering responses from the government as well as non-government actors. Finally, the strategies to address the issue of encroachment are described in section 5.4.

### 5.2. Sub-objective 1: To describe how the public authorities approach encroachment in Bhutan

Sub-objective one in this study seeks to explore where and how the concept of encroachment originated in Bhutan; and the different perspectives among public authorities on the concept. Before turning to a case of so-called encroachment “on the ground,” this understanding is necessary because the concept is relatively new to Bhutan and it does not necessarily carry the same connotations as in other contexts.

#### 5.2.1. Evolution of the concept of encroachment in Bhutan

Encroachment of State land is an emerging issue in the context of the Kingdom of Bhutan, especially in the present scenario. In Bhutan, the concept of encroachment existed from the time when Bhutan adopted a title system as one respondent explained it: - “once a country adopts a certificate of title system, anything that goes beyond what is legally registered is considered as an encroachment” (Director at NLCS on 04-10-2017). This dates back to a time during the reign of His Majesty the First King where the Certificate of title system was adopted. Since then everything has been based on a Thram (land record) system, and anything that goes beyond what is legally registered has since then been considered an encroachment. However, although the concept of encroachment was born alongside the title system, it did not come into the spotlight at that time.

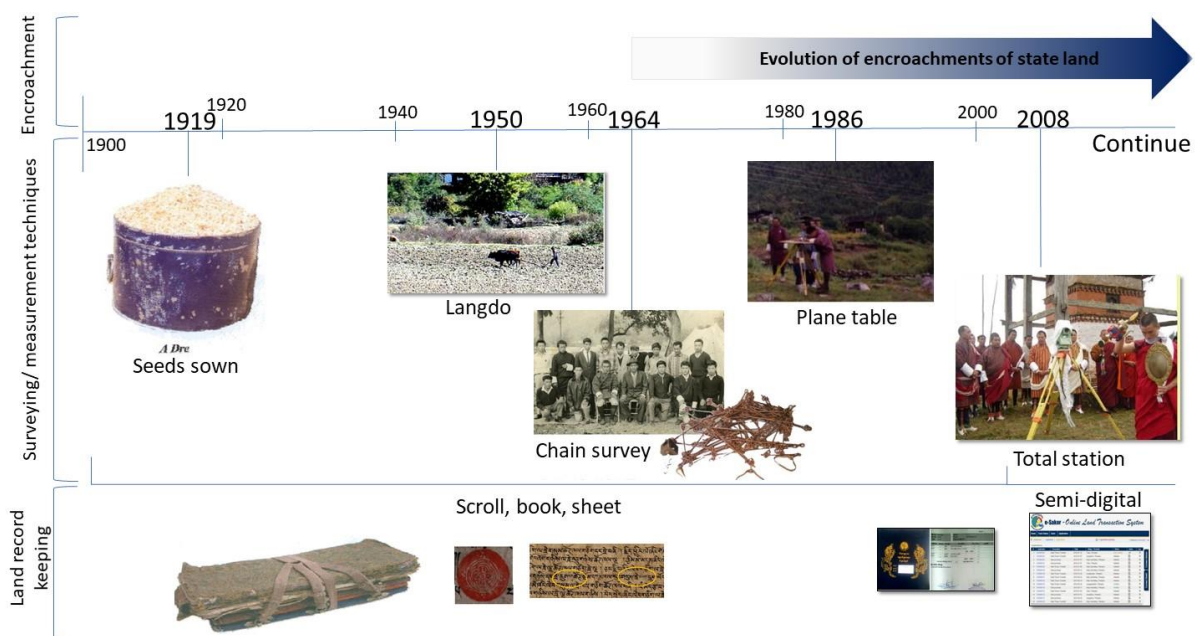


Figure 5. Timeline of the evolution of Bhutanese cadastre

The emergence of the concept of encroachment is related to the overall evolution of the Bhutanese cadastre over the past centuries (Figure 5). The Bhutanese cadastre has seen massive transformations in the record keeping and the mode of surveying techniques. The record keeping of land records in Bhutan started in the 17<sup>th</sup> century with “Marthram Chem”, a written inventory of landholdings maintained in the forms of scrolls, books and loose sheets sealed by a red stamp. Known for its isolation from rest of the world, Bhutan lacked the knowledge about the international systems of measurement. The size of a land holding was indicated by the amount of seeds (soen) that could be sown broadcast in each area and measured in a container called 'dre'<sup>4</sup>. The names of the parcels, description of the boundaries and count of terraces amply provided the identification and locational address of the parcels. In the late 1950s, the records of landholdings changed to 'langdo', a measurement of an area ploughed by a pair of oxen in a day. These changes concentrated more on the improvement of the land taxation system and not the legality of ownership and lacked indexing mechanisms. In 1964, the year to reform the land taxation system, the government removed the unit of measurement of 'Soendre' and 'Langdo'<sup>5</sup> by converting the land records into a more realistic and tangible form for tax assessment by introducing the chain survey. While the surveying technique proved accurate in the flatter valleys, it was subject to error in the areas with irregular boundaries, rough, slopy and thickly vegetated parcels.

However, such inaccuracies became a national concern. In 1980, the government decided to conduct a fresh set of a cadastral survey called New Sathram Compilation (NSC) using a more modern method of surveying and mapping called the plane table survey. The survey used self-reducing alidades for measurement of distances and parcels boundaries. A well-distributed network of control points connected to the national geodetic frame provided the necessary base geographic reference for the survey. During the survey, it was found that people were occupying more area on the ground than what was reflected in the Thram (Director at NLCS on 04-10-2017). This was termed as “excess land” by the public authorities. As a matter of fact, this excess land was in essence encroachment of state land. This exhibits that what is now called encroachment existed already back then, but the term encroachment was not used until 2007 when the Land Act 2007 stated provisions on encroachment. Despite the enhancement in accuracy of the land records data achieved via the plane table survey, the management of the data was still very slow and challenging which lead to the computerization of land records in 1993.

Encroachment came into the spotlight in 2008 when the National Land Commission (NLC) started the National Cadastral Re-survey Project (NCRP) to carry out the nationwide resurvey in the country. During this phase, it was again discovered that people had been occupying a lot more land than their legally registered area for various purposes such as for the construction of houses, grazing pastures, cowsheds, agricultural uses, an extension of the structures and many others. Like in the past, this was also considered as excess land. However, all these excess lands were technically encroachments of state land. All these excess lands in the rural parts of the country were later formalized through the land kidu intervention of His Majesty the King.

Interestingly, a scan on the encroachment cases covered by the media during the last ten years shows an increasing trend after 2009 as exhibited in Figure 6. Internet in Bhutan was introduced in Bhutan in early 2000, and the first internet café was launched in the same year (BBC, 2000). The increase in the trend and

---

<sup>4</sup> The standard gauge for seeds was a container called 'dre' and the area was quantified in terms of 'soendre'.

<sup>5</sup> A 'langdo' is defined as the area that can be ploughed by a pair of oxen in a day. The equation of 3 langdos of chhuzhing(wet land) or 4 langdos of kamzhing (dry land) at present is equal to an acre (Swedesurvey, n.d.)

the media coverage may have further contributed to turning the encroachment phenomenon into a problem warranting public attention post-2008, that is after the nationwide survey.

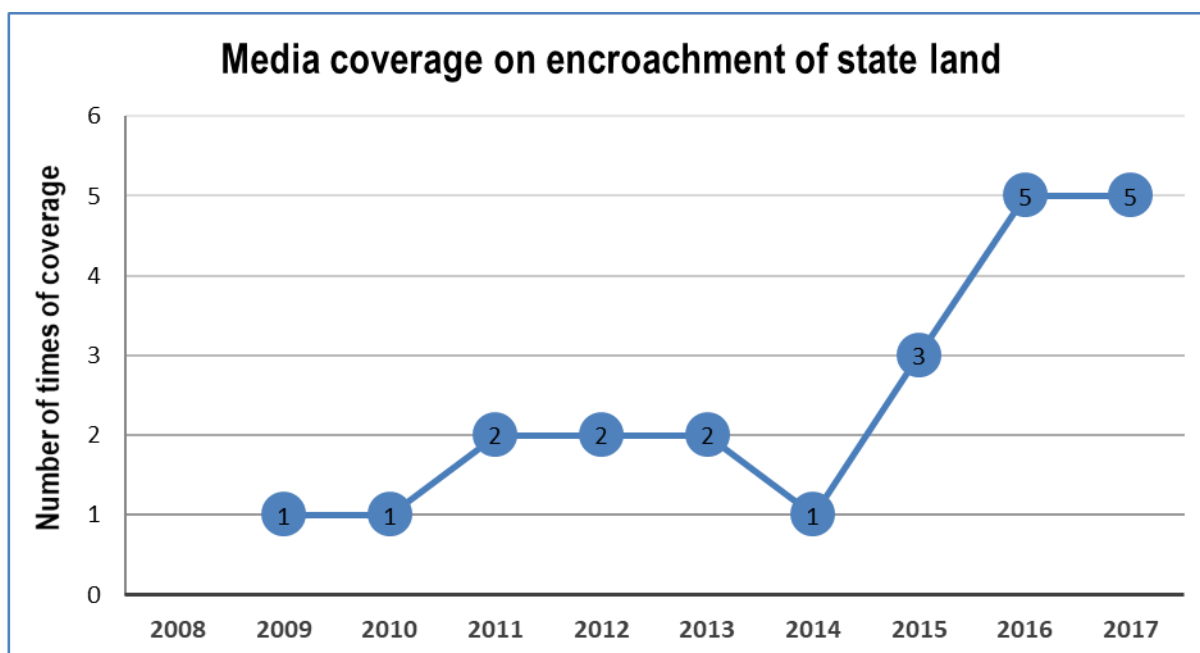


Figure 6. Media coverage on encroachment of state land in Bhutan from 2008  
(Sources: Kuensel, BBS, Bhutan Observer, The Bhutanese, Bhutan Times)

### 5.2.2. Definitions of encroachment

The term encroachment has various meanings to respondents from public authorities even though these definitions are not written down nor defined in any legislation. Rather, these definitions are understood and implemented in practice. Even the Land Act 2007 doesn't define the term encroachment. However, there is a provision in the Land Act 2007 which states that "encroachment on any state-owned and private registered land is prohibited". This means that in the context of the law, anything that goes beyond one's legally registered land into another land be it state-owned or private registered land is considered as an encroachment.

Different people within the public authorities have a different take on the term encroachment based on their professional background as indicated in Table 5. The table shows the differences in the dimensions respondents emphasize; which in turn are likely related to their professional backgrounds. For example, the official responsible for land administration and management views encroachment of state land as something that exists when a certificate of title system is introduced in a country. He states, "*once a country adopts a certificate of title system, anything that goes beyond what is legally registered is an encroachment*". So, the land administration official emphasizes the connection between the existence of a title system and the existence of the concept of encroachment. The survey engineer from the Department of Surveying and Mapping, NLCS emphasizes a different dimension of encroachment by making reference to accuracy and precision in measurement of boundaries. In the event someone crosses a given legal boundary, irrespective of the size of encroachment, it is accounted as an encroachment of state land; and he stated: "*We locate the boundary according to the area in the Thram (land record), and then relate it to the ground occupation. Even if the occupancy beyond the Thram area measures half a decimal, it is considered as an encroachment*" (Survey Engineer at NLCS on 23-10-2017).

Table 5. Different definitions of encroachment

Respondents	Definitions
Director, Department of Land Administration and Management (DoLAM), NLCS	Beyond legally registered land
Chief, Policy and Planning Division, NLCS	Trespassing on state land
Survey Engineer, Department of Surveying and Mapping, NLCS	Accuracy and precision
Urban Planner, Ministry of Works and Human Settlement	Unauthorized and unplanned settlements on state land
Ministry of Agriculture and Forests	Various land uses for production and habitation on state land

Another official from the Ministry of Agriculture and Forests (MoAF) indicated that encroachment is also dependent on the different forms of land uses and locations in the country where it is followed by a land use change. Encroachment in the urban areas occurs in the form of slums dwellings, parking lot and garages on state land. In the rural context, it is in the form of the kitchen garden, potato shed, cow sheds, cardamom orchards or illegal homes on state land. Along the lines of illegality, a respondent from NLC states that encroachment is an unlawful act which is beyond the purview of the law as he explained: *“the act of trespassing upon the domain of another”* (Chief Policy and Planning officer at NLCS on 02-10-2017). In the latter two examples, the emphasis also rests more on the process and activity dimensions of encroachment, whereas the former two respondents view it as a stable concept, either regarding a specific land governance system (with title system) or as a spatial unit (measurable beyond legal boundary).

Similarly, an urban planner from the Ministry of Works and Human Settlements (MoWHS) defines encroachment as an *“illegal occupation of a parcel of land followed by the building of shanty houses built from scraps or materials that are not authorized”*. Through the lens of a planner, what is prominent is the emphasis on the planning and building regulations where a town planning in that locality could be impeded by the presence of the unplanned and unauthorized settlements. It even becomes difficult for the concerned authorities to demolish the structures that have been built considering the time and cost invested by the occupants. Here too, the processes involved in both building, issuing permits, and demolition gain importance in comparison to more static views on what encroachment is. While the focus is on the term encroachment, it is important to note that a number of names (terms) have been devised or used simultaneously with the term encroachment in the country such as informal settlements, illegal settlements, slum dwellings, squatter settlements, unplanned and unauthorized settlements. Furthermore, different forms of housing are also categorized by type or permanence of construction, for example, permanent, semi-permanent and temporary.

### 5.2.3. Causes of encroachment of state land

In this section, the various causes of the encroachment of state land identified by the public authorities are described. Through analysis, the causes have been structured according to the causes discussed in the literature as well as the new causes that had not yet been identified in the literature but were found through the interviews with the Bhutanese authorities as shown in Table 6.

The analysis of the causes indicated by the concern public authorities is shown in Table 6. The causes highlighted in red such as lack of monitoring and enforcement, advancement in farming practices and the good market as well as land grant were indicated across different respondents as the major causes of encroachment. This is followed by the causes in highlighted in yellow such as physical boundary markers, urbanization and rural-urban migration, which follow next in terms of being mentioned by the

respondents. The causes highlighted in green are the least mentioned across the respondents. The causes indicated during the interviews such as the absence of physical boundary markers, land grant, unproductive land and compassionate culture are not found in the context of the literature reviewed for this study.

Table 6. Causes of the encroachment of state land identified by public authority representatives of various sectors. (Green represents the causes mentioned by one to two respondents, Yellow represents the causes mentioned by three to four respondents, and Red represents the causes mentioned by five to six respondents)

	<b>Respondents</b> <b>Causes</b>	Department of land Administration & Management, NLCS	Policy & Planning Division, NLCS	Department of Survey & Mapping, NLCS	Ministry of Agriculture & Forests (MoAF)	Ministry of Works & Human Settlement (MoWHS)	District Land Record Officer Chukha	In literature
1. Institutional	Lack of monitoring and enforcement	✓	✓		✓	✓	✓	YES
	Lack of awareness of formal channels to state land			✓	✓			YES
	Unclear rules & regulations		✓	✓			✓	YES
	No physical boundary markers	✓	✓		✓		✓	NO
	Non-sharing of cadastral records				✓	✓		YES
2. Land Grant	Land grant (land kidu) speculation	✓	✓	✓		✓	✓	NO
3. Socio-economic	Advancement in farming practices and good market	✓	✓	✓	✓		✓	YES
	Unaffordability and unemployment	✓				✓	✓	YES
	Urbanization/ Rural-urban migration	✓	✓			✓	✓	YES
4. Conditions in rural place of origin	Limited land holdings and land fragmentation			✓			✓	YES
	Unproductive land			✓	✓			NO
5. Cultura	Compassionate culture	✓						NO

There are various causes engendering encroachment of state land in Bhutan. Almost all the sectors had similar views and identified institutional shortcomings as one major cause leading to encroachment of state land in Bhutan. There is lack of proper monitoring scheme especially at the local government level (Dzongkhag(District), Thromde(Municipality), and Gewog(block)) which according to the Local

Government Act, 2009 is responsible for monitoring and reporting encroachment within their jurisdiction. However, the constraint of human resources at the local government also contributed to the failure of having systematic monitoring and reporting scheme in place. This was followed by lack of law enforcement which creates more room for the people to take advantage to access any suitable state land. Further, the absence of physical boundary markers on the ground was pointed out as a critical cause although the reasons differed. One official claimed that in the lack of boundary markers there are instances whereby people extend their boundary onto the state land unknowingly. However, on the other hand, especially in the rural context, people clear the trees on the state land adjoining their private forests to do cultivation and for cattle grazing.

Other issues such as unclear rules and regulations and non-sharing of cadastral records have been identified as other institutional drawbacks contributing to the encroachment of state land. The officials from MoAF and MoWHS stated that since they don't have access to the cadastral records which is maintained with NLC, it is challenging for them to recognize the legal boundaries on the ground. The two sectors also emphasized on the lack of awareness among people regarding formal means of accessing state lands especially in the rural parts of Bhutan: *"If people know that there are various means of getting access to state lands such as leasing and Use Right, they may not even encroach on the state land"* (Official, Ministry of Agriculture and Forests).

However, one formal way of accessing state land is the so-called "land grant" (land kidu); and this is not unknown to the people of Bhutan. In this case, it is the speculation with land grant that is recognized as one major cause for the rise in encroachment according to most of the authorities. According to the Constitution of the Kingdom of Bhutan, only His Majesty the King has the authority to grant land to the people on freehold. Thus, in the past and even in the present situation, many encroachment cases in the rural areas have been resolved and formalised through the granting of land kidu (grant) by His Majesty. As mentioned earlier, what was termed excess land during the National Cadastral Resurvey Project (NCRP) is now considered encroachment of state land. Thousands of acres of such cases were formalised through the land grant. People are now beginning to speculate with such land grants: - *"They think that if they encroach beyond their legal boundary, then His Majesty will again grant land kidu and have their land formalised as was the case in the past"* (District Land Record Officer at Chhukha District on 12-10-2017).



Figure 7. Encroachment of state land for cardamom plantation  
(Source; Survey Engineer, NLCs)

Next, unaffordability, unemployment, market accessibility, change in agricultural practices and technology and rural-urban migration are the general factors that combined make up the economic causes. The transition from subsistence farming to large-scale commercial farming and access to market has been pointed out by almost all the respondents across public authority sectors as another major cause

leading to encroachment of state land in the country. The plantation of cardamom



is very suitable in the forests where there is less sunlight with enough humidity in the soil as illustrated in Figure 7. According to the authorities, this is evident in the southern belt of the country where people have encroached huge acres of state land for cardamom cultivation given the lucrative nature of the plant.

Furthermore, since Bhutan has an international boundary with India, people have very good access to the market for their goods. Also, rural to urban migration was indicated as one major cause by the authorities. Due to poor living standard and lack of modern amenities in the villages, most of the people especially the youths in the current scenario prefer to look for a job in the city rather than working in the farms. However, when they are not able to keep up with the challenging urban realities regarding getting jobs or meeting the high living standard, they chose to encroach on the vacant state lands within the city or migrate to another district with opportunities. According to the authorities, this is usually the case in big towns such as Thimphu and Phuentsholing.

Also, unaffordable housing along with unemployment is among the causes why people encroach on state land in Bhutan as indicated by the authorities. This is usually evident in urban areas like Thimphu (capital city) and Phuentsholing (economic hub). Unaffordability here refers to the inequality between the income and the housing prices apparent in these places. The low-income group are not able to afford adequate housing using their financial resource alone due to which setting up rudimentary dwellings on vacant state lands became their only alternative. In some cases, they move to other areas with more opportunities for earning income. Next, unemployment was also found to be the cause especially in the urban context as indicated by the Urban Planner from the MoWHS who is responsible for developing plans related to physical infrastructures in the country. Probably the officials indicated especially these causes because they fall under their work jurisdiction to some degree and he encountered them on the ground.

According to the authorities, factors such as limited landholdings, land fragmentation and unproductive land<sup>6</sup> also contributes to the encroachment of state land in Bhutan. Factors such as limited land holdings and land fragmentation are interrelated. The inheritance practice of equally sub-dividing the landholding amongst the household heirs is very common in Bhutan. This not only results in smaller plots of land through time but physically disperses the land parcels. The number of parcels within a household may be increasing, but the size of the parcel is not sufficient to sustain a family. This is where people gradually encroached the vacant state lands adjacent to their registered land or anywhere else. This usually occurs for cultivation, construction of cowsheds and vegetable gardens and even extension of the house. Further, when the land is unproductive or damaged by natural calamities which is evident more in the eastern part of the country, people resort to vacant state lands. In such cases, the concerned authorities couldn't ask the occupants to vacate, and gradually they set claims to the land.

One official from NLC also claimed that the compassionate culture of the Bhutanese people is to be partly blamed for such increased rate of encroachments in the country. Given the spiritual environment, it was observed that instead of reporting or resolving such issues, the living conditions of the occupants are empathized and the occupancy of state land ignored. Even the fundamental utilities such as electricity and water were easily provided to the occupants.

---

<sup>6</sup> Where the land is destroyed by natural calamities or maybe located far from the settlements, or unfit is for cultivation



#### **5.2.4. Types of occupants according to the public authorities**

Also, to some degree indicative of both the ambiguous nature of the concept of encroachment in Bhutan as well as the various causes and factors related to the process are also the different types of occupants according to the public authorities. These different types/labels are used depending on the nature of the encroachment process.

Not all encroachments or the people who have encroached are referred to as illegal by the authorities. There are some townships in the country that have been developed on the state land without any permission. However, the authorities do not categorize these kinds of settlements or the occupants as illegal. Because there was a time when the authorities in a way encouraged the growth of these towns since it was necessary to serve a community that was forming due to some developmental projects as well as to cater to the nearby villages for a very long time. Nevertheless, the authorities couldn't settle these people in a planned manner nor could they process for regularisation of their occupied area. So, in the present scenario, according to the Land Act 2007, if a person does not have a Thram (land record), their occupancy of land is considered as an encroachment. However, such occupants or settlements are termed as informal and not illegal by the authorities. On the other hand, for those cases where the government didn't take any initiatives or are unaware, and people intentionally encroached onto the state lands, they are known as illegal occupiers or settlers.

Further, the authorities distinguish occupants based on their origin: those from within and migrants from outside a district. Authorities indicated that the people who have encroached on state land for cultivation purposes are mostly from the same district especially in the southern belt of the country where large portions of state lands have encroached for cardamom plantation. In areas where there is good access to attractive and useful public services like school, hospital and market, people migrate from other districts to these viable areas and encroach on the nearby state lands.

Moreover, authorities differentiated occupants of state land based on the concepts of need and greed. So, there are basically two types of occupants who have encroached on state land according to this view. On the one hand, there are the poor, underprivileged and marginal landholders with insufficient land for farming. They are not aware of the formal means of accessing state land and thus forced to encroach on the vacant state lands to sustain themselves and their families. These are the type of occupants who do it out of need. However, on the contrary, there are occupants who are aware of the different means of accessing state land through formal channels. Despite this, they encroach with the hope of getting the land regularized in their names through the land grant from His Majesty the King. According to the authorities, this to some degree is seen as intentional and out of greed to increase their landholdings.

#### **5.2.5. Mechanisms to inventory and monitor encroachment in Bhutan**

Before proceeding to the mechanisms, the first part of this section gives a brief description of how state land and encroachment of state lands are inventoried in Bhutan. This is followed by the illustration of the various mechanisms that enabled to detect, report and monitor encroachment of state land in the country.

##### **Inventory**

Currently, there is no state land inventory or information systems in Bhutan keeping track of state lands in Bhutan. A mathematical formula is used to estimate the approximate extent and size of state land that exists in the country. Basically, this formula takes Bhutan's total geographical area minus the lands that are registered, leased in addition to parks, biological corridors and sanctuaries or as expressed by one respondent:- *"When you subtract the leases, parks etc. from the total geographical area (38, 394kmsq), you get a*

*mathematical figure; we consider that as state land.*” (Director at NLCS on 04-10-2017). There is no detailed information on the characteristics to define the suitability of land for various purposes like industrial, commercial, residential and agricultural uses, figures which would be necessary as a basis for any integral state-led planning and monitoring processes, especially in natural resource management.

However, the country is currently in the process of implementing its first ever zoning project in the 12<sup>th</sup> Five Year Plan. The plan will enable the country to identify and designate dysfunctional and functional land for developmental activities, revalidate and delineate the existing protected areas and agriculture land, industrial areas, human settlements, heritage sites and other land uses based on consultation with relevant sectors. The aim is to arrive at a very accurate figure of the total state land, and various land uses in the country and to provide the impetus for people to make optimal, judicious and sustainable use of the limited land resource.

### **Tracking, reporting and monitoring encroachment**

The Local Government Act of Bhutan, 2009 mandates the local governments to monitor and report encroachment of state lands within their respective jurisdiction. However, to date, there is no exact record of all the encroachments cases in the country, because many cases may not be reported to or known by public authorities. The reported cases of encroachment are being either emailed or forwarded in letters to the NLC, who then go for site visits to verify the reporting on a case-by-case basis. The NLC maintains the records and verifies case-by-case data of encroachments using Microsoft Excel files. So, currently, there is no online system or an interface to record or report encroachments. Instead, the tracking, monitoring and reporting of encroachments of state lands in Bhutan are done manually.

Also, the cases of encroachment are identified by the local government officials, forest officials or through informal complaints. However, lack of human resource is one major challenge encountered by the local governments. To help the local governments operate this task efficiently, the NLC deployed one land inspector each in all the 20 Districts to monitor and report encroachments of state land in the country. Further, information is also received through informal complaints which are either being reported to the Anti-Corruption Commission (ACC), NLC or the Local Governments. Besides, it is also detected by the surveyors executing land transaction works. Also, the Department of Forests initiated a strategy called RESUPS whereby a person is selected from each village to monitor and report any illegal activities such as illegal timber logging and clear felling of trees and check if encroachments occur in the forests.

Several other strategies are in the pipeline to monitor and report encroachment of state land in the country in a more systematic manner because the presence of land inspectors in every district is still not sufficient to detect all encroachments. Thus, the National Land Commission (NLC) is working on collaborating with the Department of Forest who have representatives at the village level. The NLC is also planning to have informal engagements with the communities since they are aware of all the dynamics within their locality and can report the encroachments. On the technological front, the use of drones/UAVs to detect and report encroachments is also being considered.

#### **5.2.6. Summary for sub-objective 1**

In summary, the concept of encroachment in Bhutan originated at the time when the country adopted the certificate of title system. However, even though the concept existed a long time back, it came in the spotlight only around ten years ago. The overall evolution of the land administration system in the country as indicated in Figure 5 contributed in bringing encroachment in the spotlight. The analysis of the

responses according to the public authorities reflects that institutional practices as indicated in Table 6 is one of the major cause for the rise of encroachment. The speculation of a land grant from His Majesty the King also appeared as one primary cause followed by socio-economic causes which are basically the push and pull factors. The common practice of land fragmentation and the compassionate culture are also known to have attributed to the encroachment issue. All these causes are then reflected in the differentiation of occupants that public authorities make, where not every encroachment or the person who has encroached is referred to as illegal in the country. The differentiation is made based on the duration and history of the occupation as well as from the concept of need and greed where the former talks about socio-economically disadvantaged and landless while the latter focuses on an attempt or interest to increase one's dominant land holdings. Further, there is no proper inventory for state land or encroachments in the country. The various mechanism to report or track encroachment is mainly through informal complaints or as reported by other institutions. The NLC deployed land inspectors in every district, however according to the authorities, it is still not enough, and there will be many encroachments still not reported or known by the authorities.

### **5.3. Sub-objective 2: To identify the processes, actors and causes behind the land use change labelled as encroachment by public authorities in Chhukha district.**

This section deals with the process, the actors and the causes for the land use change labelled as encroachment in the study area. Section 5.3.1 gives a detailed description of how the hydropower project and other factors in Chhukha district caused the land use change. This is followed by section 5.3.2 which talks about the various actors that are involved in the land use changes in the study area. The final section 5.3.3 describes the various causes that lead to such land use change in the study area.

#### **5.3.1. Description of the settlement process labelled as encroachment in the study area**

During the initial phase of the establishment of the hydropower project in Chhukha district, the first project base office and residential colony for the project employees was set up in a community called Tsimalakha. The employees comprised of people from Bhutan and the majority was from India. Later, the project office and the residential colony was shifted to another community called Wangchhu since it offered the best scope for constructing the first hydropower project due to the existence of road links and other infrastructures (DGPC, 2012).

The establishment of the hydropower project in Chhukha District was the first of its kind in Bhutan. Hence, a considerable amount of time (1974 to 1978) was mainly spent on infrastructure development to provide access to roads, build schools, hospitals and residential colonies in both the communities. As a result of this, there was good access to the social amenities in the communities, and given such conducive environment, it was a big attraction to people from both within and outside the district. Furthermore, there were no stores or shops to cater to basic needs of the people in the growing community. Thus, people availed this opportunity to operate micro-businesses to supply ration such as groceries, vegetables and other necessities to the growing community: - *"My friend and I used to come to provide rice to my father-in-law who lives in the other village, and we had to cross this area. We noticed that a lot of Indian employees had come, and constructions were going on. This is how my friend and I decided to move here on this land which was vacant"* (Occupant at Tsimalakha on 12-10-2017). Moreover, the physical location of both the communities is located at a point where it is closer to a town called Phuentsholing considered as the commercial hub of Bhutan. Phuentsholing is a big town in Bhutan adjoining the Indian town called Jaigaon, and the cross-border trade has resulted in a thriving local economy. So, the Bhutanese businessmen usually go to import goods from Phuentsholing and across the border as well.

The whole encroachment process at Tsimalakha and Wangchhu started with the occupation of the vacant state land lying near the project areas. The residents at Tsimalakha still resides at the location they have first encroached (see figure 8). However, in the case of Wangchhu, change of location and movement from one state land to another was observed (see figure 9). At Wangchhu, the occupants resided in two different locations before they finally moved and settled in the current location at the lower terrace. Firstly, they occupied the state land, set up huts and started selling groceries and vegetables near the road which they call as the zero-point (First encroached area) where they stayed for around two years. Now, here the occupants received no objection to their presence there. With the preference for more customers, they availed this opportunity to shift to the upper terrace (second encroached area) where the colonies, schools and hospitals were located. However, since the shops were located very close to the school, the project officials asked the occupants to shift to the current location at lower terrace where they are presently residing.

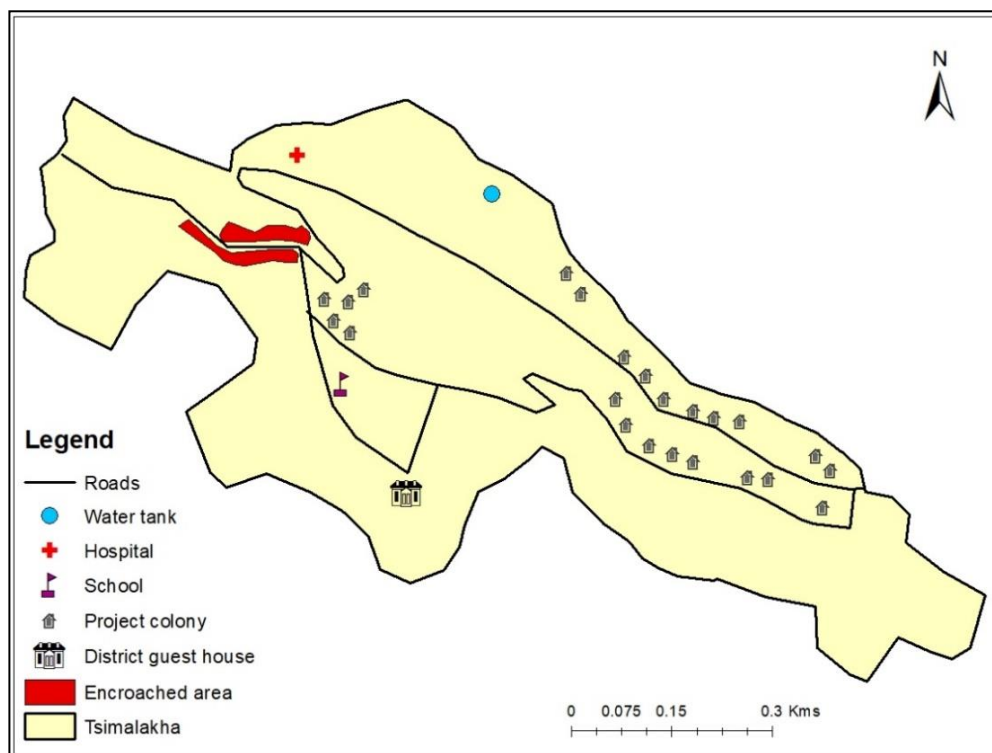


Figure 8. Map showing the encroachment process and present location at Tsimalakha community

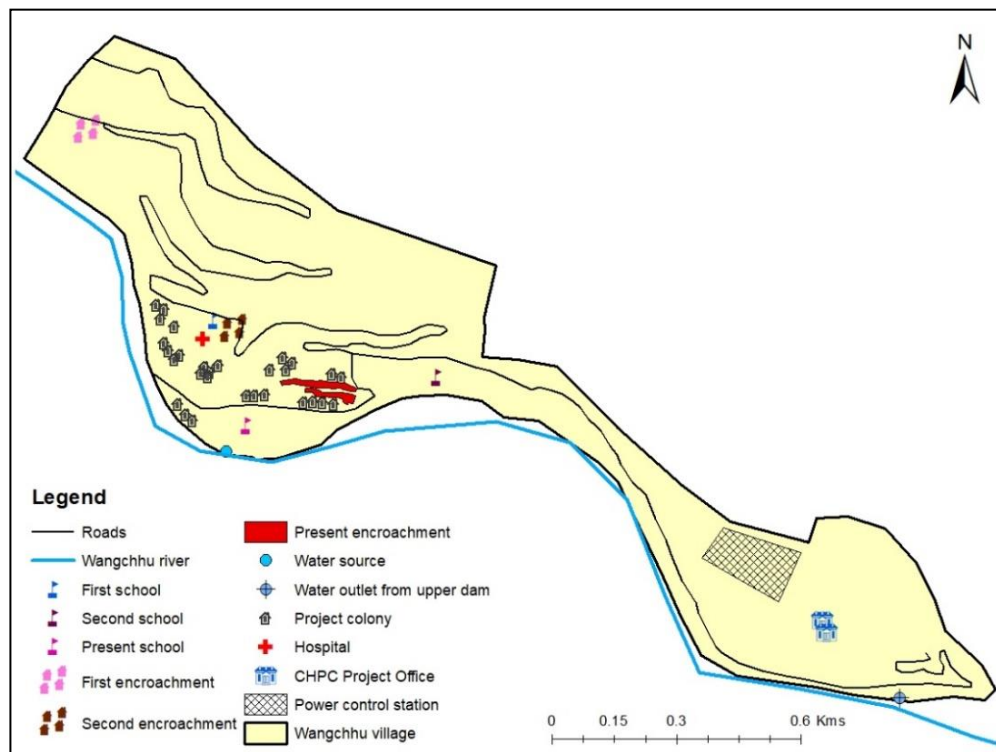


Figure 9. Map showing the encroachment process and present location at Wangchhu community

The next step in the encroachment process in both the communities involved building huts made from construction waste such as bamboos, wooden planks and galvanized steel sheets. Also, it was apparent in both the communities that the occupants who encroached earlier had occupied more land given the current size of the house and the area. Slowly, relatives and friends started to move in and occupy the vacant land next to each other. They enrolled their children in the schools and benefitted from the hospital located nearby. Further, there were instances whereby some of the occupants had to borrow money from one another to repair or construct the house keeping the house as the collateral. When the occupants started repairing and maintaining the condition of the houses, the District administration informed the people to obtain the approval for repairing the houses. In both communities, it was made clear to the occupants that they were residing on state land and the land did not belong to them. Some obtained the approval to repair while others proceeded without any approval given that the inspection by the District administration is rare. Through the established relationship with the project employees, the occupants were able to gain access to electricity and water. They had to pay a small charge for the electricity, and the water was for free. In 2002, when Bhutan Power Corporation (BPC) was formed, all power charges were paid to BPC. In the past, the District administration maintained a record of all the occupants and collected land tax until 2007. Several transactions such as buying, selling, inheritance of the structures on the land had taken the place of which the District administration maintained a record. Thus, the current occupants at both Tsimalakha and Wangchhu consist of people who had bought the structures/houses from the former occupants.

Now, in terms of pressure to vacate, the occupants at Tsimalakha did not face any pressure to vacate the land. However, in the case of the occupants at Wangchhu, they started to encounter pressure to vacate when the occupied area was registered in the name of CHPC in 2007. Post registration, the occupants at Wangchhu have been pressurised several times by the CHPC to vacate the land or take it on the lease. Since the makeshift hutments are located in the core of the CHPC colony without any proper setbacks

and vulnerable to fire hazards, it was considered a direct threat to the residents, school and the entire power plant given its location. However, the occupants refused to comply because as one person stated: - *“Now if we are asked to vacate, we cannot go to other areas as we are financially not in a position to purchase another land and settle, and we cannot go back to the village since we don’t have a productive land there”* (occupant at Wangchhu on 08-10-2017).

Due to the hydropower project, the services, employment opportunities, as well as the community, has grown, and even the value of the land has increased drastically in both communities. The previous office and residential buildings of the project at Tsimalakha have been taken over by different government sectors, and a large community has now grown. As for Wangchhu, the number of people per household living in the CHPC community has drastically increased since the employees are all Bhutanese unlike in the past where it was mostly the Indian employees who did not have their families with them during the establishment phase of the project. With good access to all fundamental services such as the hospitals, schools and a bigger community to cater, the occupants in both the locations are hoping for the possibility of regularisation of tenure.

### 5.3.2. Actors behind the land use changes labelled as encroachment in the study area

The various actors involved in the land use changes described above in the study area are listed in Table 7. The occupants comprise of two types, the locals and the migrants. The local group which talks about intra-district migrants comprises of the people from the same district who have encroached and currently lives in the occupied land. On the other hand, there are also occupants who do not live on the encroached land but rented out the house to others. Similarly, there are considerable inter-district migrants as well. Internal migration in Bhutan has been mostly rural to urban, as reported in both the Population and Housing Census, 2005 and the Rural-Urban Migration Survey, 2005. The flow of migrants is at present from the east to west. This is mainly said to be because most of the major urban centres are located in the west. Amongst these migrants, there are occupants who have migrated and live on the encroached land. However, there are also migrants who have encroached but rented out the house to others and reside elsewhere. Amongst the occupants at Tsimalakha is one non-Bhutanese, who used to work as a barber for the project employees from India. He chose to stay back and cater to the local community even after the completion of the project. He also bought the house from a former occupant.

Table 7. Actors behind the land use changes labelled as encroachment in the study area

Actors	Non-governmental	Occupants	<ul style="list-style-type: none"> <li>• Occupants residing in the encroached land</li> <li>• Occupants who reside elsewhere but rented out the house to others</li> </ul>
		Migrant	<ul style="list-style-type: none"> <li>• Inter-district migrants</li> <li>• Non-Bhutanese (Indian)</li> </ul>
	Governmental	Local government	<ul style="list-style-type: none"> <li>• District administration for collection of land tax and recordation of transactions</li> <li>• CHPC project and BPC for collection of bills for water and electricity</li> </ul>
		Central	<ul style="list-style-type: none"> <li>• Ministry of Economic Affairs (MoEA): for issuance of business license</li> <li>• Royal Insurance Corporation of Bhutan (RICB): for insurance of the houses</li> </ul>

Further, there are the buyers and sellers. Most of the current occupants have bought the lands from the previous occupants who encroached and built the houses. The present occupants claimed that they bought the land considering its viable location, reasonable price, fundamental services and some even mentioned the possibility of regularisation of tenure. While the seller and the buyer are direct actors

involved in the encroachment process, the Chhukha District Administration indirectly played an essential role as facilitators for the successful transference of the structures on the encroached land. They maintained a record of the occupants of the state land, and whenever a transaction took place, the name of the new owner was accordingly replaced in the register. The land tax was also collected until 2007. Further, the CHPC and Bhutan Power Corporation (BPC) provided the basic utilities such as electricity and water. Few of the occupants even availed business licenses from the Ministry of Economic Affairs (MoEA) and insured their shops with Royal Insurance Corporation of Bhutan (RICB).

Also, the type of housing structures in the settlement reflected the differences in economic status amongst the occupants. For example, the structures shown in Figure 10(a & b) are weak and vulnerable unlike figure 10(c) which is cemented with good galvanized steels roofs. Such cemented structures according to the District administration are considered permanent structures.



Figure 10. Images of structures categorized according to economic status

### 5.3.3. Underlying causes of encroachment in the study area

This section describes the underlying causes of encroachment in the study area. The major causes accelerating encroachment in the study area have been distilled from the processes described above and are categorized as; i. Push factors for migration, ii. Pull factors for migration, and iii. The factors that allowed the occupants to settle and reside in the study area.

#### Push factors for migration

##### a. Land fragmentation practice

The limited land holdings coupled with large family size is one cause for people to encroach on state land. People claimed that lack of land within the family when further sub-divided amongst several siblings leaves them with smaller plots which are not enough to sustain their family. Some even mentioned that the only plots they own are uncultivable, and they have no other alternative than to cultivate on the state land. *“My parents had seven children, and the land was equally divided amongst my siblings and me. However, the land I inherited was not sufficient to sustain my wife and four children”* (Occupant at Tsimalakha on 12-10-2017).

##### b. Lack of economic opportunities and fundamental services

The lack of economic opportunities in the rural areas was one reason that pushed the occupants to settle in the current study area. There were no other opportunities apart from farming in the villages. For the farmers, the income they earn from the farming was insufficient to sustain the family and the education expenses of their children. Further, many occupants complained about the lack of fundamental services such as hospital and school in the villages. The schools were located far from their homes making it difficult for their children to commute to school daily. *“Here there were good services at the hospital. Also, our children could go to school without getting us worried because back in the village they have to walk long distances to reach their school”* (Occupant at Wangchhu on 08-10-2017). Among the occupants were also the former retired

employees of the project. They chose to stay back instead of going to their villages considering the economic opportunities and the availability of the essential services in the district.

### **Pull factors for migration**

#### **a. Economic viability:**

Almost all the respondents indicated that the CHPC is one major reason for settling at the current location. Chhukha Hydroelectric Power Plant, the first hydropower plant in Bhutan and one of the most important projects between India and Bhutan was developed at Bjabcho under Chhukha district. The project relied heavily on technical, financial and labour assistance from India. Thus, the start of the project was accompanied by employees from India who was settled in the study areas, Tsimalakha and Wangchhu. Considering the large community of Indian and Bhutanese employees working for the project, newcomers to the areas took this as a platform to generate income by catering to the project employees by supplying ration such as rice, groceries and other necessities.

#### **b. Good market**

The feasible location, even without the project itself, gives the occupants good access to markets; and this also encouraged the encroachment process. The study area is located within a short distance from Phuentsholing which is considered as an economic hub of Bhutan. This makes it easier both regarding cost and time for the occupants to get goods for their shops. Moreover, the project and the nearby communities were the main targets as customers to cater.

#### **c. Access to public services and infrastructures**

The presence of good services like school and hospital coupled with good infrastructures is something that attracted the occupants to encroach on the state lands nearby these areas. Such facilities according to the occupants were not available in the rural areas. The occupants both the locals and the migrants found this as one significant means of increasing their income and improving their quality of life especially in enhancing their children's education.

*“All my children have started their schooling here, and with the small income generated from this shop, they all have graduated and are now employed”* (Occupant at Tsimalakha on 12-10-2017).

### **Factors that allow to settle and reside**

#### **a. Possibility of regularisation**

The possibility of regularisation through the land grant of His Majesty was deep-rooted within the minds of the occupants. Some of the occupants are aware that the structures they bought had been constructed on state land and still purchased it. In the past during the time of NCRP survey, many excess lands (encroachment) was regularised in the villages by His Majesty, and thus people expect the same grant process in the future. Further, the occupants at Wangchhu even refused to take the land on the lease as proposed by CHPC officials. They claimed that if the land is leased, the CHPC would have the right to ask the occupants to vacate the land anytime. Moreover, they supplemented that a leased land cannot be used as collateral with the banks. The occupant's fear of insecurity and their inability to finance obstructed their desire to repair and maintain the houses.

#### **b. Institutional practices**

In the past, the District Administration maintained a record of the occupants residing on the state land. Every time a new person bought the structures, the name in the record was changed accordingly. They



even collected land taxes from the occupants up to 2007. Further, the Ministry of Economic Affairs issued shop licenses for the shops built on the state land. According to the occupants, they only needed to produce their citizenship identity card to obtain a shop license. Even utilities such as water and electricity were provided, and the rent for the latter was collected. Such flexible services from the authorities in a way made the occupants set claims to the land since the collection of land taxes was usually done in the case of a legally owned land in Bhutan. In other words, despite lack of formal regularisation, tenure is de facto formalized through records in district administration and other formalities having been put into place through a variety of actors in the institutional environment.

Further, there was no monitoring, or any objection when the occupants first encroached and started to fence the area. The occupants availed this opportunity and gradually with one encroaching, relatives, friends and others followed suit. The concerned authorities did not monitor if the land given for the project was used for the intended purpose. Moreover, the lack of monitoring even increased the risk of disasters in the settlement given the shanty, and vulnerable houses which have been built close to each other. Risks about high-density housing include fires for example:

*“We had few fire incidents in the past, and we were lucky to have contained the fire from spreading to other houses. The houses are all closely built to one another that if a fire occurs, all the houses will go down in flames and we will be left with nothing”* (Occupant on 08-10-2017 at Wangchhu).

Even the types of structures constructed on the ground were permanent despite the fact that the occupants were not allowed to construct permanent structures. This shows the lack of monitoring and enforcement issues on the part of the concerned authorities. Besides, the occupants are not much aware of the different channels or institutions which are there to facilitate the people to get access to state land legally. However, people are now aware of state land leasing, and the occupants at Wangchhu have been even pressurized by the CHPC to take the land on lease. According to the Land Lease Rules and Regulations 2009, a lessee cannot mortgage or use the land other than the approved intended purpose and must vacate the land as and when the land is required for the public interest.

#### c. Compassionate culture

The local communities or the local authorities did not object when the occupants came to settle there. The objection came only with regard to constructing permanent structures or repairing the house without the approval of the project or the District administration. The services were also provided to the occupants as long as they paid the bills. According to the locals living nearby, firstly they were of the thought that the occupants were permitted to reside there, and secondly, they were busy with their daily work, but with time they even became friends with the new settlers.

#### 5.3.4. Summary for sub-objective 2

In summary; the development process of the settlement in the study area showed an incremental process starting from the appropriation of the land to constructing the house and getting access to the fundamental utilities. As indicated in Table 7, basically the actors involved in the land use change labelled as encroachment in the study area comprises of the governmental and the non-governmental actors. The governmental actors comprise of the local government, the CHPC project, the MoEA, BPC and the RICBL. The non-governmental actors include the occupants, the locals, and the former project employees including one non-Bhutanese. The main causes behind encroachment in the study area were primarily due to the development of the national mega hydro project which gave rise to economic opportunities. This

was coupled with the socio-economic factors which were the reason behind the rural-to-urban migration practices. However, there are various other factors that came into play such as the location and the institutional practices at the local government. Further, the possibility of regularisation through the land grant and the compassionate culture of the Bhutanese also contributed as main factors behind the land use change in the study area. Next, the necessary strategic interventions put in place to address these issues of encroachment is discussed in the upcoming section.

#### **5.4. Sub-objective 3: To identify the strategic interventions to address encroachment of state land in the country.**

This section describes the various strategies implemented in the past as well in the presented scenario to address the issue of encroachment in Bhutan. Also, the responses from the occupants of the state land regarding the implementation of such strategies are described here.

##### **5.4.1. General description of the strategies implemented in the country to address the issue of encroachment of state land**

There are various strategies to address the issue of encroachment in Bhutan. Encroachment of state land for the construction of cowsheds, potato sheds, vegetable garden, cultivation, and setting up makeshift hutments along the highways or roads is found very common especially in the rural areas. However, in the urban context, encroachment of state land was carried out for the construction of parking lot, garages and slum dwellings. Thus, the manner in which encroachment is addressed in the country is dependent upon the type of encroachment and where it has occurred.

Flexibility was always offered in all the different ways an encroachment has occurred. In the cases where the structure has partly encroached onto the state land, a realignment of their legal boundary was done. So that whatever state land is occupied by their structure, an equivalent amount of land is being deducted from the same plot where there is no structure. The reason for this flexibility and tendency to regularize rather than demolish is indicated by the Director at NLCS: *“Encroachments are difficult to address when there are permanent structures, and it is difficult and socially very sensitive. Economically it is a great hardship if it is to just demolish a house especially in rural areas where people have spent decades of their savings and put in a lot of hard work to build the house”* (Interview on 04-10-2017). In the case of encroachments which was done for activities such as for the construction of cowsheds, potato-sheds and vegetable gardens, such type of encroachments was usually formalized in the form of a lease or use right. However, the setting up of fences by people is regarded as an indication that they speculate on receiving land grants from His Majesty the King. Such people are given the notice to remove the fencing.

Before any such actions, each encroachment is verified case by case on the ground as part of the strategies to address the matter. In the event, a family is found to be landless or near landless and socio-economically disadvantaged, the National Land Commission (NLC) facilitate these people to process to receive the land grant from His Majesty the King through the People’s Welfare Office. The NLC verifies the landholding database which is integrated with the census database, to see if any of the occupants own how much and what kind of land and carry out some profiling on the ground to verify the genuineness of the case. According to the Constitution of the Kingdom of Bhutan, it is only under the prerogative of His Majesty the King to grant land in the country. The most noticeable interventions out of all are Welfare (Kidu grant) interventions from the throne, out of which Land Kidu (land grant) is one of the primary interventions. The landless and socio-economically disadvantaged/ marginalized communities whose livelihood means are dependent on farming have been receiving land kidu from the throne with complete

resettlement packages through National Land Rehabilitation Program (NRP). As stated in the beginning, the nationwide land re-survey project in 2008 brought to light various discrepancies in land use, records and ownership across the country. The discrepancies are being resolved conclusively with His Majesty's granting of land Kidu (land grant) to those people who have been using state land for generations without ownership (Kuensel, 2017).

Similarly, there are several encroachments on state land in the country that developed into a township/settlement or a district. As described in section 5.2.4, in the past, the government encouraged the growth of some of these townships to cater to the community that was developing due to some infrastructure developments or projects like in the case of Chhukha district. Thus, realizing the duration and history behind the settlement of these townships, the NLC in consultation with its stakeholders carry out ground verification including surveying the area, compilation of statistics and submitting it to the Office of Gyalpoi Zimpon (Office for People's Welfare and Wellbeing) for issuance of Kasho (Royal Edict) from His Majesty for formalization. Once the Kasho has been granted by His Majesty, the concerned municipality with the help of Ministry of Works and Human Settlement (MoWHS) who is responsible for infrastructure development for human settlement carry out the town planning based on the area that has been granted through the Royal Edict. Further, if the current location of these townships is not feasible or proves to be an obstacle to the nearby community like in the case of Wangchhu (study area), then a new location may be identified to relocate the occupants. The planning of the town is carried out in consultation with occupants. Such strategies have been successfully implemented in the past.

Moreover, the formalization of the township at the two study areas namely Tsimalakha and Wangchhu is in process. The occupants at the two areas were extremely happy and expressed their gratitude to His Majesty the King and the concern authorities for such initiative: - *"We had been living on this land since 1972, and we had no right over the land especially to get a loan. Now when we were informed during an audience from His Majesty that the land will be formalized in our names. I have never felt this peaceful and secure in my entire life"* (occupant at Wangchhu on 08-10-2017). However, some of the occupants also expressed their concern regarding the area and planning. The occupants who occupy more land fear that the area given to them will be less than what they are currently occupying while the ones with less area assume that the occupied area will be further reduced with the planning. Some even mentioned that all the occupants should be given the equal size of land registered in their name.

Furthermore, once these cases are resolved, the NLC is going to carry out mass public awareness on prevention of encroachments: - *"Hereafter, the law must be applied very strictly otherwise it will just continue, and it will create a lot of lawlessness situation in the country especially in the urban areas where the land is becoming scarce, and the public is suffering due to lack of open spaces. So, encroachment, in the long run, will not be good to the society and the nation"* (Director at NLCS on 04-10-2017). It was always the major priority of His Majesty the King to resolve land issues once and for all for the benefit of the country and the people as a whole. His Majesty, the King (as cited in Kuensel, 2017) in one of his royal addresses, stated that *"Land issues must be resolved once and for all – if we do not take it upon ourselves today to carry out a massive and all-encompassing exercise, then like in the past, we will only make small improvements on the existing system but leave the biggest problems unresolved burdening the future generations"*.

#### **5.4.2. Summary for sub-objective 3**

In summary; the encroachment issues in the country are looked into case-by-case on the ground. Firstly, the strategies are differentiated by the concept of need and greed. The former one illustrates the case of

the vulnerable, socio-economically disadvantaged and landless whereas the latter talks about an attempt to increase one's land holdings. Secondly, it also depends upon the history of the settlement such as the township settlement in the study area. Such settlements are not considered as illegal by the Bhutanese authorities whereas the other type of encroachments where the government have not taken any initiative and whereby people have fenced the state land more than their registered area, constructions without approval and other occupations are considered illegal. However, as mentioned earlier, the cases are verified case-by-case on the ground.

## 6. DISCUSSION

### 6.1. Introduction

This chapter discusses the main findings presented in chapter 5 in the light of existing scientific literature. Section 6.2 discusses the historical roots and the meanings of encroachment problem in Bhutan. Next, section 6.3 discusses the main causes of encroachment followed by section 6.4 discussing the current institutional scene around encroachment. Section 6.5 concludes the chapter by discussing the different strategic interventions to address the issue of encroachment and the participation level of the occupants in the land use planning and decision making.

### 6.2. Historical roots and the meanings of the “encroachment” problem in Bhutan

The term encroachment is relatively new in the context of Bhutan and originates approximately from the time when Bhutan adopted the certificate of title system which dates to the reign of the First King. However, it has become a problem in the public domain, also reflected in media coverage, in the course of urbanization, commercialization of natural resources and migration practices witnessed in the country in the past ten years. While on the other hand, the evolution of the land administration system in Bhutan as Swedesurvey (n.d.) frames it “ from measuring cans and oxen to modern cadastre”, and the accompanying efforts of the concerned public authorities in developing planning regime and laws greatly contributed in bringing encroachment to the spotlight.

In the view of the fact that, encroachment is relatively new in Bhutan, the respondents gave various definitions drawn from their professional backgrounds and experiences thereby emphasizing different dimensions and causes. There is diversity as well as commonality in the definitions provided. A policy and planning officer views encroachment from the legal perspective, as an act of trespassing similar to that of the provision in the Land Act 2007 which prohibits an act of encroachment. A similar interpretation was provided in Bouvier’s legal dictionary which construes encroachment as an act of trespass when a man set his fence beyond his boundary attempting unlawful gain upon the right of another. On the other hand, an urban planner looks at it as an unauthorized settlement on state land where houses are built in contrary to the building and planning regulations. This view aligns with the definition given by OECD (2001) as unauthorised and unplanned development in a haphazard manner, characterized by relative faster growth than formal settlement. Similarly, a surveyor emphasises a different dimension of encroachment by making reference to accuracy and precision in measurement of boundaries just like Blomley (2005) considers that no matter how minor an encroachment may be, it is treated as consequential. However, even though the definitions are drawn and emphasized based on the respondent’s professional background and experiences, there is the commonality that all talk about occupation on state land without any approval which can occur on both private or state land but mostly on the latter (Blomley, 2005; Durand Lasserre & Royston, 2002). Besides, the absence of land policy and definition of encroachment in the land law could have also attributed to the diversity of definitions.

Further, there are different tenures within the study area. There are occupants currently residing in the encroached area and also those who rented out the house and live in other districts. Heltberg (2017) categorises such type of encroachment process into direct and indirect or pseudo encroachment. In the case of direct encroachment, local or migrant encroachers live in the invaded land whereas, in pseudo

encroachment, local encroachers do not reside in the encroached land instead they lease or rent out the land to other local or migrant encroachers.

### **6.3. Socio-economic causes of encroachment: similarities with global trends**

The causes of encroachment in the study area (section 5.3.3) were categorised into push and pull factors for migration, and the factors that allowed the occupants to settle and reside. Accordingly, the discussion in this section has been done based on the findings in the study area and the causes indicated by the public authorities in comparison with the existing literature.

#### **6.3.1. Push factors for migration**

Rural-urban migration is one of the major causes for encroachment of state land, especially in the study area. Most of the occupants in the study area are originally from the eastern part of Bhutan which is considered to be less developed compared to the western part (Gosai & Sulewski, 2014). The occupants in the study areas revealed the difficulties faced by their children in commuting to the long-distanced schools and hospitals in their villages. This conforms to what Uzun and Cete (2004) mentioned that due to the lack of modern amenities and employment opportunities in the villages, people migrate to areas with better opportunities like urban areas and cities. However, when these set of individuals are not able to keep up with the urban challenges such as high prices of land and housing (unaffordability) coupled with low income and unemployment, they appropriate the vacant state land to reside (Aiken 1981; Marutulle, 2012).

Also, as indicated by the authorities, the common inheritance practice of equally sub-dividing the landholdings amongst the household heirs is very prominent in the context of Bhutan. This cause has been identified as another cause for encroachment of state land in the study area as well. This became more apparent during the NCRP where people were found occupying and cultivating more than what was legally registered in their name. In such a case, as observed by Niroula and Thapa (2005), the practice of fragmentation/sub-division not only resulted in smaller plots of land through time but physically dispersed the land parcels. Similarly, in this case too the number of parcels within a household may be increasing, but the size of the parcel was not sufficient to sustain a large family resulting in the gradual occupation of the vacant state lands adjacent to their registered land or anywhere else. Moreover, in some cases, the available land was unproductive for agricultural purpose because it was located far away from the settlements or in conflict with wildlife as pointed out by the occupants in the study area. Such a case could have been resolved if the awareness on the formal accessibility channels to state land were carried out by the NLC since the land exchange scheme entails exchanging unproductive private registered land with suitable state land.

#### **6.3.2. Pull factors for migration**

Among the various socio-economic factors that lead to encroachment of state land in Bhutan, the change in agricultural practices coupled with advances in the farming technology was identified as one major cause of encroachment. Similar findings were made by Ascher (1995) in his study that the emergence of modern harvesting technologies and switch in farming practices contribute to land use change given the high demand for agricultural products. This cause was agreed by almost all the public authorities as one factor leading to encroachment in Bhutan especially in the southern belt of the country where people were encroaching on state land for large-scale cardamom plantation, a current lucrative business in Bhutan. However, this cause mentioned by the public authorities at the national level was not identified in the study area. In the study area, the cause was more of business opportunities that emerged from in relation

to the hydropower project. Besides, since Bhutan has an international border with India in the southern belt, the occupants get good access to the market for buying and selling of goods. This is in line with Pragtong and Thomas (1992) who confirmed that easy and swift access to the market is also one factor for encroachment. People aspire to move from areas with poor resources and limited market opportunities to areas where earning opportunities are better (Rempel, 1981), especially areas with commercial activities and development of mega projects and employment, and market opportunities mostly attract the outsiders (Swangjang & Iamaram, 2011 Magalhaes; Fernanda & Eduardo, 2007).

### **6.3.3. Factors that allowed the occupants to stay and reside**

In addition to the other causes outlined above, there are other factors that allowed the occupants to stay and settle in the encroached area. The compassionate culture of the Bhutanese is partly responsible for the rise of encroachment in Bhutan. This cause was indicated by one respondent at the national level as well as observed in the study area. Given the empathetic nature of the Bhutanese raised in a spiritual and compassionate environment, people chose to ignore these encroachments on state land rather than report and even provide the basic utilities such as water and electricity for free. The preference to ignore rather than reporting such issues encouraged the occupants of state land to encroach further. This cause was not highlighted in the literature reviewed for this study. In addition, there are other causes such as institutional practices and the speculation of the land grant that contributed to encroachment which is described in the upcoming section 6.4.

Further, no causes related to political reasons as discussed in the literature review emerged in the context of Bhutan. Firstly, the influx of immigrants due to the open border which appeared to be one primary reason for encroachment as established by Acharya (2009) was not evident in the context of Bhutan despite having an international border with India. There was one case of an Indian, a former employee of the CHP currently residing in the study area who bought the house from the former occupant. However, this could be attributed to lack of enforcement from the side of the local government and not a political reason since the law strictly prohibits the transaction of the immovable properties to a non-Bhutanese. The local government is aware of the case, but have not yet taken any action as per the law. Secondly, in this study, no patron-client relationship between the politicians and the occupants were observed as done by Banks (2008) and De Smedt (2009) where the politicians help in the formalisation, and the occupants place their votes in return. In this case, the politicians didn't come to seek votes because the occupants don't have their census registered in the current district since most of the occupants are migrants from other districts. In Bhutan, a person is only allowed to cast a vote in the district where their census is registered. Finally, it could also be because land in Bhutan is directly under the prerogative of His Majesty the King as enshrined in the Constitution of the Kingdom of Bhutan and Land Act 2007. It is not under the authority of the government. Therefore, no political reasons emerged as a cause for encroachments of state land in the study area.

### **6.4. Influences of the Bhutanese institutional context on the process of encroachment**

In Bhutan, people know the long-known history of *land kidu* (land grant) from His Majesty the King. The occupants speculate land grant through formalisation of the occupied area as was the case in the past. This is similar to the findings established in a study by Nguyen (2006) which revealed that the possibility of regularisation by the government is one reason why people are willing to settle in time, and they even see more likelihood if many families occupy the land. In this study, this was evident in the transactions that took place where people were ready to pay and buy the structures that were not legally registered.

However, the concept of encroachment is relatively new as the diversity in responses in this study regarding the dimensions of encroachment illustrates. Also, there is no up-to-date spatial inventory of encroachment or state land both locally and nationally. Although there are laws and established formal channels of accessing state land, people are not aware, and there is weak enforcement of the existing law. This concurs with the study of Iftekhar and Hoque (2005) who observed that people usually take advantage of the monitoring and enforcement that seldom takes place. They avail this opportunity to further their appropriation and construction.

Furthermore, even if existent or known, occupants do not live according to legal stipulations, but make strategic choices according to their feelings of tenure security in the study area. Different types of transactions and tenure were found in this study as established in the findings of (Dovey & King, 1978). In the study area of this research, houses were given on rent, bought and sold, and agreements were executed accordingly. Besides, having the list of the occupants recorded in the district level register, collecting tax and electricity rents and issuing business licenses instilled in the occupants a sense of belongingness and rights to the land. These documents may not be formal tenure documents, nevertheless, provide a de facto tenure rights in the long run. Similar findings have been established by Lasserre and Royston (2002) that any evidence of recognition by the public authorities forms a basis to establish a claim. This evidence such as collection of utility bills, oral evidence etc. are the different defacto major types of tenure found in informal settlements and slums which forms a basis to claim rights and ownership to land (U.N.Habitat, 2004; Richter, 2011). Having secured ownership and boundaries can be used as collateral with financing institutions and help the individual to invest and better utilise the land (Tuladhar, 2004). Likewise in Bhutan, financial institutions require households to hold a full legal title to their properties to obtain loans similarly to what Sheuya and Burra, (2016) observed in their study concerning the need of a legal title for accessing credits. Hence, when the occupants in this study area were given the preference to take the occupied state land on lease by the CHPC, they made the strategic choice of refusing. Because a leased land limits the number of benefits that one can enjoy from the rights, particularly for economic investments on the plot (Midheme, 2007).

#### **6.5. Strategies to address encroachment incrementally and the participation of the occupants**

The strategy choices in Bhutan concerning encroachment are informed by the differentiation between the concept of need and greed. On the one hand, as indicated by Acharya (2009), landlessness and poverty are some of the major reasons leading to encroachment of state land. While on the other, encroachment is also regarded as boundary crossing, motivated by personal gain entailing an attempt to increase an individual's land (Blomley, 2005).

Consequently, the verification and authentication of encroachment in Bhutan are done case-by-case on the ground looking specifically into every detail of the occupants. This, however, shows absence or lack of spatial information, mapping and monitoring system concerning the encroachment of state land in the country. It is obviously time-consuming too. Nonetheless, the advantage of the strategy of case-by-case verification on the ground is that it involves direct communication with every occupant which addresses the local needs and specifics. It allows the occupants to voice out their problems and concerns. On the other hand, such a strategy also means that implications are difficult to predict because the decisions taken on the ground could be at the discretion of the officials visiting the field. Moreover, with the absence of land policy and unclear rules and regulations concerning state land, there is little cross-country transparency and accountability. As indicated by Zimmermann (2007), administrative discretion coupled with lack of clear legislation bear the risk of facilitating corrupt allocation and management of state land.



Accordingly, the decisions are taken depending on the nature of the case on the ground. The occupants who are landless, vulnerable and destitute are recommended for a land grant (land kidu) in the form of freehold ownership from His Majesty the King. While the encroachments carried out for construction such as cowsheds, vegetable gardens, potato-sheds are formalised in the form of a lease or use right certificate. Similar findings in the study of Khalifa (2015) recommends paying attention to the land regularisation and legalisation of tenure. Issuing of ownership and title can help the occupant better utilize the land, invest and upgrade the house (Tuladhar, 2004). Besides, even if full tenure was allotted, but the process of legalisation proved to be expensive and time-consuming, this could also have a serious impact on the inhabitants (Khalifa, 2015). This, however, doesn't reflect in the context of Bhutan. Depending on the nature of the case, if it is recommended for lease, the NLC will directly process for land leasing and issue the approval. Similarly, regarding formalisation as freehold or for URC, the NLC facilitates and recommends and forwards the case to the OGZ for approval. The NLC directly registers the land in the name of the occupant as soon as the land grant approval is issued. The occupant encounters no difficulty with regard to cost or time in registering.

Furthermore, the public authorities in Bhutan do not see all encroachers as illegal or informal occupants contrary to the observations of Winayanti and Lang (2004) in Indonesia where squatters are referred to as "penduluk liar" meaning wild residents, the worst-off victims of forced eviction with no compensation to rent or construct a new home. The focus of the Bhutanese authorities is on upcoming encroachments and not those that have already evolved into growing townships and districts. This approach concurs with the argument of Dovey and King (1978) who argued that encroached settlements are legal since they sometimes evolve into well-serviced neighbourhoods and districts over time. Even for the ones considered illegal, efforts to either demolish or evict them have often been withheld for fear of causing harm to the occupant who might have invested many resources in them. This is similar to what Uzun and Cete (2004) observed in their study that due to economic and social reasons, taking down of these settlements owned by low-income persons is very difficult. Demolition of the structures and evicting the occupants do not solve the problem; rather it only takes the problem to another location (Winayanti & Lang, 2004).

Besides, the occupants also raised their concerns regarding the area to be allotted and type of houses that must be constructed. The planning is headed by the Ministry of Works and Human Settlements (MoWHS) in consultation with the stakeholders and the occupants. The occupants are consulted in every phase of the planning and development. This approach is in line with what Byerley and Fyhr (2012) established that a community is built by its residents and it is imperative to engage the occupants in every phase of the planning and decision-making process since they should be part of the decisions that will affect them. This was not the case in the informal settlement upgradation in Kyessi, and Sekiete's (2014) study in Tanzania where a top-down-approach coupled with inadequate local participation in planning caused more harm than good. It resulted in reduced maintenance and gradual deterioration of infrastructures and services in the upgraded area.

However, the financial ability to build the houses according to the planning was one primary concern of the occupants which was not highlighted by any of the public authorities during the interviews. Even the current structures on the ground reflected differences in economic status amongst the occupants. This finding was in conformation to what UN-Habitat 2010 (as cited in Khalifa, 2015) observed that during the implementation of such planning strategies, the public authorities often focus more on providing the infrastructure and improving the physical conditions of the deprived areas thereby ignoring the socio-

economic aspects. According to Thapa and Weber (1995), due to the inability of the occupants to finance the construction of the house, they will place the land as collateral against the financial institutions. When they are not able to repay the loan, they are left with no other option than to sell off the house and resort to another encroachment on available state land.

Based on the results (Chapter 5) and discussions for this study, the original conceptual scheme presented based on the literature review in chapter 2 has been updated as shown in in Figure 11 below: -

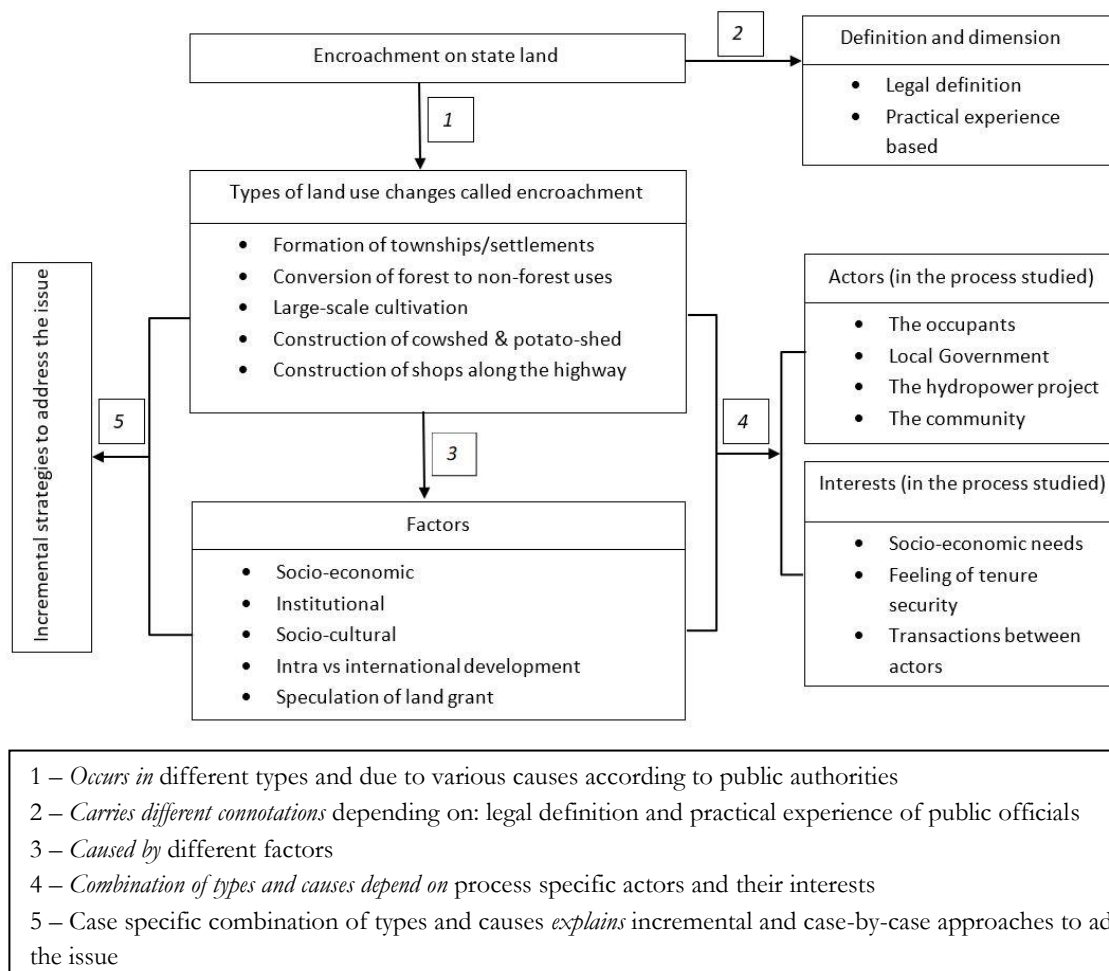


Figure 11. Updated conceptual scheme based on the results and discussions

## 6.6. Summary

In summary, this study shows that there is not one standard definition of encroachment given its relative recent evolvement in Bhutan. In addition to the factors that explain encroachments of various types based on the literature reviewed, the findings of this study also discovered some additional factors. The intra vs international development factor highlights the influence of international dynamics on the local land use change processes. It showed how the mega national project fully assisted by the Government of India influenced the land use change labelled as encroachment in the study area. In addition, the speculation on the land grant as a cause for land use changes came about as a factor deriving from the specific historical institutional context of Bhutan. The combination of types and causes depend on the process specific actors and their interests in a given case of encroachment. In the case of the process studied here, the types and causes depend on the socio-economic needs of the occupants and their feeling of tenure security. It shows the occurrence of various transactions between different actors such as payment of bills

for electricity and collection of the land tax which increases the feelings of tenure security of the occupants. Further, the nature of encroachment as a case-specific combination of types and causes explains the current strategies to address encroachment in the country, namely incrementally and in a case by case manner.

## 7. CONCLUSION AND RECOMMENDATION

### 7.1. Introduction

This chapter provides summary answers to the research objectives of the study along with recommendations.

### 7.2. Conclusion

#### 7.2.1. Sub-objective 1: To describe how the public authorities approach encroachment of state land in Bhutan

One point of origin of the concept of encroachment in Bhutan is the time when Bhutan adopted the certificate of title system. Since the introduction of the thram (land record) system, the concept of encroachment took on a legal meaning according to laws as any form of occupation that goes beyond the legally registered area. Although the concept of encroachment was born alongside the title system, it did not come into the spotlight at that time, but it began to be seen gradually as a problem in the public domain in the course of increasing urbanisation, commercialisation of natural resources and rural-urban migration. These developments alongside the evolution of the land administration system in Bhutan along with the development of planning regimes and laws contributed in bringing encroachment to the spotlight.

Although encroachment has become seen as a problem in the eyes of planning authorities, there is no standard definition, nor is there a comprehensive typology or inventory of encroachments. This is not surprising given that not all land is legally registered, and therefore defining what is not legal or informal becomes identified and defined in a situation-by-situation manner. Different respondents from Bhutanese planning authorities draw on their experiences and background to define and identify what constitutes an encroachment and emphasize different dimensions and causes. All these are then reflected in different types/labels and strategies. The encroachments are verified and assessed case by case on the ground. All the people who encroached or the encroachments on state land are either labelled as illegal or informal depending on the history and nature of the encroachment.

#### 7.2.2. Sub-objective 2: To identify the processes, actors and causes behind the land use changes labelled as encroachment by public authorities in Chhukha district.

To identify the processes, actors and causes behind the land use change labelled as encroachment by the public authorities; a study area was selected in the block named Bjabcho under Chhukha district. PGIS mapping exercise was also carried out alongside focus group discussion with the occupants. This enabled the author to describe and visualise the land use change process labelled as encroachment as presented in section 5.3. Firstly, many of the causes can be mainly categorised as the prominent push and pull factors for people migrating within and beyond the district. The push factors are directly related to poor economic activity and livelihood problems such as limited land holdings, unproductive land, and unavailability of proper fundamental services such as schools and hospitals in the villages. Such factors forced the people to migrate out of their villages. While on the other hand, economic opportunities due to the development of the mega hydro-project attracted the outsiders as well as the retired employees of the project to take advantage of such platform to earn income.

Secondly, this study also illustrates how local processes are influenced by international dynamics. In the study area, the development of the mega national hydropower project with full assistance from the

Government of India influenced the growth of settlement due to the economic opportunities available from the presence of the project.

Thirdly, what also needs to be emphasized is that a so-called encroachment while it is mapped as an area at a specific time, is also a process involving the community. Encroachment is a process, and you cannot map it once, address it and resolve it. It is something that keeps going, and once it has stopped in on the place, it emerges in another.

### **7.2.3. Sub-objective 3: To identify the strategic interventions to address encroachment of state land in Bhutan**

The current strategies by Bhutanese authorities to address the problem of encroachment reflect the above nature of the problem. First, given that encroachments have only relatively recently been defined as illegal and become problematic in the course of economic and urban development, the Bhutanese authorities focus mainly on the upcoming encroachments and not on the ones that have already evolved into growing communities or townships. The latter communities or townships are formalized considering the duration and history of its development catering to a growing community, developmental projects and districts. The encroachments are either formalised in situ in the name of the occupants or relocated to a new area in case such occupancy serves to be an obstruction to the society or due to the occurrence of any developmental activities. In the case of the formalisation of the townships developed on state land, the occupants are consulted and involved in every phase of the planning and development.

Second, given the lack of a standard, usable definition and because the processes of encroachment depend on specific circumstances, every encroachment is verified and assessed case-by-case on the ground and depending on the nature of the case, it is either legalised, leased, exchanged or issued on use right. On the other hand, if an encroachment is not found genuine as per the defined criteria, it is rejected.

Third, and specific to Bhutan may be the currently overall tolerant atmosphere towards the problem, evidenced by authorities rarely evicting communities, especially not without consultation. Instead, a basic differentiation is being made between need and greed. The former one talks about the destitute of the landless, and the latter on the intentional appropriation of state land with the hope of legalisation of the tenure through land kidu with the aim of increasing one's already dominant land holdings (section 5.4).

## **7.3. Recommendation**

Based on the findings derived from this study, the following recommendations are provided in addition to what literature recommends.

### **7.3.1. Considerations for the development of a state land inventory**

It is impossible to identify encroachments on state land if the location and extent of state land or other forms of tenure and land rights are not comprehensively known. In the current scenario, this provides space for decision making depending on specific situations. This allows to take different actors' needs and interests into account, but it also allows room for powerful and bad intended actors to profit at the cost of others. According to Zimmermann (2007), the absence of state land inventory denotes severe implications since no accountability, transparency and effective management is possible without adequate knowledge about the qualities and quantities of state land.

In order to balance between individual needs and specific nature of encroachment processes, on the one hand, but to also enable larger scale planning for the future and accountability, a state land inventory

needs to be developed through an incremental approach. For instance, monitoring, mapping and development of the inventory could first prioritise areas where there are high growth, commercialisation rates and areas of high environmental hazards.

According to Zakout et al. (2006), there should be clarity concerning which institution (ministry, municipality, administration) at what level (national, regional, local) is responsible for controlling, monitoring and maintaining the records of the state land. This is indeed necessary to allow for data sharing and communication and to develop policies and laws to regulate access to the inventory taking into consideration the various users and purposes that it shall serve. This is important to ensure that information is available for various uses and purposes but at the same time protect misuses of the information. However, while a comprehensive institutional setup is needed for this, this study also shows it is essential to consider the connection the government has with the local communities. In this case, the government maintains good communication with the occupants and doesn't treat them as law violators merely because they are residing on state land. If the responsibilities are split too much across the administrative levels, this connection may get lost.

#### **7.3.2. Leveraging new technologies to monitor encroachment**

Regarding coming up with monitoring plans on the technological front, in the case of Bhutan, it is important to consider few things. Encroachment in Bhutan occurs in different forms starting from a small boundary shift to development of permanent structures and large-scale cultivation. In this aspect, even though high temporal resolution satellite imagery demonstrates to be a useful input data to monitor encroachment, it serves the purpose properly regarding bigger areas. Encroachments in the form of small boundary shift and vegetable gardens will be difficult to detect. Therefore, with every remotest section of the country connected with telecommunication services, most of the people are found using modern smartphones embedded with features such as GPS sensor and good resolution camera. The National Land Commission can take advantage of such technology and develop mobile applications whereby people can report encroachments directly to the concern authorities. However, there are risks of people misusing such applications for which the principle of accountability and penalty should be strictly considered.

#### **7.3.3. Enforcement and awareness of laws and procedures**

Enforcement of laws and regulations may not be entirely possible in Bhutan at the moment because there are no clear guidelines or definitions of encroachment and no comprehensive inventory of state land. Hence, depending on the nature of the encroachment, each case is verified, and decisions are taken whether it needs to be regularized or a different approach is needed. But even having a comprehensive legal and regulatory framework in place with clear procedures and mechanisms alone could not prevent illegal occupation or land conversion if rules are not enforced or efficiently implemented according to FAO. To enforce any future rules and laws Bhutan should not look at large-scale evictions as a solution to encroachment. Further, it is also necessary to inform the public about the available formal channels of getting access to state land for them to gain tenure security through administrative means. Creating awareness especially in the remote areas is necessary. Also, the Local Governments should also be trained in giving awareness on the risk of fire hazards and environmental degradation to the occupants of the settlements since in this study there were instances of fire in the past.

#### **7.3.4. Resettlement of the occupants**

In terms of resettlement of the occupants, lessons from other countries indicated that it is very essential to consider the social and economic repercussions of relocating the occupants. Otherwise, this may not only

result in the failure of the resettlement programme but can also trigger another encroachment in the process. Some of the resettlement programmes in other countries failed since they were socially neither affordable nor appropriate. The cost of transportation to the inner cities was unaffordable as well there were few employment opportunities. This was because of the non-engagement of the occupants in the planning and implementation (Jenkins, 2007). According to Diwakar and Peter (2016), there is a need for the proper land mapping exercise to effectively identify available land within close proximity to the cities and their original habitation. The planning authorities should understand the internal linkage of the place of habitation to that of livelihood and survival of the communities.

#### **7.4. Future research**

Commercialization of agriculture is very dominant in the southern belt of the country due to which vast areas of state land (especially the forests) have encroached. The authorities believe that easy access to the market in India also encouraged the farmers there to encroach further. Future research could be carried out to see the impact of the commercialisation of agriculture on the limited natural resources and food security in Samtse district. Further, a study can also be done on the development of a state land inventory in areas where there is high growth of commercialisation, urbanisation and environmental hazards, and also carry out a study on the potential uses of modern technologies to monitor land use changes in Bhutan.





## LIST OF REFERENCES

---

- Acharya, B. R. (2009). Government and public land management in Nepal. In *Land Reform, Land Settlement and Cooperatives* (pp. 31–36). Retrieved from <http://www.fao.org/3/a-i0899t/i0899t03.pdf>
- Adjei Mensah, C. (2014). Urban housing crisis: Tracing the factors behind the growth of informal settlements in Kumasi, Ghana. *Human and Social Science Research*, 5(1), 09–20. Retrieved from <http://www.oricpub.com/hssr-journal>
- Ahmed, A., & Dinye, R. (2012). Impact of land use activities on Subin and Aboabo rivers in Kumasi metropolis. *Water Resources and Environmental Engineering*, 4(7), 241–251. <https://doi.org/10.5897/IJWREE12.036>
- Aiken, S. R. (2009). Squatters and squatter settlements in Kuala Lumpur. *American Geographical Society*, 71(2), 158–175. Retrieved from <http://www.jstor.org/stable/214185>
- Alabi, J., Alabi, G., & Mohammed, I. (2014). Developing a framework for land management based on community involvement in Ghana. *International Journal of Management & Information Systems*, 18(4), 223–233. Retrieved from <https://www.cluteinstitute.com/ojs/index.php/IJMIS/article/view/8858/8791>
- Ali, D. A., Dercon, S., & Gautam, M. (2007). *Property rights in a very poor country: Tenure insecurity and investment in Ethiopia*. Ethiopia. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/7361/WPS4363.pdf?sequence=1&isAllowed=y>
- Ali, M. (2002). Scientific forestry and forest land use in Bangladesh: A discourse analysis of people's attitudes. *International Forestry Review*, 4(3), 214–222. <https://doi.org/10.1505/IFOR.4.3.214.17399>
- Anjaria, J. S. (2006). Street hawkers and public space in Mumbai. *Economic and Political Weekly*, 41, 2140–2146. <https://doi.org/10.2307/4418270>
- Arnold, J. E. M. (1983). Economic considerations in agroforestry projects. *Agroforestry Systems*, 1(4), 299–311. Retrieved from <https://link.springer.com/content/pdf/10.1007/BF00155937.pdf>
- Ascher, W. (1995). *Communities and sustainable forestry in developing countries*. IEEE Potentials (Vol. 25). Durham. <https://doi.org/10.1109/MP.2006.1692295>
- Asif, K. (2014). Encroachment of agricultural land in urban fringe areas of Aligarh city, India – process and parameters. *Asian Geographer*, 31(2), 129–148. <https://doi.org/10.1080/10225706.2014.883321>
- Banks, N. (2008). A tale of two wards: Political participation and the urban poor in Dhaka city. *Environment & Urbanization*, 20(2), 361–376. <https://doi.org/10.1177/0956247808096116>
- BBC. (2000, March 25). Bhutan gets its first internet cafe. Retrieved from [http://news.bbc.co.uk/2/hi/south\\_asia/690789.stm](http://news.bbc.co.uk/2/hi/south_asia/690789.stm)
- BBS. (2014, October 31). Government land encroachment rampant in Trashigang. Retrieved from <http://www.bbs.bt/news/?p=45637>
- Bittner, C., & Sofer, M. (2013). Land use changes in the rural-urban fringe: An Israeli case study. *Land Use Policy*, 33, 11–19. <https://doi.org/10.1016/j.landusepol.2012.11.013>
- Blomley, N. (2005). Flowers in the bathtub: Boundary crossings at the public-private divide. *Geoforum*, 36(3), 281–296. <https://doi.org/10.1016/j.geoforum.2004.08.005>
- Bouvier, J. (1856). *A law dictionary* (Sixth). Philadelphia: Deacon & Peterson. Retrieved from <https://books.google.nl/books?id=nHENAwAAQBAJ&pg=PA468&clpg=PA468&dq=unlawful+gaining+upon+the+right+or+possession+of+another;+as,+when+a+man+sets+his+fence+beyond+his+line;+the+proper+remedy+for+the+injured+party+is+an+action+of+ejectment+or+an+action+of+>
- Boyars, M., & Turner, J. (1976). *Housing by people: Towards autonomy in building environments*. New York: Pantheon Books. <https://doi.org/10.1017/CBO9781107415324.004>
- Brefo, R. A. (2012). *The effects of encroachment on sustainable public land management: A case study of the Owabi catchment area in Kumasi*. Kwame Nkrumah University of Science and Technology, Ghana.
- Brown, G., De Bie, K., & Weber, D. (2015). Identifying public land stakeholder perspectives for implementing place-based land management. *Landscape and Urban Planning*, 139, 1–15. <https://doi.org/10.1016/j.landurbplan.2015.03.003>
- Bryant, C. (2002). Urban and rural interactions and rural community renewal. *The Sustainability of Rural Systems*, 66, 247–269. Retrieved from [https://link.springer.com/chapter/10.1007/978-94-017-3471-4\\_13](https://link.springer.com/chapter/10.1007/978-94-017-3471-4_13)

- Bryman, A. (2012). *Social research methods* (4th ed.). New York: Oxford University Press Inc.
- Chawla, S. (2012). Land use changes in India and its impacts on environment. *Journal of Environment*, 1(1), 14–20. Retrieved from [http://www.scientific-journals.co.uk/web\\_documents/4010103\\_land\\_changes\\_india.pdf](http://www.scientific-journals.co.uk/web_documents/4010103_land_changes_india.pdf)
- Chhukha District Administration. (n.d.). Dzongkhag Administration Chhukha. Retrieved December 1, 2017, from [http://www.chhukha.gov.bt/?page\\_id=8](http://www.chhukha.gov.bt/?page_id=8)
- Chitrakar, R. M., Baker, D. C., & Guaralda, M. (2016). Urban growth and development of contemporary neighbourhood public space in Kathmandu Valley, Nepal. *Habitat International*, 53, 30–38. <https://doi.org/10.1016/j.habitatint.2015.11.006>
- Chun-Lin, L., Fox, J., Xing, L., Lihong, G., Kui, C., & Jieru, W. (1999). State policies, markets, land-use practices, and common property: Fifty years of change in a Yunnan village, China. *Mountain Research and Development*, 19(2), 133. <https://doi.org/10.2307/3674254>
- Corbin, J., & Strauss, A. (2005). Grounded theory research: Procedures, canons, and evaluation criteria. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- De Smedt, J. (2009). “No Raila, No peace” Big man politics and election violence at the Kibera grassroots. *African Affairs*, 108(433), 581–598. <https://doi.org/10.1093/afratfadp043>
- Dells, K., Andreas, G., & Gabel, M. (2012). It-supported state land management in a transitional environment. In *International seminar on state and public sector land management in transitional countries* (pp. 1–42). Budapest. Retrieved from <https://www.oicrf.org/documents/40950/43224/IT+supported+state+land+management+in+a+transitional+environment+examples+from+Germany+and+Mongolia%281%29.pdf/bcabaafa-d450-b644-d75b-ca7b84ad3971>
- DELWP. (n.d.). Certificates of title. Retrieved July 25, 2017, from <https://www.propertyandlandtitles.vic.gov.au/land-titles/certificates-of-title>
- Deng, J. S., Wang, K., Hong, Y., & Qi, J. G. (2009). Spatio-temporal dynamics and evolution of land use change and landscape pattern in response to rapid urbanization. *Landscape and Urban Planning*. <https://doi.org/10.1016/j.landurbplan.2009.05.001>
- DGPC. (2012). Chhukha hydropower plant. Retrieved November 28, 2017, from <https://sites.google.com/a/drukgreen.com/dgpc/chhukha-hydropower-plant>
- Diamond, H. L., & Noonan, P. F. (1996). *Land use in America*. Washington, D.C: Island Press.
- Diwakar, D., & Peter, V. (2016). Resettlement of urban poor in Chennai, Tamil Nadu: Concerns in R&R policy and urban housing programme. *Journal of Land and Rural Studies*, 4(1), 98–110. <https://doi.org/10.1177/2321024915616675>
- Dovey, K., & King, R. (1978). Forms of informality: Morphology and visibility of informal settlements. *Built Environment*, 37, 11–29. <https://doi.org/10.2307/23289768>
- Durand Lasserre, A., & Royston, L. (2002). *International trends and country contexts- From tenure regularization to tenure security. Holding their ground: Secure land tenure for the urban poor in developing countries*. London: Earthscan Publications Ltd.
- Ellis, F. (1992). *Agricultural policies in developing countries*. New York: Cambridge University Press.
- FAO. (2016). *State of the world's forests. Food and Agriculture Organization*. Rome. Retrieved from <http://www.fao.org/3/a-i5588e.pdf>
- Federico, M. B., Caputo, P., Adhikari, R. S., & Facchini, A. F. (2016). Urban development and energy access in informal settlements. A review for Latin America and Africa. *Procedia Engineering*. <https://doi.org/10.1016/j.proeng.2016.08.680>
- Fekade, W. (2000). Deficits of formal urban land management and informal responses under rapid urban growth, an international perspective. *Habitat International*, 24(2), 127–150. Retrieved from [https://ac.els-cdn.com/S019739759900034X/1-s2.0-S019739759900034X-main.pdf?\\_tid=8ec43d16-d9cd-11e7-9ef8-00000aab0f6c&acdnat=1512486434\\_f562994a8144074dedb4b8b298cb19dc](https://ac.els-cdn.com/S019739759900034X/1-s2.0-S019739759900034X-main.pdf?_tid=8ec43d16-d9cd-11e7-9ef8-00000aab0f6c&acdnat=1512486434_f562994a8144074dedb4b8b298cb19dc)
- Fox, J., Kanter, R., Yarnasarn, S., Ekasingh, M., & Jones, R. (1994). Farmer decision making and spatial variables in northern Thailand. *Environmental Management*, 18(3), 391–399. <https://doi.org/10.1007/BF02393868>
- Fyhr, K. (2012). *Participation in upgrading of informal settlements: A case study of the project: City in-situ rehabilitation scheme for urban poor staying in slums in city of Pune*. Stockholm university.
- Gosai, M. A., & Sulewski, L. (2014). Urban attraction: Bhutanese internal rural–urban migration. *Asian Geographer*, 31(1), 1–16. <https://doi.org/10.1080/10225706.2013.790830>
- Gough, K. V., & Yankson, P. W. K. (2000). Land markets in African cities: The case of peri-urban Accra,

- Ghana. *Urban Studies*, 37(13), 2485–2500. <https://doi.org/10.1080/00420980020005433>
- Grover, R. (2009). State and public land management: The drivers of change. In *Land Reform, Land Settlement and Cooperatives* (pp. 58–68). Retrieved from [https://www.fig.net/resources/proceedings/2008/verona\\_fao\\_2008\\_comm7/papers/09\\_sept/2\\_3\\_grover.pdf](https://www.fig.net/resources/proceedings/2008/verona_fao_2008_comm7/papers/09_sept/2_3_grover.pdf)
- Grover, R., & Elia, E. (2011). The management of state and public sector land. In *Bridging the Gap between Cultures*. Morocco. Retrieved from [https://www.fig.net/resources/proceedings/fig\\_proceedings/fig2011/papers/ts04b/ts04b\\_elia\\_4814.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/fig2011/papers/ts04b/ts04b_elia_4814.pdf)
- Grover, R., & FAO. (2007). *Good governance in land tenure and administration*. FAO land tenure studies. Rome: FAO.
- Haack, B. N., & Rafter, A. (2006). Urban growth analysis and modeling in the Kathmandu Valley, Nepal. *Habitat International*, 30, 1056–1065. <https://doi.org/10.1016/j.habitatint.2005.12.001>
- Hackenbroch, K., & Hossain, S. (2012). The organised encroachment of the powerful: Everyday practices of public space and water supply in Dhaka, Bangladesh. *Planning Theory & Practice*, 13(3), 397–420. <https://doi.org/10.1080/14649357.2012.694265>
- Hall, P., & Pfeiffer, U. (2000). *Urban future 21: A global agenda for twenty-first century cities*. London: E & FN Spon.
- Heltberg, R. (2017). Determinants and impact of local institutions for common resource management. *Environment and Development Economics*, 6(2). <https://doi.org/10.1017/S1355770X01000110>
- Hermosilla, A. C. (2000). *The underlying causes of forest decline* (No. 30). Jakarta. Retrieved from [http://www.cifor.org/publications/pdf\\_files/OccPapers/OP-030.pdf](http://www.cifor.org/publications/pdf_files/OccPapers/OP-030.pdf)
- Hosonuma, N., Herold, M., De Sy, V., De Fries, R. S., Brockhaus, M., Verchot, L., ... Romijn, E. (2012). An assessment of deforestation and forest degradation drivers in developing countries. *Environmental Research Letters*, 7(7), 44009–12. <https://doi.org/10.1088/1748-9326/7/4/044009>
- Hossain, S. (2011). Informal dynamics of a public utility: Rationality of the scene behind a screen. *Habitat International*, 35(2), 275–285. <https://doi.org/10.1016/J.HABITATINT.2010.09.003>
- Hurskainen, P. (2004). *The informal settlements of Voi*. Kenya. Retrieved from [http://www.helsinki.fi/science/taita/reports/Hurskainen\\_Informal\\_settlements.pdf](http://www.helsinki.fi/science/taita/reports/Hurskainen_Informal_settlements.pdf)
- IFAD. (2009). Good practices in participatory mapping. Retrieved from [www.ifad.org](http://www.ifad.org)
- Iftekhar, M. S., & Hoque, A. K. F. (2005). Causes of forest encroachment: An analysis of Bangladesh. *GeoJournal*, 62, 95–106. <https://doi.org/10.1007/s10708-005-7917-z>
- Ishtiyag, M., & Kumar, S. (2011). Typology of informal settlements and distribution of slums in the NCT of Delhi. *Journal of Contemporary India Studies: Space and Society*, Hiroshima University, 1, 37–46. Retrieved from [http://home.hiroshima-u.ac.jp/hindas/PDF/Ishtiyag\\_and\\_Kumar\(2011\).pdf](http://home.hiroshima-u.ac.jp/hindas/PDF/Ishtiyag_and_Kumar(2011).pdf)
- Jenkins, E. S. (2007). *Managing the process of relocation and resettlement of informal settlements in urban areas of Africa: The case of Kaburini village, Nairobi*. University of Nairobi. Retrieved from [file:///C:/Users/user/Downloads/Jenkins\\_Managing the process of relocation and resettlement of informal settlements in urban areas.pdf](file:///C:/Users/user/Downloads/Jenkins_Managing%20the%20process%20of%20relocation%20and%20resettlement%20of%20informal%20settlements%20in%20urban%20areas.pdf)
- Kaganova, O., & McKellar, J. (2006). *Managing government property assets: International experiences*. Washington, D.C: The Urban Institute Press.
- Kaplan, P. F., & Shrestha, N. R. (1982). The Sukumbasi movement in Nepal: The fire from below. *Journal of Contemporary Asia*, 12(1), 75–88. <https://doi.org/10.1080/00472338285390061>
- Keith, S. (2012). Land management in context learning from experience. Retrieved from [http://en.foldhivatal.hu/images/english/fig\\_fao\\_presi/21\\_simonkeith.pdf](http://en.foldhivatal.hu/images/english/fig_fao_presi/21_simonkeith.pdf)
- Khalifa, M. A. (2015). Evolution of informal settlements upgrading strategies in Egypt: From negligence to participatory development. *Ain Shams Engineering Journal*, 6(4), 1151–1159. <https://doi.org/10.1016/j.asej.2015.04.008>
- Kiss, A. (1990). *Living with wildlife: Wildlife resource management with local participation in Africa* (No. 130). Washington, D.C. Retrieved from <http://documents.worldbank.org/curated/en/247611468742847173/pdf/multi-page.pdf>
- Kotter, T., & Friesecke, F. (2009). Developing urban indicators for managing mega cities. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.458.1129&rep=rep1&type=pdf>
- Kuensel. (2017, October 28). His Majesty grants land kidu to 1,157 in Gasa. *Kuensel Corporation*. Thimphu. Retrieved from <http://www.kuenselonline.com/his-majesty-grants-land-kidu-to-1157-in-gasa/>
- Lasserve, A. D., & Royston, L. (2002). Security of tenure of irregular settlements in Visakhapatnam. In *Holding their ground: Secure land tenure for the urban poor in developing countries* (p. 86). London: Earthscan.

- Retrieved from  
[https://books.google.nl/books/about/Holding\\_Their\\_Ground.html?id=DcrLxppydcQC&printsec=frontcover&source=kp\\_read\\_button&redir\\_esc=y#v=onepage&q&f=false](https://books.google.nl/books/about/Holding_Their_Ground.html?id=DcrLxppydcQC&printsec=frontcover&source=kp_read_button&redir_esc=y#v=onepage&q&f=false)
- Little, P. D., & Horowitz, M. M. (1987). *Lands at risk in the third world: Local level perspectives*. (P. D. Little & M. Horowitz, Eds.). Westview Press. Retrieved from  
[https://books.google.nl/books/about/Lands\\_at\\_risk\\_in\\_the\\_Third\\_World.html?id=PzeFAAAIAAJ&redir\\_esc=y](https://books.google.nl/books/about/Lands_at_risk_in_the_Third_World.html?id=PzeFAAAIAAJ&redir_esc=y)
- Lubowski, R. N., Vesterby, M., Bucholtz, S., Baez, A., & Roberts, M. J. (2006). *Major uses of land in the United States, 2002*. Retrieved from  
<http://americandreamcoalition.org/openspace/MajorLandUse.pdf>
- Lynch, G. (2008). Sampling. Retrieved from  
<https://www.kent.ac.uk/religionmethods/documents/Sampling.pdf>
- Madanipour, A. (1996). *Design of urban space: An inquiry into a socio-spatial process*. Chichester: Wiley.
- Magalhaes Fernanda, & Eduardo, R. (2007). *Facing the challenges of informal settlements in urban centers: The re-urbanization of Manaus, Brazil*. Portugal.
- Magel, H., Espinoza, J., Klaus, M., & Masum, F. (2009). Capacity building in land management: The need for establishing a llobal academic partnership. In *7th FIG Regional Conference* (pp. 19–22). Hanoi. Retrieved from  
[https://www.fig.net/resources/proceedings/fig\\_proceedings/vietnam/papers/ps03/ps03\\_magel\\_et\\_al\\_4563.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/vietnam/papers/ps03/ps03_magel_et_al_4563.pdf)
- Magigi, W., & K Majani, B. B. (2006). Housing themselves in informal settlements: A challenge to community growth processes, land vulnerability and poverty reduction in Tanzania. In *5th FIG Regional Conference, Issues on urban growth: Customary title and informal settlements*. Accra. Retrieved from  
[https://www.fig.net/resources/proceedings/fig\\_proceedings/accra/papers/ts03/ts03\\_05\\_magigi\\_majani.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/accra/papers/ts03/ts03_05_magigi_majani.pdf)
- Malpezzi, S., & Sa-Aadu, J. (1996). What have African housing policies wrought? *Real Estate Economics*, 24(2), 133–160. <https://doi.org/10.1111/1540-6229.00684>
- Manandhar, S., & Joshi, J. R. (2015). Management of public land for urban open space: In case of disaster risk reduction. In *FIG -ISPRS workshop*. Retrieved from  
[https://www.fig.net/resources/proceedings/2015/2015\\_11\\_nepal/T.S.6.2.pdf](https://www.fig.net/resources/proceedings/2015/2015_11_nepal/T.S.6.2.pdf)
- Manandhar, S., Joshi, J. R., & Ghimire, S. (2016). State and public land management: Issues of encroachment and protection technique. In *5th Working week, Recovery from disaster*. Christchurch. Retrieved from  
[https://www.fig.net/resources/proceedings/fig\\_proceedings/fig2016/papers/ts06i/TS06I\\_manandhar\\_joshi\\_et\\_al\\_8109.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/fig2016/papers/ts06i/TS06I_manandhar_joshi_et_al_8109.pdf)
- Marutulle, N. K. (2012). Causes of informal settlements in Ekurhuleni metropolitan municipality: An exploration. *Africa's Public Service Delivery and Performance Review*, 5(1), 11. Retrieved from  
<https://www.apsdpr.org/index.php/apsdpr/article/view/131/175>
- Masum, F. (2009). Urban fringe management and role of good governance: Integrating stakeholders in land management process. In *7th FIG Regional Conference Spatial Data Serving People: Land Governance and the Environment – Building the Capacity*. Hanoi. Retrieved from  
[https://www.fig.net/resources/proceedings/fig\\_proceedings/vietnam/papers/ts01b/ts01b\\_masum\\_3648.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/vietnam/papers/ts01b/ts01b_masum_3648.pdf)
- Meagher, K. (1995). Crisis, informalization and the urban informal sector in Sub-Saharan Africa. *Development and Change*, 26(2), 279. <https://doi.org/10.1111/j.1467-7660.1995.tb00552.x>
- Midheme, E. P. O. (2007). *State- vs community-led land tenure regularization in Tanzania: The case of Dar es Salaam City*. ITC. ITC, University of Twente. Retrieved from  
[https://www.itc.nl/library/papers\\_2007/msc/upla/midheme.pdf%0A](https://www.itc.nl/library/papers_2007/msc/upla/midheme.pdf%0A)
- MoAF. (2011). *Bhutan Land Cover Assessment 2010: Technical Report* (Vol. 2010). Thimphu. Retrieved from  
<http://www.nssc.gov.bt/wp-content/uploads/2013/08/land-cover.pdf>
- Mukupa, W. (2011). Land administration to support sustainable development. In *FIG working week, Bridging the gap between cultures*. Morocco. Retrieved from  
[https://www.fig.net/resources/proceedings/fig\\_proceedings/fig2011/papers/ts05f/ts05f\\_mukupa\\_5191.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/fig2011/papers/ts05f/ts05f_mukupa_5191.pdf)
- Munshifwa, E. K., & Mooya, M. M. (2015). Theorising urban form in developing countries: Informal property markets and the production of the built environment. In *ISNE 18th annual conference*. Durham. Retrieved from

- [https://www.researchgate.net/publication/282290495\\_Theorizing\\_urban\\_form\\_in\\_developing\\_countries\\_Informal\\_property\\_markets\\_and\\_the\\_production\\_of\\_the\\_urban\\_built\\_environment](https://www.researchgate.net/publication/282290495_Theorizing_urban_form_in_developing_countries_Informal_property_markets_and_the_production_of_the_urban_built_environment)
- Ndehedehe, C., & Kolawole, B. (2012). Principles and practice of land management and administration in Akwa Ibom State. *Journal of Environmental Science and Resources Management*, 4(June), 50–58. Retrieved from [https://www.academia.edu/3854641/PRINCIPLES\\_AND\\_PRACTICE\\_OF\\_LAND\\_MANAGEMENT\\_AND\\_ADMINISTRATION\\_IN\\_AKWA\\_IBOM\\_STATE?auto=download](https://www.academia.edu/3854641/PRINCIPLES_AND_PRACTICE_OF_LAND_MANAGEMENT_AND_ADMINISTRATION_IN_AKWA_IBOM_STATE?auto=download)
- NEC. (2016). *Bhutan state of the environment report*. Thimphu. Retrieved from [www.nec.gov.bt](http://www.nec.gov.bt)
- Neef, A. (2001). Land tenure and soil conservation practices: Evidence from West Africa and Southeast Asia. In *10th International soil conservation organization meeting*. West Lafayette. Retrieved from [http://topsoil.nserl.purdue.edu/nserlweb-old/isco99/pdf/isco99/Sustaining the Global Farm/P238-Neef.pdf](http://topsoil.nserl.purdue.edu/nserlweb-old/isco99/pdf/isco99/Sustaining%20the%20Global%20Farm/P238-Neef.pdf)
- Nguyen, M. A. (2006). *Analyzing the encroachment process of informal settlements in the periurban of Ho Chi Minh City, Vietnam*. Lund. Retrieved from <https://thesis.eur.nl/pub/12016/%281%2928543.pdf>
- Niroula, G. S., & Thapa, G. B. (2005). Impacts and causes of land fragmentation, and lessons learned from land consolidation in South Asia. *Land Use Policy*, 22, 358–372. <https://doi.org/10.1016/j.landusepol.2004.10.001>
- Obeng-Odoom, F. (2017). Unequal access to land and the current migration crisis. *Land Use Policy*, 62, 159–171. <https://doi.org/10.1016/j.landusepol.2016.12.024>
- ODC. (2015). State public land. Retrieved July 28, 2017, from <https://opendevelopmentcambodia.net/topics/state-public-land/#ref-73663-3>
- OECD. (2001). OECD glossary of statistical terms - Informal settlements. Retrieved December 14, 2017, from <https://stats.oecd.org/glossary/detail.asp?ID=1351>
- Open Society Institute. (2002). *Building open societies*. New York. Retrieved from [https://www.opensocietyfoundations.org/sites/default/files/a\\_complete\\_report\\_0.pdf](https://www.opensocietyfoundations.org/sites/default/files/a_complete_report_0.pdf)
- Palmer, D., Friciska, S., & Wehrmann, B. (2009). *Towards improved land governance* (No. 11). Rome. Retrieved from <http://www.fao.org/3/a-ak999e.pdf>
- Parker, J., & Newnham, L. (2004). Land management in Australia. In *Inter-regional Special Forum on The Building of Land Information Policies in the Americas*. Mexico. Retrieved from [https://www.fig.net/resources/proceedings/2004/mexico/papers\\_eng/ts3\\_parker\\_eng.pdf](https://www.fig.net/resources/proceedings/2004/mexico/papers_eng/ts3_parker_eng.pdf)
- Ploeger, H., & Groetelaers, D. (2006). Informal settlements and fundamental rights. In *Shaping the change XXIII FIG Congress*. Munich. Retrieved from [https://www.fig.net/resources/proceedings/fig\\_proceedings/fig2006/papers/ts27/ts27\\_01\\_ploege\\_r\\_groetelaers\\_0436.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/fig2006/papers/ts27/ts27_01_ploege_r_groetelaers_0436.pdf)
- Pokhrel, N. (2017, July 18). Tsirang DT discusses government land encroachment cases. Thimphu. Retrieved from <http://www.kuenselonline.com/tsirang-dt-discusses-govt-land-encroachment-cases/>
- Pragtong, K., & Thomas, D. E. (1992). Evolving management systems in Thailand. In M. Poffenberger (Ed.), *Keepers of the forest*. Quezon: Manila University Press. Retrieved from [https://books.google.nl/books/about/Keepers\\_of\\_the\\_Forest.html?id=N7nKGQAACAAJ&redir\\_esc=y](https://books.google.nl/books/about/Keepers_of_the_Forest.html?id=N7nKGQAACAAJ&redir_esc=y)
- Ramkisoorn, K. (2000). *An analysis of the legal framework for state land management in Trinidad and Tobago*. Madison. Retrieved from [http://www.terraininstitute.org/lupap/lupap\\_pdf/lm014.pdf](http://www.terraininstitute.org/lupap/lupap_pdf/lm014.pdf)
- Regmi, M. C. (1976). *Landownership in Nepal*. Berkeley: University of California Press. Retrieved from [https://books.google.nl/books?id=8Wkgn6CuyqoC&pg=PA88&lpg=PA88&dq=Landownership+in+Nepal&source=bl&ots=JzOarmhihg&sig=HMIrTk\\_OARPLAyHQcCrxcyd1jII&hl=en&sa=X&ved=0ahUKEWjtlcKdvObVAhXELFAKHZ\\_FC5kQ6AEIQjAF#v=onepage&q=Landownership in Nepal&f=false](https://books.google.nl/books?id=8Wkgn6CuyqoC&pg=PA88&lpg=PA88&dq=Landownership+in+Nepal&source=bl&ots=JzOarmhihg&sig=HMIrTk_OARPLAyHQcCrxcyd1jII&hl=en&sa=X&ved=0ahUKEWjtlcKdvObVAhXELFAKHZ_FC5kQ6AEIQjAF#v=onepage&q=Landownership%20in%20Nepal&f=false)
- Rempel, H. (1981). *Rural to urban labor migration and urban unemployment in Kenya*. Laxenburg. Retrieved from <http://pure.iiasa.ac.at/1545/1/RR-81-024.pdf>
- Richter, C. (2011). In-tensions to infrastructure: Developing digital property databases in urban Karnataka, India. *Environment and Urbanization ASIA*, 2(2), 205–222. <https://doi.org/10.1177/097542531100200205>
- Routray, J. K., & Sahoo, M. (1995). Implications of land title for farm credit in Thailand. *Land Use Policy*, 12(1), 86–89. [https://doi.org/10.1016/0264-8377\(95\)90078-G](https://doi.org/10.1016/0264-8377(95)90078-G)
- Sack, R. D. (1986). *Human territoriality: Its theory and history*. Cambridge: Cambridge University Press.
- Sakala, S. (2016). Causes and consequences of informal settlement planning in Lusaka district: A case study of garden house. In *ISER International Conference* (pp. 7–14). Nairobi. Retrieved from

- [http://www.worldresearchlibrary.org/up\\_proc/pdf/449-14758227018-14.pdf](http://www.worldresearchlibrary.org/up_proc/pdf/449-14758227018-14.pdf)
- Schweik, C. M., Adhikari, K., & Pandit, K. N. (1997). Land cover change and forest institutions: A comparison of two sub-basins in the southern Siwalik Hills of Nepal. *Mountain Research and Development*, 17(2), 99. <https://doi.org/10.2307/3673825>
- Seto, K. C., Guneralp, B., & Hutya, L. R. (2012). Global forecasts of urban expansion to 2030 and direct impacts on biodiversity and carbon pools. *National Academy of Sciences of the USA*, 109(40), 16083–8. <https://doi.org/10.1073/pnas.1211658109>
- Shatkin, G. (2004). Planning to forget: Informal settlements as forgotten places in globalising metro Manila. *Urban Studies*, 41(12), 2469–2484. <https://doi.org/10.1080/00420980412331297636>
- Sheuya, S. A. (2007). Reconceptualizing housing finance in informal settlements: The case of Dar-es Salaam, Tanzania. *Environment and Urbanization*, 19(2), 441–456. <https://doi.org/10.1177/0956247807082823>
- Sheuya, S. A., & Burra, M. M. (2016). Tenure security, land titles and access to formal finance in upgraded informal settlements: The case of Dar es Salaam, Tanzania. *Current Urban Studies*, 4, 440–460. <https://doi.org/10.4236/cus.2016.44029>
- Shitima, E. M. (2005). *Forest conservation and people's livelihoods: Explaining encroachment on Zambia's protected forest landscapes: The case of Mwekera National Forest, Kitwe, Copperbelt*. Norwegian University of Science and Technology. Retrieved from <https://brage.bibsys.no/xmlui/handle/11250/264993%0A>
- Shrestha, N. R. (1989). Frontier settlement and landlessness among hill migrants in Nepal Tarai. *Annals of the Association of American Geographers*, 79(3), 370–389. Retrieved from <http://www.jstor.org/stable/2563724>
- Smith, T. B. (2004). Electricity theft: A comparative analysis. *Energy Policy*, 32, 2067–2076. [https://doi.org/10.1016/S0301-4215\(03\)00182-4](https://doi.org/10.1016/S0301-4215(03)00182-4)
- Stanfield, J. D., & Wijetunga, A. A. (2007). The Management of state lands in Trinidad and Tobago. In *Caribbean Land and Development Revisited* (pp. 81–93). New York: Palgrave Macmillan US. [https://doi.org/10.1057/9780230605046\\_7](https://doi.org/10.1057/9780230605046_7)
- Sunito, M. A., & Sitorus, M. T. F. (2007). From ecological to political buffer zone: Ethnic politics and forest encroachment in Upland Central Sulawesi. In *Stability of tropical rainforest margins* (pp. 165–178). New York: Springer Berlin Heidelberg New York. Retrieved from <https://link.springer.com/content/pdf/10.1007%2F978-3-540-30290-2.pdf>
- Swangjang, K., & Iamaram, V. (2011). Change of land use patterns in the areas close to the airport development area and some implicating factors. *Sustainability*, 3(9), 1517–1530. <https://doi.org/10.3390/su3091517>
- Swedesurvey. (n.d.). Computerisation of land records. Retrieved December 15, 2017, from <http://www.swedesurvey.se/working-worldwide/bhutan/computerisation-land-records>
- Taher, M. T., & Ibrahim, A. (2014). Transformation of slum and squatter settlements: A way of sustainable living in context of 21 century cities. *American Journal of Civil Engineering and Architecture*, 2(2), 70–76. <https://doi.org/10.12691/ajcea-2-2-3>
- Thapa, G. B. (1993). Impacts of emigration on mountain watersheds: The upper Pokhara valley, Nepal. *Asian and Pacific Migration Journal*, 2(4), 417–437. Retrieved from [www.smc.org.ph/administrator/uploads/apmj\\_pdf/APMJ1993N4ART2.pdf%0A](http://www.smc.org.ph/administrator/uploads/apmj_pdf/APMJ1993N4ART2.pdf%0A)
- Thapa, G. B., & Niroula, G. S. (2008). Alternative options of land consolidation in the mountains of Nepal: An analysis based on stakeholders' opinions. *Land Use Policy*, 25(3), 338–350. <https://doi.org/10.1016/j.landusepol.2007.09.002>
- Thapa, G. B., & Weber, K. E. (1995). Status and management of watersheds in the Upper Pokhara Valley, Nepal. *Environmental Management*, 19(4), 497–513. <https://doi.org/10.1007/BF02471963>
- Thiel, F. (2009). Law for state land management in Cambodia. In *7th FIG Regional Conference, Spatial Data Serving People: Land Governance and the Environment – Building the Capacity*. Hanoi. Retrieved from <https://www.oicrf.org/documents/40950/43224/Law+for+state+land+management+in+Cambodia.pdf/27c6c050-e9d0-e27a-6e54-1c70e39e8cdc>
- Tibbalds, F. (2001). *Making People-Friendly Towns*. New York: Spon Press. Retrieved from [www.ndri.ir/Sites/Files/525/MAKING PEOPLE-FRIENDLY TOWNS.pdf%0A](http://www.ndri.ir/Sites/Files/525/MAKING PEOPLE-FRIENDLY TOWNS.pdf%0A)
- Traedal, L. T., & Vedeld, P. O. (2017). Livelihoods and land uses in environmental policy approaches: The case of PES and REDD+ in the Lam Dong province of Vietnam. *Forests*, 8(2), 17. <https://doi.org/10.3390/f8020039>
- Travisi, C. M., & Camagni, R. (2005). *Sustainability of urban sprawl: Environmental-economic indicators for the analysis of mobility impact in Italy*. Milano. Retrieved from <http://hdl.handle.net/10419/74299>

- Tuladhar, A. M. (2004). *Parcel-based geo-information system: Concepts and guidelines*. ITC, University of Twente. Retrieved from [https://www.itc.nl/library/Papers\\_2004/phd/tuladhar.pdf](https://www.itc.nl/library/Papers_2004/phd/tuladhar.pdf)
- Turner, J. F. C. (1968). *Uncontrolled urban settlement: Problems and policies* (No. 11). *Inter-regional seminar on development policies and planning*. Retrieved from [http://www.hic-gs.org/content/john\\_turner/4\\_UncontrolledUrbanSettlement.pdf](http://www.hic-gs.org/content/john_turner/4_UncontrolledUrbanSettlement.pdf)
- UN-Habitat. (2003). *The challenge of slums*. Retrieved from <https://unhabitat.org/books/the-challenge-of-slums-global-report-on-human-settlements-2003/>
- UN-Habitat. (2004). *Global campaign for secure tenure: A tool for advocating the provision of adequate shelter for the urban poor* (second). Nairobi: UN-Habitat. Retrieved from [https://books.google.nl/books?id=FMMcFwID\\_CEC&pg=PA40&dq=utility+bills+for+tenure&source=bl&ots=ny0UM6V5qq&sig=VhkQ64GML3LPe6QsqbL1mvGuDrA&hl=en&sa=X&ved=0ahUKEwiDrY6Twe7YAhVByqQKHYQqDbYQ6AEILjAC#v=onepage&q&f=false](https://books.google.nl/books?id=FMMcFwID_CEC&pg=PA40&dq=utility+bills+for+tenure&source=bl&ots=ny0UM6V5qq&sig=VhkQ64GML3LPe6QsqbL1mvGuDrA&hl=en&sa=X&ved=0ahUKEwiDrY6Twe7YAhVByqQKHYQqDbYQ6AEILjAC#v=onepage&q&f=false)
- UN-REDD. (2012). *UN-REDD Vietnam phase II programme: Operationalising REDD+ in Vietnam*. Retrieved from [http://www.vn.undp.org/content/dam/vietnam/docs/Project Documents/Prodoc signed\\_resized.pdf](http://www.vn.undp.org/content/dam/vietnam/docs/Project Documents/Prodoc signed_resized.pdf)
- UNDP. (2005). *A home in the city: UN millennium project task force on improving the lives of slum dwellers*. London: Earthscan. Retrieved from <https://search.library.utoronto.ca/details?5436078&uuiid=c24f2563-adde-46f0-a472-0d62df59de97>
- Uzun, B., & Cete, M. (2004). A model for solving informal settlement issues in developing countries. In *FIG Working week, Planning, valuation and the environment*. Athens. Retrieved from [https://www.fig.net/resources/proceedings/fig\\_proceedings/athens/papers/ts24/TS24\\_1\\_Uzun\\_Cete.pdf](https://www.fig.net/resources/proceedings/fig_proceedings/athens/papers/ts24/TS24_1_Uzun_Cete.pdf)
- Walker, R. (2001). Urban sprawl and natural areas encroachment: Linking land cover change and economic development in the Florida Everglades. *Ecological Economics*, 37(3), 357–369. [https://doi.org/10.1016/S0921-8009\(01\)00178-1](https://doi.org/10.1016/S0921-8009(01)00178-1)
- Wannasai, N., & Shrestha, R. P. (2008). Role of land tenure security and farm household characteristics on land use change in the Prasae Watershed, Thailand. *Land Use Policy*, 25(2), 214–224. <https://doi.org/10.1016/j.landusepol.2007.07.003>
- Wekesa, B. W., Steyn, G. S., & Otieno, F. A. O. (2011). A review of physical and socio-economic characteristics and intervention approaches of informal settlements. *Habitat International*, 35(2), 238–245. <https://doi.org/10.1016/j.habitatint.2010.09.006>
- WHO. (2009). *People living in informal settlements. Children's environmental health indicators*. Retrieved from <http://www.who.int/ceh/indicators/informalsettlements.pdf>
- Winayanti, L., & Lang, H. C. (2004). Provision of urban services in an informal settlement: A case study of Kampung Penas Tanggul, Jakarta. *Habitat International*, 28, 41–65. [https://doi.org/10.1016/S0197-3975\(02\)00072-3](https://doi.org/10.1016/S0197-3975(02)00072-3)
- Worldometers. (2018). Bhutan population. Retrieved January 30, 2018, from <http://www.worldometers.info/world-population/bhutan-population/>
- Zakout, W., Wehrmann, B., & Torhonen, M.-P. (2006). Good governance in land administration principles and good practices. Retrieved from <http://www.fao.org/3/a-ak375e.pdf>
- Zimmermann, W. (2007). Good governance in public land management. In *Land Reform, Land Settlement and Cooperatives*.
- Zimmermann, W. (2008). Effective and transparent management of public land experiences, guiding principles and tools for implementation. In *State and Public Land Management*. Verona. Retrieved from [https://www.fig.net/resources/monthly\\_articles/2008/december\\_2008/december\\_2008\\_zimmermann.pdf](https://www.fig.net/resources/monthly_articles/2008/december_2008/december_2008_zimmermann.pdf)
- Zin, M. H. M., & Ahmad, B. (1992). Mapping of government land encroachment in Cameron Highlands using multiple remote sensing datasets. In *8th ISED conference*. Kuching: IOP. <https://doi.org/10.1088/1755-1315/18/1/012037>
- Zondag, B., & Borsboom, J. (2009). Driving forces of landuse change. In *49th ERSa conference*. Lodz. Retrieved from <http://www.significance.nl/papers/2009-ERSA-Driving-forces-of-land-use-change.pdf>



## LIST OF APPENDICES

---

Appendix A. Photographs taken during interviews and focus group discussions



Appendix B. Photographs taken during physical observation and participatory mapping exercise





## Appendix C. Interview guide for the public authorities

Interviewee:	Date:
Designation:	Time:
Department:	Location:
Agency:	Duration of interviewee:

### A. State Land & State Land Management

1. What kind of land is considered state land in Bhutan?
2. Can you explain to me what law governs the use of state land in Bhutan?
3. Who are the main stakeholders involved in the management of state land?
4. How do the people get access to state land formally?

### B. Definition of encroachment

5. How and when did the term encroachment originate in the context of Bhutan?
6. How do you define the term encroachment?
7. The media has been reporting on the problem encroachment of state land in Bhutan. What are your views on this issue currently?

### C. Causes

8. Can you tell me the possible reasons for encroachment in Bhutan?

### D. Label

9. How do you label these occupants on the state land?
10. How do they get access to the fundamental services/utilities?

### E. Policy/Law

11. What are the different laws in place to address encroachment?
12. What kind of policies/laws do you suggest to be written and implemented to address the problem of encroachment of state land?

### F. Mechanisms

13. Can you tell me about how the state land is recorded and where?
14. How do you keep a record of encroachment?
15. Can you tell me the mechanisms in place to locate and monitor the land use change of state land that is labelled as encroachment?

### G. Strategies

16. How are these land use changes addressed in the state land management system of Bhutan?
17. How far are the occupants involved in the land use planning and decision making?

#### Appendix D. Interview guide for the local resident

---

**Interviewee:**

**Date:**

**Time:**

**Location:**

**Duration of interviewee:**

---

1. Since when have you been living in this block?
2. Can you tell me when did the occupants started to come and settle in the current location?
3. What do you think could be the possible reasons for them to settle here?
4. Can you describe the development of the settlement process?
5. How did the occupants get access to the fundamental services?
6. What was your reaction on the new people and the settlement?
7. Did they receive any pressure to vacate the land?

#### Appendix E. Topic guide for focus group discussion at the study area

---

**Date:**

**Time:**

**Location:**

**Duration of discussion:**

---

1. Can you please give me a brief introduction of yourselves.
2. Can you tell me about the people who live here?
3. Can you tell me about the place you lived before you resided in this area? And why did you move?
4. How did you come to know about this area? Are you happy with this place?
6. How long did it take for you to build the house? Do you intend to make any improvements to your homes?
7. How do you get access to the services/utilities? Do you pay for the services?
8. Have you encountered any pressure to vacate the land?
9. How satisfied are you with the formalisation of the land? What are your concerns?