

**STATE AND PUBLIC LAND MANAGEMENT:  
ISSUES OF ENCROACHMENT AND PROTECTION TECHNIQUE**

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**Key words:** State and public land, Encroachment, Protection technique

**ABSTRACT**

The aspect of the management of state and public land directly supports to alleviating poverty, food sovereignty, protection of human rights and peace and security. So, management of state and public land directly or indirectly touches security of common property rights, pro poor and indigenous access to land and revenue generation for the state. State and public land are normally badly managed throughout the world because of its low national priority agenda and insufficient policy process, institutional arrangement and information aspects.

This paper assumes that, overall framework about policy, management and operational levels with external factors and review process of state land will enable for screening major concerns of reforming the regulatory framework, regularization of public land, complementary governance support, management rules for public property, improvement of institutional arrangements, data and information, users services, capacity building and user satisfaction. SWOT analysis has been performed to identify major factors of encroachment and strategies formulation for cases of protection technique.

Badly managed state land and low priority agenda is not only decreasing its efficiency but increasing encroachment options too. Mainly the unclear definition of state and public land tenure, lack of proper land governance, having gap and overlaps in institutional arrangement and lack of information are causes of inefficient management of state land, which lead not only misuse and bad allocation of land but highly motivate to lead towards severe encroachments.

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## **1 INTRODUCTION**

There are 1.6 billion poor people living in forested lands worldwide, nearly 80 percent of which is considered public and state land (Franco, 2008). Considering protection of state and public land is important issue of every national land administration because it is directly related with socio-economic development perspective and environmental sustainability of a country. It is important aspect as management of state and public land directly supports to alleviating poverty, food sovereignty, protection of human rights and peace and security. The management of state and public land directly or indirectly touches security of common property rights, pro poor and indigenous access to land and revenue generation for the state(FAO, 2013).

Generally, State land covers all land which is in control of state i.e. government owned land and public lands. State and public land tenure almost refers common property system. The existence of common property systems in many parts of the world imitates the importance of social relations as composite scopes of land tenure (Zhao, 2013). The equitable access on land for all social group is crucial for social agreement, which can be fulfilled by management of state and public land. State and public land management is a critical factor for ensuring good governance in the land administration of a country. So, this study mainly aims to identify issues of encroachment and development of protection technique

There is normally ambiguity in influential roles and responsibilities, a lack of accountability or procedure in the systems of distribution, appropriation, disposal or use of state and public land, and a lack of information on state resources (Zimmermann, 2008). Many different authorities and administrations have the legal responsibility to maintain records of state and public land and to protect it. There is more emphasis on the maintenance of records rather than the physical maintenance and management of state and public lands. The encroachment of state and public land is more affected by country's policy, process and institutional arrangement being existence of duplication, gap in responsibility. State and public land property are often mismanaged, and nearly all countries underutilize these resources in case of its use. Public land management is quite often inconsistent and argumentative because it is ruled by a top-down process that encourages favors to special benefits and stimulates divergence to obtain such favoritisms.

The conceptual framework for the study is set out in terms of policy aspect, institutional arrangement aspect and land information aspect for state and public land management. Identification of different aspect, indicators and best practices related to state and public land management are important part of study to recognize key factors of state and public land encroachment. After discussion and assessment about indicators and best practices, the conceptual framework performs SWOT analysis to formulate strategy. Conceptual framework for protection technique of state and public land management is shown as given Figure 1.

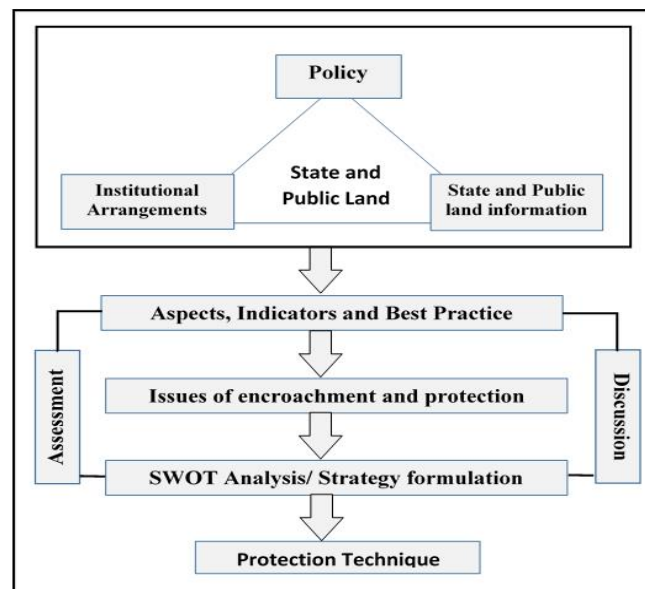


Figure 1: Conceptual framework

## 2 STATE AND PUBLIC LAND MANAGEMENT: AN EXPERIENCE

State land management is the management of all state and public land (F. Thiel, 2009). Public land is base of development of any country to its social, economic and environmental perspective. Public land is highly important for public benefit. If it is properly managed and preserved, it can be an important resource for populaces and permits for sustainable development based on a rational stability of social needs, economic activity and ecofriendly management (Grover, 2008). It is directly related to income generation and access to land for poor people of nation. Public Land Management is the better technique for optimum utilization of natural resources of country.

Willi Zimmermann describes that the value of public land management by some of the statistics introduced as 37% surface area of the planet was owned by 147 states in which ultimate landownership was vested in the state and 21% of the planet was owned by 26 monarchs who held ultimate landownership. A further 30% of all land was common property, mostly in the form of property rights on state land (Grover, 2008).

## 2.1 The community and public land

Scholars, Gordon, Demsetz, and Hardin exploded a general concern that when property rights related to a valuable resource did not exist, the resources would be over collected (Ingram & Hong, 2009). The concept ‘Tragedy of Commons’ is more relevant with state and public land management. There appears some truth in the conventional belief that everybody’s property is nobody’s property. The property and wealth easily available for all is valued by none because he who is impulsive enough to wait for its proper time of us will only find that it has been taken by another(Gordon, 1954). In agrarian cultures, the social owner of common land is consistently a community. It is a fact that, generally, the larger a river, the less localized the claim upon it. As a rule, forest, pasture, marshland, and rangeland falling within the area of a particular group, village, or village group, are considered the assets of that community (Alden, 2011).

## 3 ASSESSMENT FRAMEWORK

The way forwarded to evaluate the performance with well-defined objectives, clear strategy, outcomes and evaluation component can be adjusted with the diverse organization level such as policy level, management level and its external factors and review process described by (Stuedler, 2004). As (Zimmermann, 2008) advocated about the following policies for improving the management of public lands i.e. Reforming the regulatory framework, the regularization of public land, land management rules for public property, fair and just compulsory acquisition, complementary governance support and the improvement of institutional arrangements are selected as possible aspect of public land management considering its policy, management and operational level of evaluation.

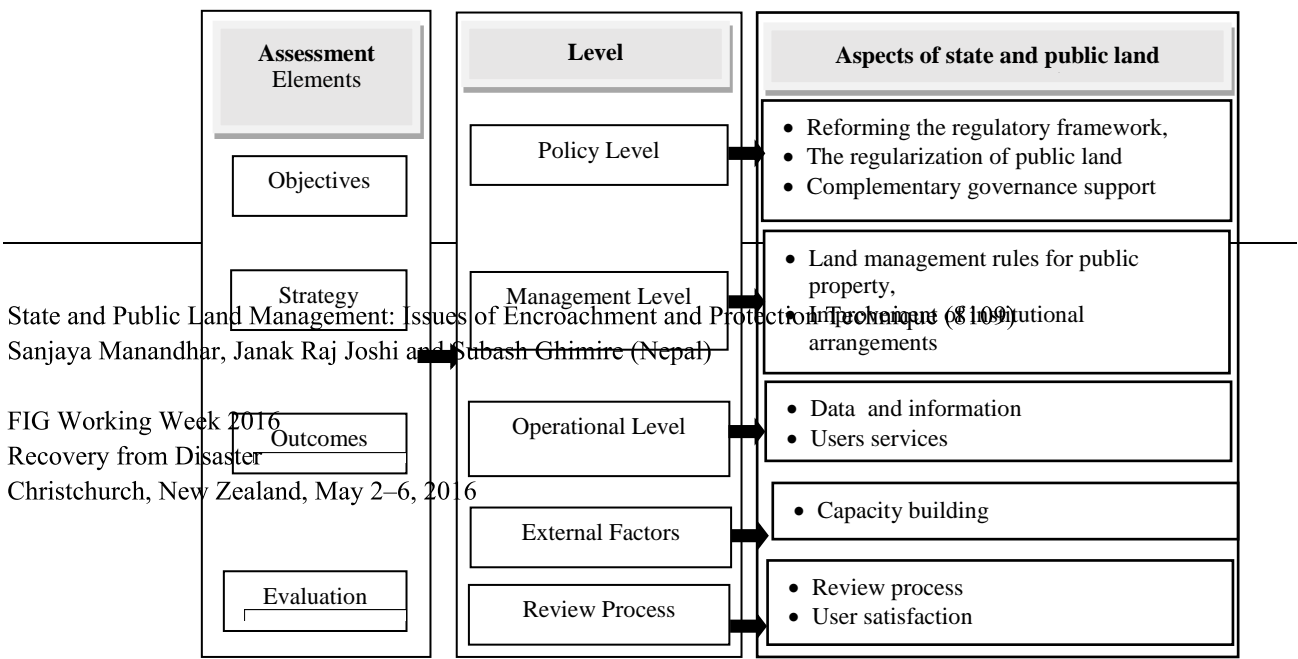


Figure 2: Overall evaluation framework adapted by concept of (Steudler, 2004) and (Zimmermann, 2008).

Data and information, Users services, Capacity building, Review process and User satisfaction aspect are chosen from “*Summary of evaluation framework for land administration systems*”(Steudler, 2004). For assessment of paper objective, Figure 2 shows the overall evaluation framework for public land management with combined conceptualization of scholar (Steudler, 2004) and (Zimmermann, 2008).

### 3.1 Possible aspects, elements, indicators and good practice criteria

This part tries to list possible aspects, elements, indicators and good practice criteria with reference of pre described framework as per Figure 2, which shows systematically different five levels and possible aspects within. There are lists of selected elements assuming that it will support to meet study objectives. Indicators and good practice are defined with review of literatures and country context of Canada, New Zealand and Korea assuming that these countries are better in public land management. Further, these selected elements and indicators are used for data collection methods.

Table 1: Identification of possible aspects, elements, indicators and best practice

Level	Possible Aspects	Elements	Indicators	Good Practice
Policy	Reforming the regulatory	Definition of state and public land	Use, Ownership defined	Clear Definition

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	framework	Land right	Rights offered	Secured right
	Regularization of public land	Formalization of informal right	Certificate of formalization	Certainty of rights (temporal/use)
	Complementary governance support	Legitimacy	Legitimate procedures	Consistent and coherent
		Fairness	Fair allocation of state/public land and rights	Un-biased allocation of land and rights
		Participatory	Participation of stakeholders in all kind of decision making	Each of the decision are taken from the active participation of relevant stakeholders
		Accessibility	Accessibility options and privileges to general users	Open, transparent, and simple system for accessing the data
		Transparency	Access to information	There is a good mechanism of accessing the data
			Awareness	General users are aware of the availability of information
Publicity	Data, charts display Example: Signboard			
<b>Management Level</b>	Land management rules for public property	Maintenance of Cadaster	Cadastral Coverage of state and public land	Complete and comprehensive cadastral system
		Registration	Registration of spatial unit and right	Complete registration of right, use and ownership
	Improvement of institutional arrangements	Accountability	Responsible staff and methods	Highly responsible staff and users in public land management
		Role and function	Role and functions defined	Roles and functions are clearly defined and there is no overlap in roles and functions
<b>Operational Level</b>	Data and Information	Completeness of records	Record keeping	Each individual parcel are recorded with necessary information
		Spatial data infrastructure	Availability of data, data sharing policy, Metadata	An efficient data modelling technique enabling an interoperable sharing of data
	Users services	Reliability	Number disputes	Numbers boundary disputes are low
		Accuracy of information	accurate information about public land	Information available for general public
<b>External Factors</b>	Capacity building	Land inventory	Number of inventory records about state and public land allocation, use and vacancy.	Periodical audit and fiscal control of state and public land
<b>Review Process</b>	User satisfaction	Reviewing process	Use and allocation of such land	When a regular review takes place and when customers are satisfied
		Users satisfaction	The satisfaction of the system user	

A well designed assessment framework for the state and public land management that incorporates all the evaluation areas, related aspects and corresponding indicators with its best practices is vital for the comprehensive assessment process. Hence this part tries to present a complete framework

for evaluation. The evaluation of any activities is important because it serves to achieve objective and provides lesson for future guidance. Formally these frameworks are used in data collection and data analysis methods to meet study objectives.

#### 4 MATERIALS AND METHODS

The case study area was selected in Ward no 11 of Banepa Municipality, Kavrepalanchok district in Nepal. It was suitable for the study because there are ongoing different types of use, management and activities of public land in one hand and different encroachment issues are noticed in other hand. It is also suitable because the location contains geographical variation and spread commercial land to rural forest area within. Banepa is situated in a valley at about 4800 feet, above the sea level. Banepa, the historical town, about 26 km east from Kathmandu situated in Bagmati, Central Nepal and geographically located in 27° 38' 0" North, 85° 31' 0" East, which



Figure 3: Map of study area

is shown in Figure 3.

The primary data collection and secondary data collection is important for every study which are based on spatial and household survey for this study. The selection of the key informant was fulfilled by cluster sampling technique. In case of data collection and its validity, the way of scientific approaches were applied. Ethical consideration was taken in high priority. The data processing and analysis of the qualitative data processing is done using Visio-2007, SPSS and also by the MS-Excel 2013 and for spatial analysis there is used Arc Map 9x.

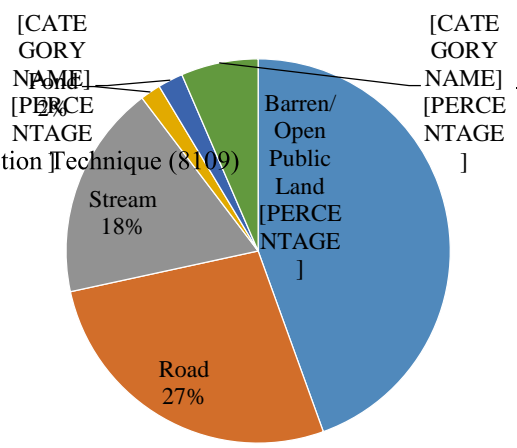
#### 5 RESUSLTS AND ANALYSIS

This part includes state land information on tabular format, map of state land encroachments of case study area. There is 126126 m<sup>2</sup> public land in study area in which only 56111 m<sup>2</sup> is found as barren or open public land.

S.N.	Public Land Type	Area/m <sup>2</sup>
1	Barren(Open public Land)	56111
2	Road	34192
3	Stream	22786
4	Pond	2172
5	Building	2670
7	Nursery	8194
	<b>Total</b>	<b>126126</b>

Table 2: State and public land distribution

There is also sloppy forest in north side of study location covering area of 1041566 m<sup>2</sup>. But in the legislation of Nepal, it is classified as state land and no public can directly use and enjoy it. Forest are restricted and protected resource in Nepal and committed to maintaining more than



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40% area of national land area.

In total public land about 44% land exists as barren or open public land, 27% consists as road, 18% as stream, 2% as pond and government buildings and 7% used and restricted in purpose of Nursery, which is shown in Figure 4. There is easy access of highway and roads in about more part of public land in study area. They are also suitable for sheltering and performing different social recreational activities. But most of public land including forest area is out of access of road, inaccessible of services and slope ground nature.

The areas suitable for open space public land are allocated in so called different development and local activities. The maximum part of public land suitable for open spaces, parks and recreational area is already covered or used for other purposes i.e. for vegetable market and covered hall which replaced the community playground, same as for Red cross buildings and building for Journalist etc. which is shown in Table 3.

Figure 4: State and public land distribution

<b>FID</b>	<b>Description</b>	<b>Area(m<sup>2</sup>)</b>
0	Vegetable Market and Covered Hall	7320
1	Red cross Building and Office of Journalist	6905
2	Animal Development Area (Pashu Bikash Ratmate)	1445
3	Bhakteshor School	1112
4	Road	672
5	Ward Office	165
6	Road	1162
7	Kavre Multiple Campus	3615
8	Road	1598
	<b>Total Area</b>	<b>23994</b>

Table 3: List of total used state and public land

There may be distinct positive impact of such allocation of the good characterized state and public lands in study area. But most of respondents do not agree that ongoing allocation of public land use is sustainable. In study area, about 23994 m<sup>2</sup> of public land is allocated for different social purposes where 32118 m<sup>2</sup> public land which is located in inaccessible and slope nature is remained, which is shown in Table 4. That data table shows that there is inconsistency and no plan in distribution and



allocation of public land. The result can be analyzed as there may be lack of open space and public land access for purpose of parks, children entertainment spots, recreational area and spots for sheltering when disaster occurs.

<b>FID</b>	<b>Description</b>	<b>Area(m<sup>2</sup>)</b>
0	Chandeshori Stream (Khola)	58
1	Kuikel Village (Gau)	7393
2	Kuikel Village (Gau)	711
3	Kuikel Village (Gau)	565
4	Chandeshori forest east	8864
5	Khatri Village (Gau)	1667
6	Ratmate- Punyamati Riverside	700
7	Vegetable Market and Covered Hall	1266
8	Red cross Building and Office of Journalist	5166
9	Kavre Multiple Campus	2979
10	Chandeshori forest east	2748
	<b>Total Area</b>	<b>32118</b>

Table 4: List of total remained / vacant state and public land

There is information about total used state land as 43% and total vacant land as 57% in ratio of state land without jungle area.

<b>No.</b>	<b>Area/m2</b>	<b>Description</b>
1	360	Khatri village-Gau
2	1865	Khatri village-Gau
3	1374	Khatri village-Gau
4	2934	Eye Hospital
5	520	Eye Hospital
6	5672	Kuikel village-Gau
7	903	Kuikel village-Gau
8	2625	Kuikel village-Gau
9	939	Bhakteshor Pond
10	216	Cold store Pond
Total	17409	

Table 5: State and public land encroachment

As the result of study, there are maximum encroachment evidences in open border i.e. forest boundaries, open public lands and ponds. Forests that are bounded by natural stream are safe from public encroachment. But the public land with having private parcels are more in risk of encroachment which we clearly see in map as Figure 6 and result as Table 5. So, we can easily evaluate the importance of physical boundary for state and public land protection. Table 5 tries to show the encroachment description with respect to area concerning related map in case study area.

Based on about 70 house hold survey and interview data, there exists lack of sustainable vision of local government, communities and stakeholders in better management of state and public land which is shown in Figure 5. In study of encroachment and different management, governance aspects of state and public land management, responses indicates

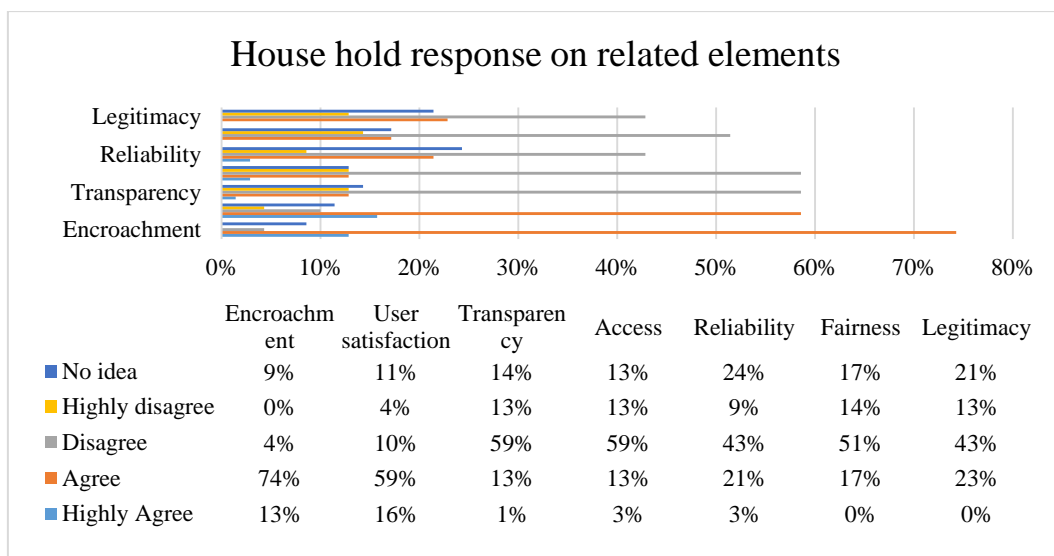


Figure 5: House hold response

about continuous encroachment of public land. They disagree on good transparency, access and reliability on public land information. They feels there is need of improvement in fairness and legitimacy as governance aspect.

Different types of state and public lands in case study area, mainly the Parti i.e. Barren land, Road, Stream, Pond, Government building, Jungle- Forest area, Nursery and Temple are shown on map in Figure 6. The overall content and context of state and public land are shown with the categories and area of state land in units. This paper tries to identify the encroachment of state and public land after comparative analysis with study of cadastral maps, images and field verification. Major noticed public land encroachment or more than 100 m<sup>2</sup> are identified in map which is shown in Figure 6 and parcels are tabulated in Table 5. This indicates that the Jungle or forest area is severely encroached

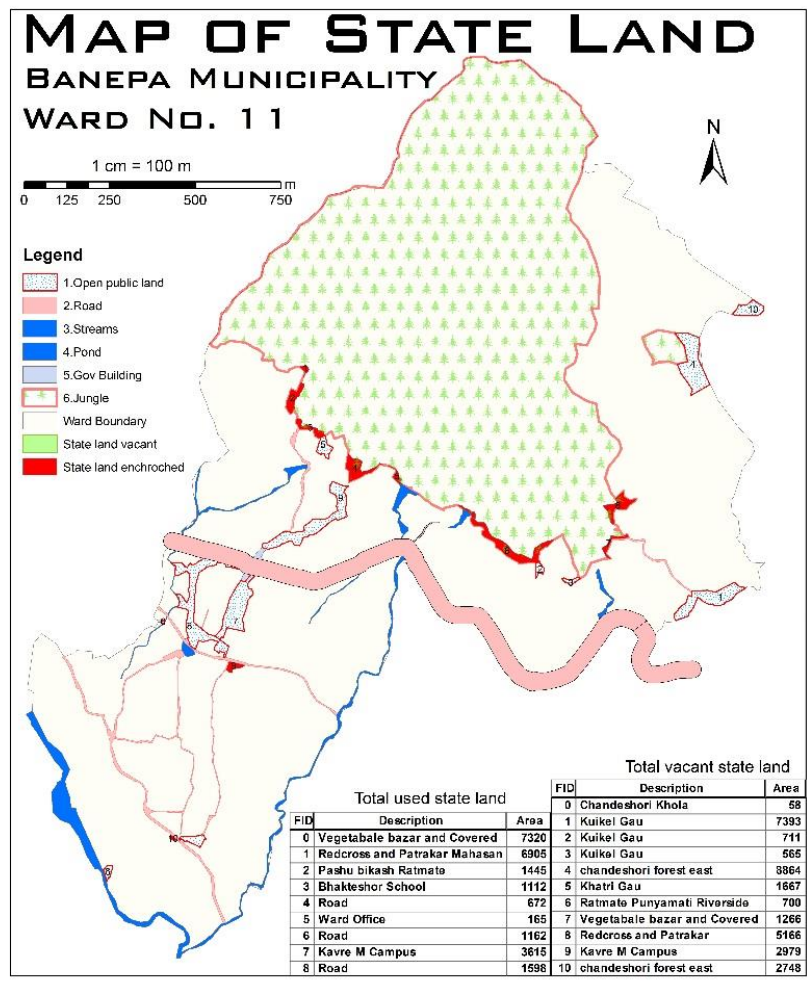


Figure 6: Map of State and public land encroachment

in study location. Another, Ponds are secondly more encroached public land in study area.

## 6 DISCUSSION

On the basis of literature review, case study and data analysis, for overall state and public land management, boundary of environment is set out with its policy, institutional arrangement and land information constraints. SWOT analysis is commonly known for the analysis of situation to

developing the strategic planning process, which is applied to study and identify factors of public land encroachments.

<b>Internal Factor</b>	<b>Strength</b>	<b>Weakness</b>
	<ul style="list-style-type: none"> <li>• Legal provisions of Acts and rules for management and protection.</li> <li>• Existence of National Land Use Policy- NLUP and Working Policy for Government land Registration and Lease- WPGRL.</li> <li>• Addressed level wise institutional management and protection issues.</li> <li>• State land registers and maps.</li> </ul>	<ul style="list-style-type: none"> <li>• Unclear tenure definition and use right mechanisms of state and public land.</li> <li>• Poor public land governance in terms of legitimacy, fairness, participation aspects.</li> <li>• Gap and overlaps in institutional role, function, accountability and responsibility.</li> <li>• Lack of data reliability, completeness, accuracy, transparency and user access of state land information.</li> <li>• Lack of periodical review of state and public land property.</li> <li>• Lack of boundary demarcation of state land property.</li> </ul>
<b>External Factor</b>	<b>Opportunity</b>	<b>Threats</b>
	<ul style="list-style-type: none"> <li>• Formalization of informal and encroached settlements.</li> <li>• Provision of land access to poor and discriminated social groups.</li> <li>• Support concession, lease and contract.</li> <li>• Land inventory and audit.</li> <li>• Proper registration and maintenance of cadaster.</li> <li>• Proper use of SDI and ICT.</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing rate in state land encroachment and informal settlement.</li> <li>• Misuse and unsustainable allocation of state and public land.</li> <li>• Increasing loss of open spaces.</li> <li>• Lack of land for infrastructure development towards concept of smart city.</li> <li>• Stakeholders and user satisfaction.</li> </ul>

Table 6: SWOT matrix

Major factors influencing encroachment and state and public land management system is shown in Table 6. It shows main strength of the system in internal factors as its legal provisions, existence of National Land Use Policy- NLUP and Working Policy for Government land Registration and Lease- WPGRL, addressed level wise institutional protection issues and availability of map and registers of land. Unclear tenure system, poor land governance, institutional gaps and overlaps, poor land information and lack of periodical review are main weak factors of state and public land management .in study area.

In case of external factor, formalization of informal settlements, concession, lease and contract, land inventory and audit, registration and maintenance of cadaster and use of SDI are emerging factor to develop efficient state and public land management and protection. But, there is still threat of increasing land encroachment, misuse and unsustainable allocation due to poor state and public land management.

The factors of state and public land encroachment and poor management are fused in SWOT matrix to formulate strategy as shown in Table 6, where Strength-Opportunity, Strength- Threat, Weakness- Opportunity and Weakness-Threat strategies are generated in major aspects of policy, institutional arrangement and information level.

There is taken Strength factors of state and public land to overcome its Weakness and minimize Threats when formulating strategy. Opportunistic factors are considered to address system and environmental Weakness and recover them, which will support to avoid and lessen factors related to Threat.

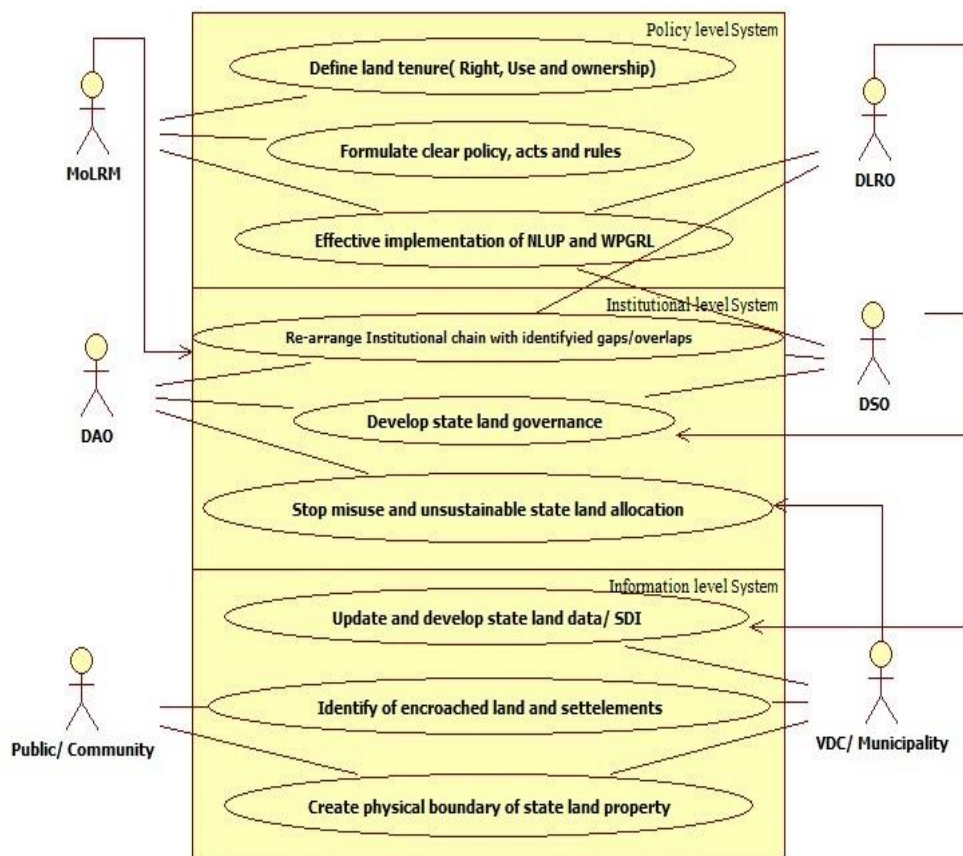


Figure 7: Use case diagram of state and public land protection technique.

This discussion part tries to present state and public land protection technique along with previously identified issues and factors based on policy, institutional arrangement and information aspect. SWOT matrix was performed for identifying key factors of encroachment and SWOT strategy was formulated with fusion of internal and external factors to generate required strategies, which develops overall state and public land protection technique, which is shown in Figure 7. It mainly identifies the key actors and cases of protection technique.

After discussion on factors and strategies, there are some important key actors identified from data analysis and assessment of state and public land. Ministry of Land Reform and Management- MoLRM, District Administration Office- DAO, District Land Revenue Office- DLRO, District Survey Office- DSO, local government i.e. Village Development Committee- VDC/ Municipality and Public or Community are main actors of state and public land protection and its management. The major strategic consideration are classified into policy, institutional arrangement and information aspects in three different system as shown in Figure 7. There are different cases defined for protecting encroachment and management of such land. The relation between actors and cases is also shown in that Figure 7. Defining land tenure as its right, use and ownership aspect is one of the important cases which should be addressed by MoLRM in policy level. There is also need of formulation of clear policy, acts and rules and effective implementation of NLUP and WPGRP for good governance of such land, which will support in eliminating encroachment of land and motivate to effective management.

There is need of re-arrangement of institutional chain for identifying gaps and overlaps in involvement of MoLRM, DAO and DSO. Development of state land governance is also important case with involvement of DLRO, DSO, and DAO. There is fast need of stopping misuse and unsustainable allocation of such land in institutional level. In information level, updating and developing state land SDI is crucial. To protect encroachment, there is need of identifying encroached land and settlements and creating boundary of state land can directly protect and manage state and public land.

## **7 CONCLUSION**

State and public land management is a critical factor for ensuring good governance in the land administration of any country. There are common factors involved in poor state and public land management. There is commonly ambiguity in institutional roles and responsibilities, a lack of accountability or methodology in the systems of allocation, appropriation, disposal or use of state and public land, and a lack of information on state and public land. Weak governance in this area has direct and indirect implications for citizens, and broader effects on economic development, political legitimacy, peace and security and development cooperation.

State and public land are generally badly managed throughout the world because of its low national priority agenda and insufficient policy, process and institutional framework. Badly managed state land and low priority agenda is not only decreasing its efficiency but increasing encroachment options also. Protection of state and public land is important issue of every national land

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administration. As main conclusion, respecting objective of the study, is to identify issues of encroachment and developing protection technique, it is clear that the policy, institutional arrangement and information issues are major factors of management of such land which directly lead to minimizing encroachment of such land and also it should be kept in mind that timely address of these issues should help force to protection and effective management of such land.

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