



gasa development plan

develop in to economically and culturally vibrant town with abundance of open spaces, play areas and greenery.

2015 - 2030



Development Plan-

Gasa Thromde

(2015-2030)

Urban Planning and Development Division
Department of Human Settlement
Ministry of Works and Human Settlement



Content

Foreword	6
Introduction	10
Existing Scenario	24
Analysis	36
Development Plan	48
Settlement Rules	72
3D Views	86



Foreword

Gasa Dzongkhag is one of the most beautiful places located in the far-northwest part of Bhutan. It had a population of about 3116 in 2005 (as per Population and Housing Census of Bhutan 2005 report) and an area of 3117.74 sq. km, making it least densely populated of all the Dzongkhags and also the least developed. It is also a home to Layaps (nomadic herders) with a unique culture.

The Gasa Dzongkhag Thromde is located in south-western part of the Dzongkhag and comprises of the Gasa Core ,Kolikha and Phulakha village. The existing Gasa core is predominantly institutional in nature. The core is surrounded by scenic mountains and it offers breathtaking views of its surrounding. There are shops operating on temporary basis in the existing core surrounding a green open space with *Mani Dungkhor* (Prayer Wheel). Even a small town like Gasa has almost all the amenities/services such as a school, basic health unit, telecom etc. and the existing development harmonizes and enriches the natural beauty and setting of Gasa.

The Dzongkhag has proposed to shift the commercial core to Kolikha area, which is half a kilometer from the Dzong area and within the Thromde boundary. The very reason to shift the commercial core is the lack of space for expansion. An area measuring approximately 74 acres has been identified at Kolikha by the Dzongkhag Administration. The survey was done by the Survey & GIS Division, DHS in 2014. The Urban Planning and Development Division under Department of Human Settlement (DHS) has undertaken the development plan preparation in the FY 2014-15.The Gasa Dzongkhag Thromde boundary was approved and declared by 5th Session of Second Parliament in the Joint Sitting on 10th June 2015.We would like to express our utmost gratitude to the Parliament for the declaration of new Dzongkhag and Yenlag Thromdes.

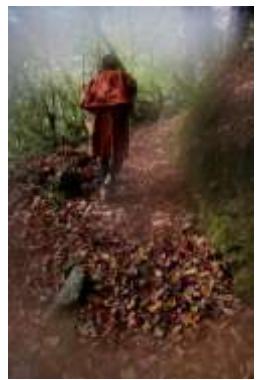
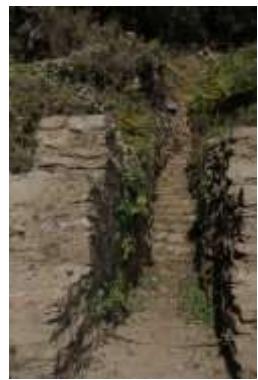
The Gasa Development Plan 2015-2030 focuses on guiding development, which will harmonize with the natural setting of Gasa. The development plan was approved during the 15th NCCHS (National Consultative Committee on Human Settlements) held on 13th April 2016.

We would like to express our gratitude to the Hon'ble members of NCCHS for their valuable comments and suggestions and according approval. We would like to acknowledge the support and cooperation received from Dasho Dzongda, Mr. Dorji Dhradhul, Acting Chief Dzongkhag Engineer Mr. Penjor Dukpa and Municipal Engineer, Mr. Tanshen Bhattarai of Gasa during the plan preparation. In addition, we would like to put on record the support, guidance and valuable comments provided by Mr. Wangchuk Thayey (Director, DHS), Mr. Meghraj Adhikari (Urban Specialist) and Ms. Latha Chhetri (former Chief Urban Planner, UPDD). The plan was prepared in-house by Ms. Dorji Wangzom (Dy. Chief Urban Planner), Mr. Avik Nandy (Sr. Urban Planner), Mr. Tilachand Timsina (Urban Planner) and Mr. Gyembo Dorji (Urban Planner) of Urban Planning and Development Division, DHS.

The Development Plan is a dynamic document and it has to be reviewed every 5 years by the Dzongkhag Administration. The Dzongkhag has to ensure that the proposals and plans are effectively implemented as per the development plan and any changes to the plan should be routed through the Ministry concerned / NCCHS. We also request the cooperation of all the stakeholders for the implementation of the development plan to realize its vision.



Dorji Choden
Zhabtog Lyonpo, MoWHS
Minister
Ministry of Works & Human Settlement
Thimphu : Bhutan

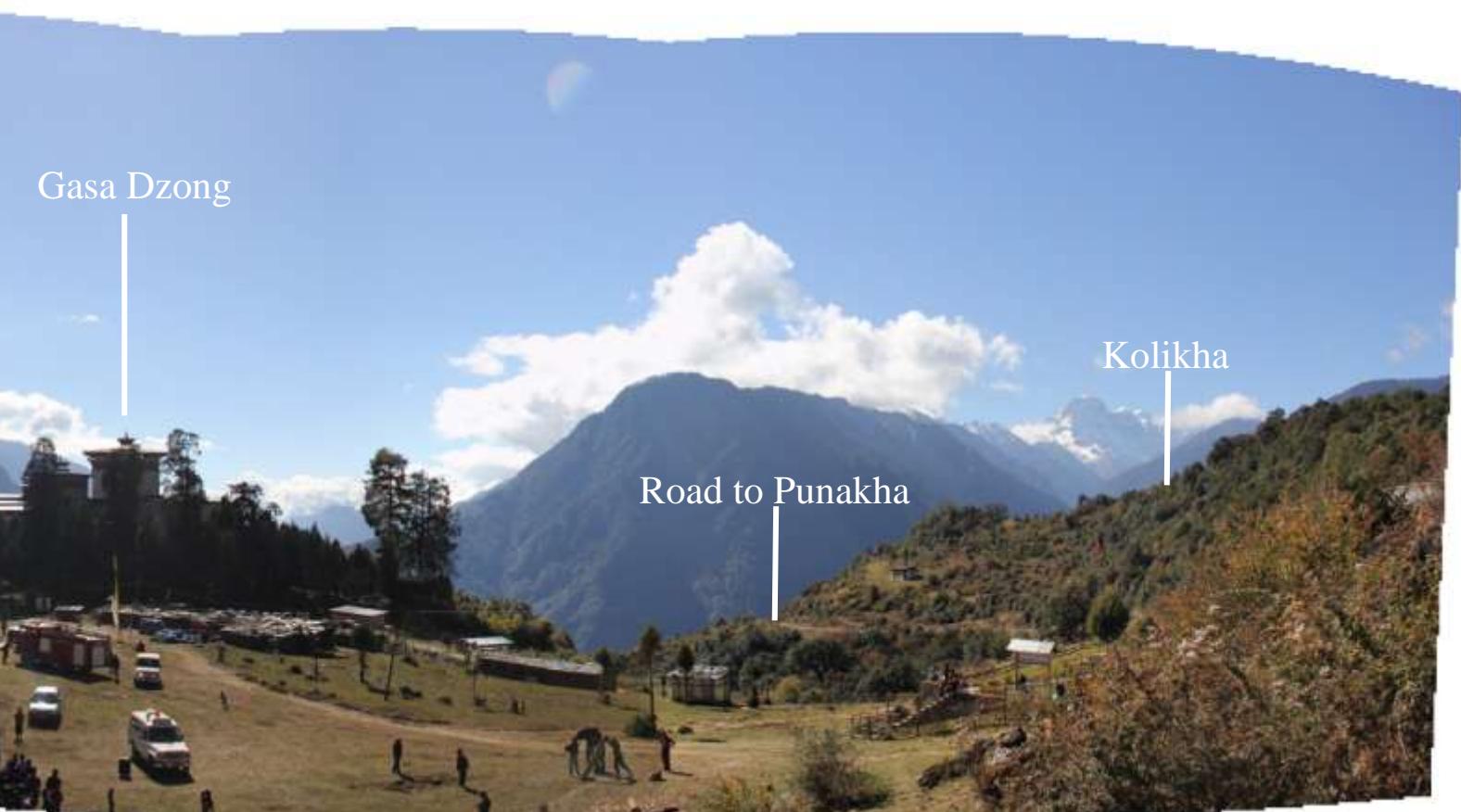


The Team

**Dorji Wangzom,
Avik Nandy,
Tilachand Timsina,
Gyembo Dorji**



Existing Gasa Town

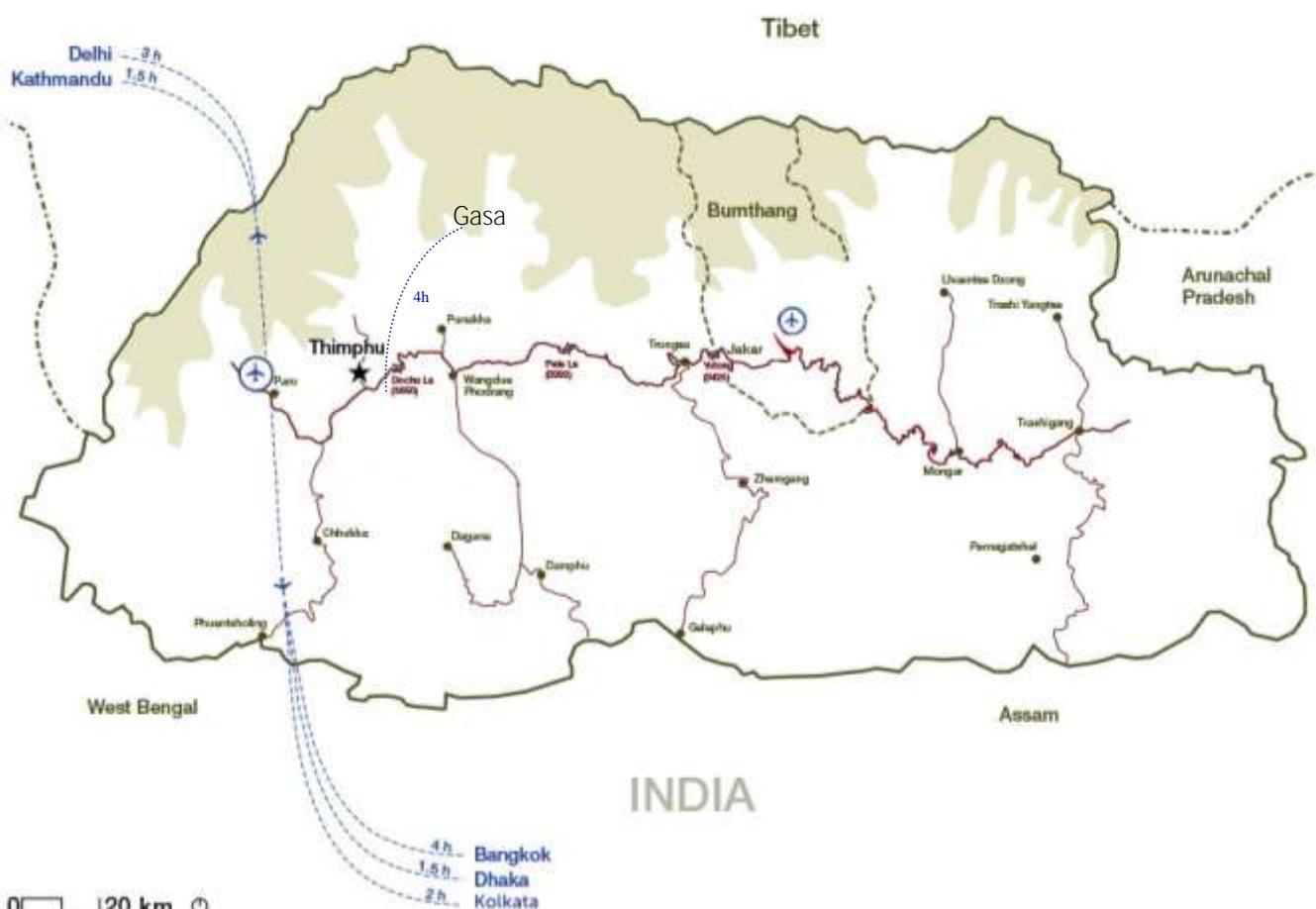




Existing Kolikha area



CHINA



Map of Bhutan and Gasa Location



Existing Gasa Town

Introduction

Gasa Dzongkhag is one of the 20 Dzongkhags of Bhutan. It is bordered by Punakha and Thimphu Dzongkhags in the south, Wangduephodrang is the east and China in the north. The Dzongkhag was separated from Punakha in 1992 and it has 4 gewogs (Laya, Lunana, Khatoed and Khamaed). Formerly, it was a Dungkhag (sub-district) of Punakha Dzongkhag.

The dominant language of the district is *Dzongkha*, which is the national language. Other spoken local dialects are *Layakha* and *Lunanakha*, which are the languages of semi-nomadic communities. The altitude ranges from 1500 to 4500 m above sea level. The whole Gasa Dzongkhag falls under the Jigme Dorji National Park and is a habitat for different species of birds and animals including abundance of takin, national animal of Bhutan. Most of the Bhutan's glaciers are located in Gasa in Lunana Gewog.

The livelihood of people of Gasa is subsistence farming in low land areas and livestock rearing in highland areas. The major economy driver in the recent times is the Cordycep, which was formalized recently.

The Gasa Dzongkhag Thromde is located in the Khatoed gewog. It is a very unique town with beautiful undulating terrain offering scenic views of the mountains around. It is almost 6 hours drive by car from Thimphu. The scenic view of majestic Gasa Dzong is visible even from very far though the Gasa town remains hidden behind the ridge on which the Dzong rests. It gives an image of as if there are no settlement around except for the solitary Dzong standing majestically. Sooner the winding roads unfolds into a peaceful and scenic town, very different and unique from the other towns in Bhutan.

Population	3116 (PHCB 2005)
Area	3117.74 km ²

**as of 2010, formerly
4,409.30 km² (Yr 2002)**

The town has mostly human scaled structure built on the available flat terrain and the existing development merges with the setting. There are all the amenities required in a town such as a primary school, basic health unit, bank ,telecom etc.

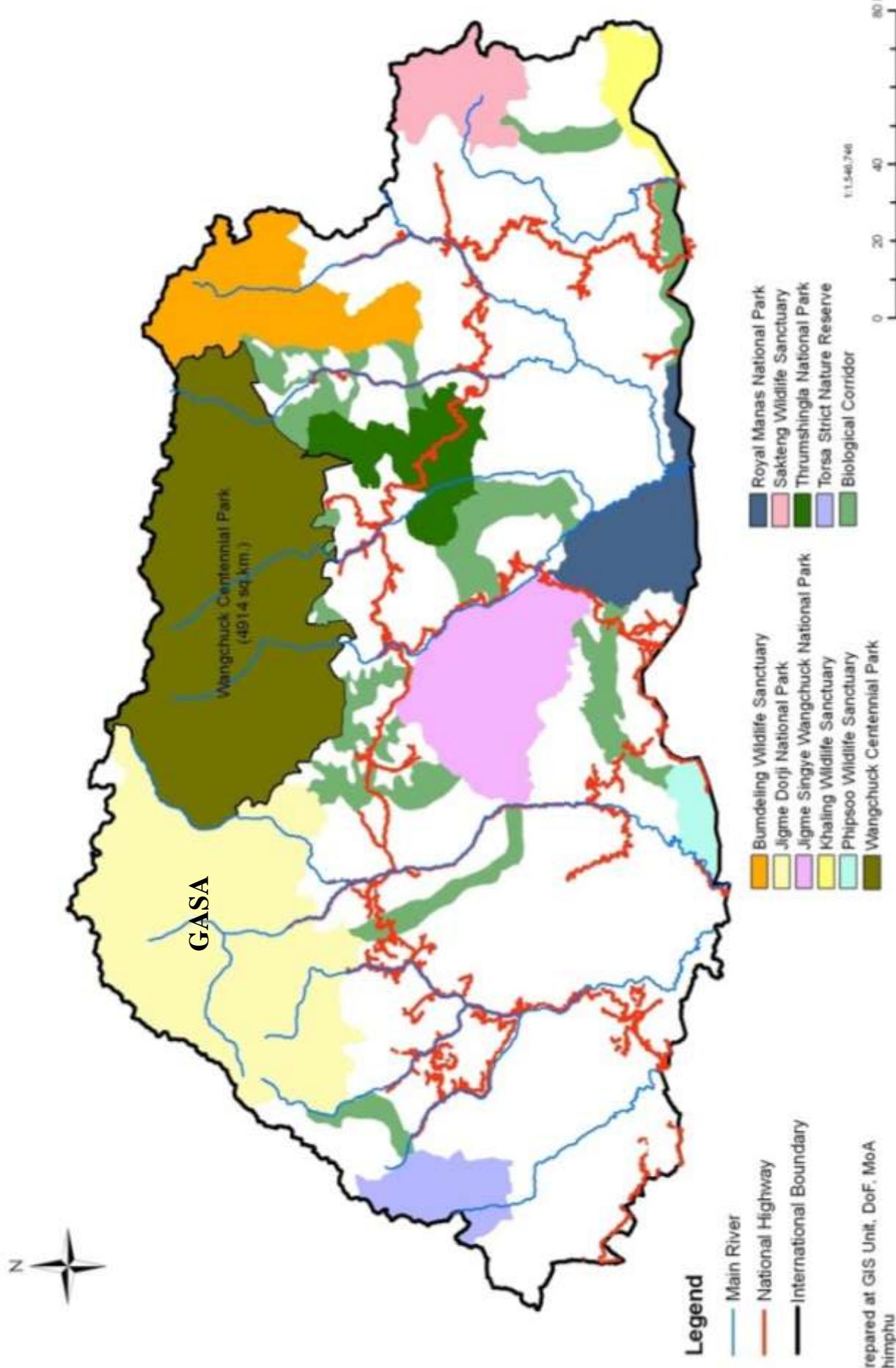
The Dzongkhag proposed to shift the existing commercial core to Kolikha due to the lack of space for expansion in the existing area . The development plan is prepared for Gasa Thromde area, which is 212.5 acres (0.86 sq.km).

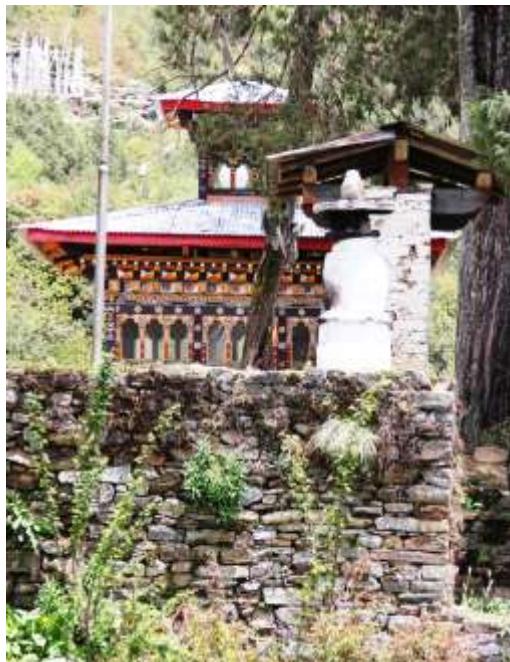
Geographical Conditions and Climate

Bhutan Himalayas can be divided into four environmental zones: the Great Himalaya, Inner Himalaya, the outermost ranges, and the Duars Plain. The northern part of Gasa Dzongkhag falls in Great Himalaya and the southern most part in the Inner Himalaya. The town area is about 2,700m above mean sea level. There are high peaks named "*Gangchey Ta*", "*Masang Gang*", "*Kulagangri*" near the north border of Gasa Dzongkhag. The climate condition ranges from temperate to alpine with very cold winters and pleasant but short summers. The northern part of Gasa experiences heavy snow falls.

Introduction

National Protected Areas and Biological Corridors of Bhutan

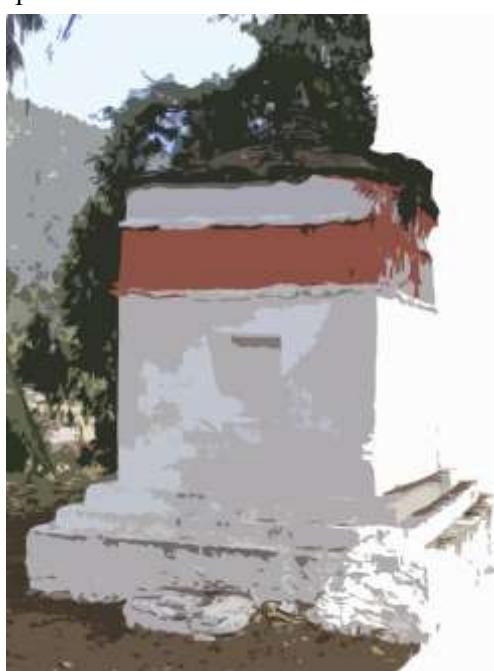




1



2



3



4

Gasa Identity

Gasa has many unique identity features. They are the *Phulakha Lhakhang*, lake around the Gasa Dzong, trees of Singye and Galem and Bhutan-Tibet war time tunnel.

The *Phulakha Lhakhang* located on the northern side of Thromde is one of the Lhakhang amongst the three built by Zhabdrung Ngawang Namgyel in the same day.

There is a lake surrounding by *etho-metho* (rhododendron) garden which is used for recreational activities and forms a main identity feature of Gasa.

The two twin trees near Gasa Dzong were believed to be the rebirth of *Gasalamey Singye* and *Changyul Galem*. They represent the story of *Singye* and *Galem* which is very popular in Bhutan. They were couple in Bhutanese myth, who were considered like Romeo and Juliet in western stories, who continued to love each other besides many hardships and also succeeded to continue their love in their next life.

The deep and shallow tunnels that runs over the steep slope below Dzong to the base of the hill was constructed in 16th century during Bhutan and Tibet war to carry water to the Dzong.



Gasa Identity

1. Phulakha Lhakhang
2. Bhutan– Tibet war time tunnel
3. Chorten near twin trees
4. Twin trees



Gasa Dzong during winter (Source: <http://www.bhutanmajestictravel.com/bhutan-districts/gasa>)



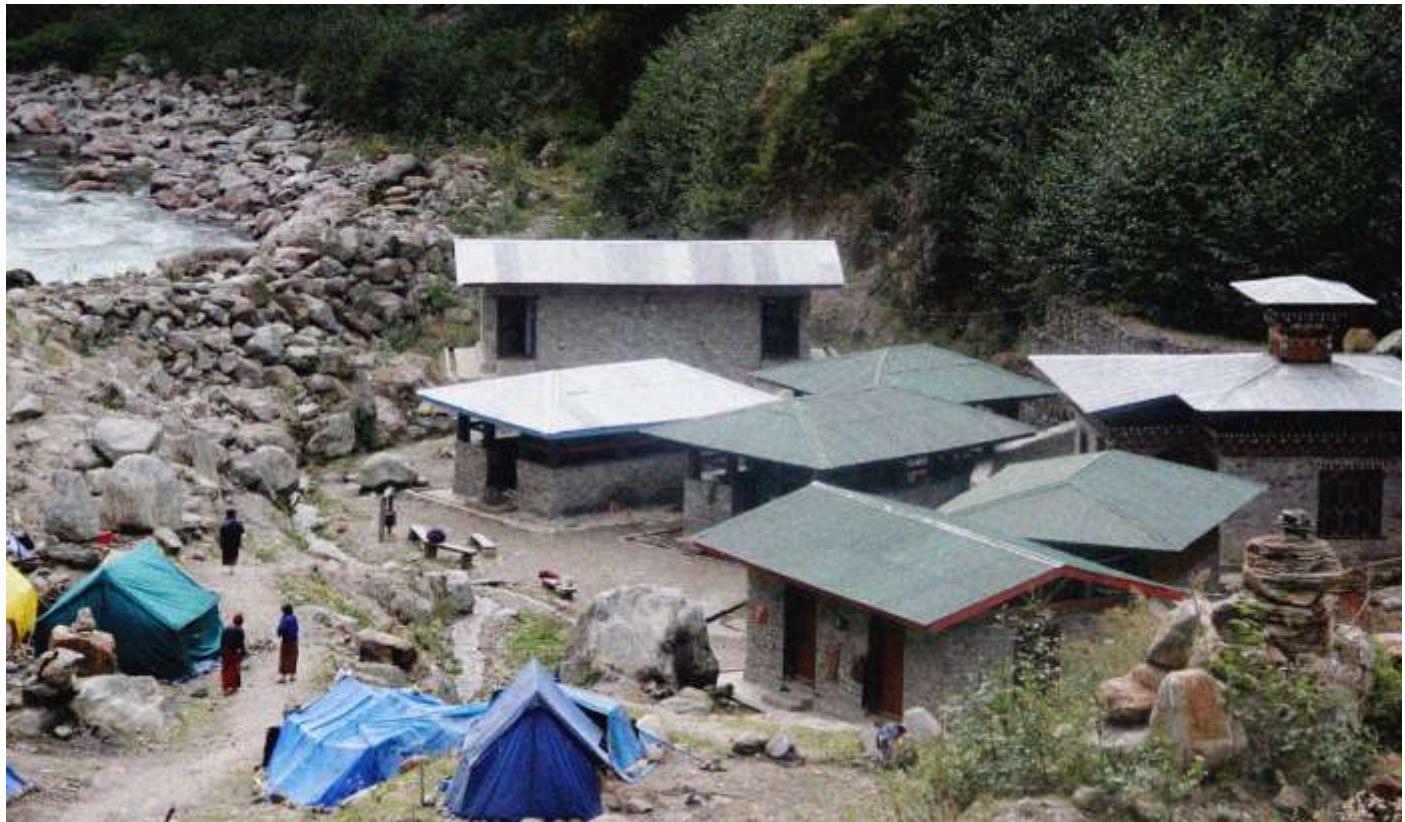
Dzong foundation

Gasa Dzong

The Dzong is almost 400 years old is built on the slope facing east and gives a significant identity to the place. It is the administrative headquarter of Gasa Dzongkhag. It was built in 17th century by Tenzin Dukdra, the 2nd Druk Desi over the meditation site of Terkhungpa. The local residents say that Terkhungpa was skilled in iron works and lived and worked in the area. Subsequently, the name of the place was called ‘Garsa’ which literally means ‘the land of Black Smith’ and now named as ‘Gasa’.

Gasa Dzong is unique as it has a circular plan with three watch towers located at strategic points. It was a defense Dzong and was initially known as Tashi Tongmön Dzong. It was later expanded by the Gyalse Tenzin Rabgye, the fourth Desi.

The view points towards the south of Dzong gives the view of villages especially Mani and Choling villages below and scenic snow capped mountains around. Structurally, the whole Dzong rests on the rock, that acts as foundation . Moreover, the location of Dzong itself is unique. It is visible from almost all parts of Gasa town and also from a long distance before reaching the town.



Gasa Tsachhu bathing pool

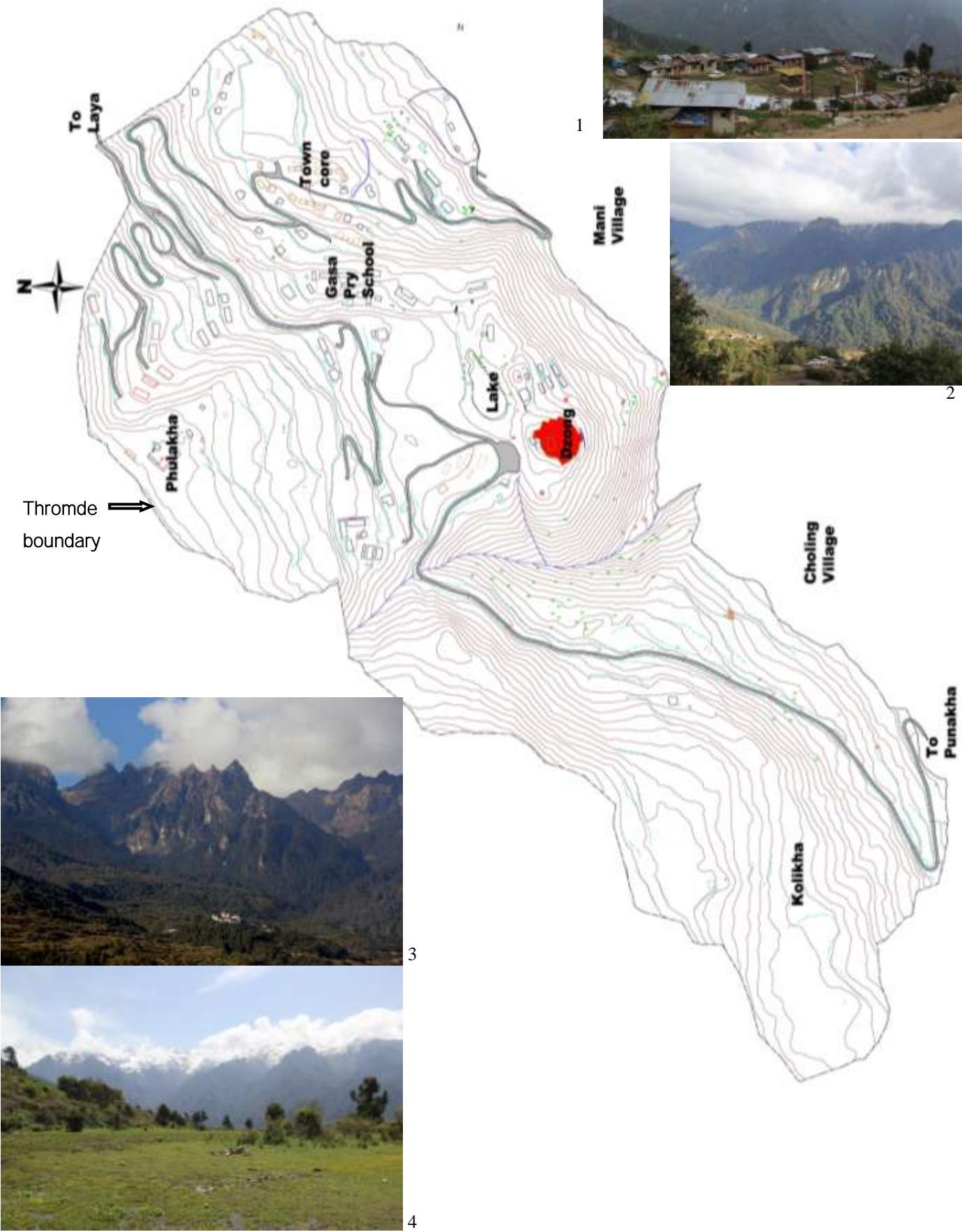


Gasa Tsachhu area at present

Gasa Tshachhu

The Gasa *tshachhu*/hot spring is located almost 12km from the Dzong. It is situated close to the bank of Mo Chu. This is one of the most popular springs in the country and are frequented not only by tourists but local people as well. There are three bath houses and one royal bath house. One of the bath houses contains a large bathing pool and the remaining two have two smaller pools each. There is one cold spring area at a little walking distance from the hot spring area, which also attracts tourists. A suspension bridge connecting *tsachhu* area to the other side of *Mochhu*, which is suppose to be a park, however, the park is not functional at present.

Gasa did not have any hotels with lodging facilities earlier and the visitors used to put up in tents near the hot springs. However, in the recent years , the guest houses are constructed for the visitors to the *Tshachhu*.



Existing Scenario

Gasa town is located about 6 hours drive from Thimphu. The planning/Thromde boundary of Gasa has an area of 212.5 acres (0.86 sq.km) and it comprises of existing Gasa town ,Kolikha and Phulakha Village areas. The road from Punakha is being now extended up to Laya. There is presently no blacktopped vehicular road in Gasa Dzongkhag. Therefore, it is not easily accessible from other towns. It is the only Dzongkhag that has not been connected by paved road .

As the road from Punakha enters into the Gasa Thromde, the first area is Kolikha ,which is located above the road and has a vacant area of 74 acres. It is here that the existing commercial core is proposed to be shifted by the Dzongkhag Administration A stream divides the Kolikha area and Gasa town. At about half a kilometer from Kolikha is the existing Gasa town. It is mostly institutional in nature with offices for tourism, park , Gasa Primary School, basic health unit, BPC office, NHDC housing colony and has small commercial core of about 20 shops. The town does not have hotels or resorts so the tourist visiting Gasa town return back in the evenings. Existing buildings in Gasa are mostly single storey with height lesser in comparison to other towns in Bhutan. The structures have *ekra* facades with stone masonry walls.

The Gasa Dzong is situated right at the entrance to the existing Gasa Town. There is also a beautiful lake surrounded by *Etho Meto* (rhododendron) garden near the Dzong .There are beautiful villages such as Mani and Choling villages surrounding Gasa Thromde and within the Thromde, there is a village called Phulakha village with a Lhakhang.

- ← 1. Existing town core
- 2. Mani & Choling Villages
- 3. Gasa Dzong seen from distance
- 4. Kolikha area



Land use

Following are the existing land uses in Gasa Town

Institutional

- Bhutan Power Corporation
- Bank of Bhutan
- Tourism Council of Bhutan
- Gasa Primary School
- Royal Bhutan Police

Mixed Use (Commercial and Residential)

Gasa town's existing core is the main commercial hub for the Gasa residents

Dzong

Gasa Dzong is the administrative head quarter for Gasa Dzongkhag

Historic Village/Residential/ Spiritual site

Phulakha village is a traditional settlement developed around the Phulakha Lhakhang.

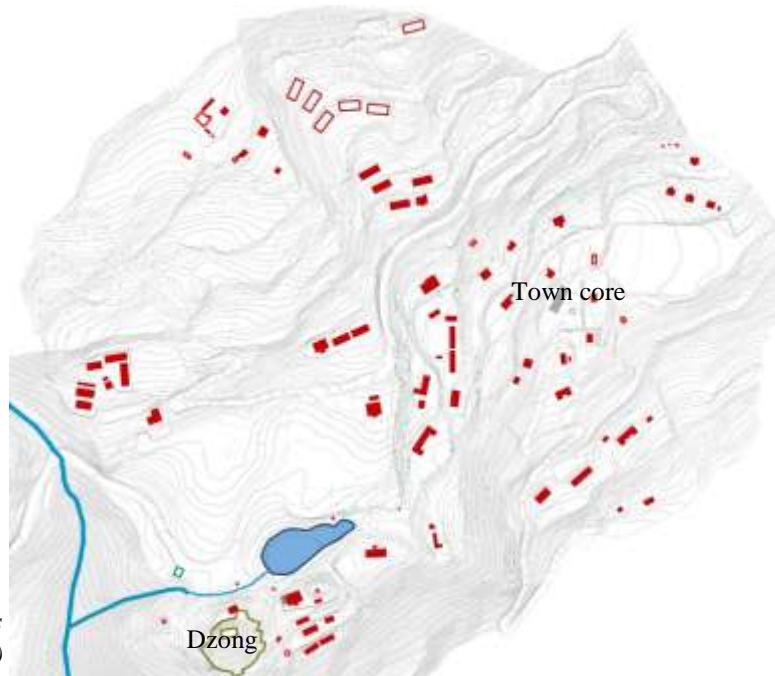
Recreational

- Open space near Dzong
- Football ground
- *Etho Meto* garden surrounding the lake

- 1 Bank of Bhutan
- 2 Gasa Primary School
- 3 Royal Court of Justice
- 4 Existing core
- 5 Meteorological station
- 6 Water storage

Built-forms

(Already built-up existing Gasa town, structures are built along the contours)



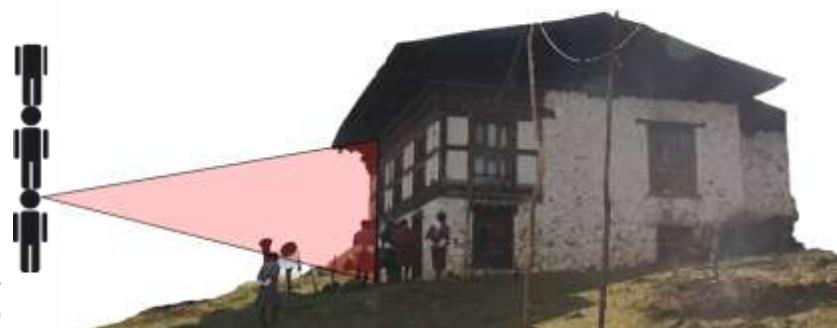
Gasa has a natural setting with human scale structures. It is observed that the structures have an average height of 2.7m , which is shorter than the normally seen structures in other parts of Bhutan. Due to this and because of the local material used, the structures blend and harmonize with the site. In the existing Gasa town, the structures are built along the contours and the almost all the available flat area are already developed.

Existing Scenario

(Single storey, human scale, ekra and stone masonry structure in Gasa existing core)



(Two storey, human scale, ekra and stone masonry structure in Kolikha)



(Newly built two storey, cement and dressed stone structure in an institutional building)



1

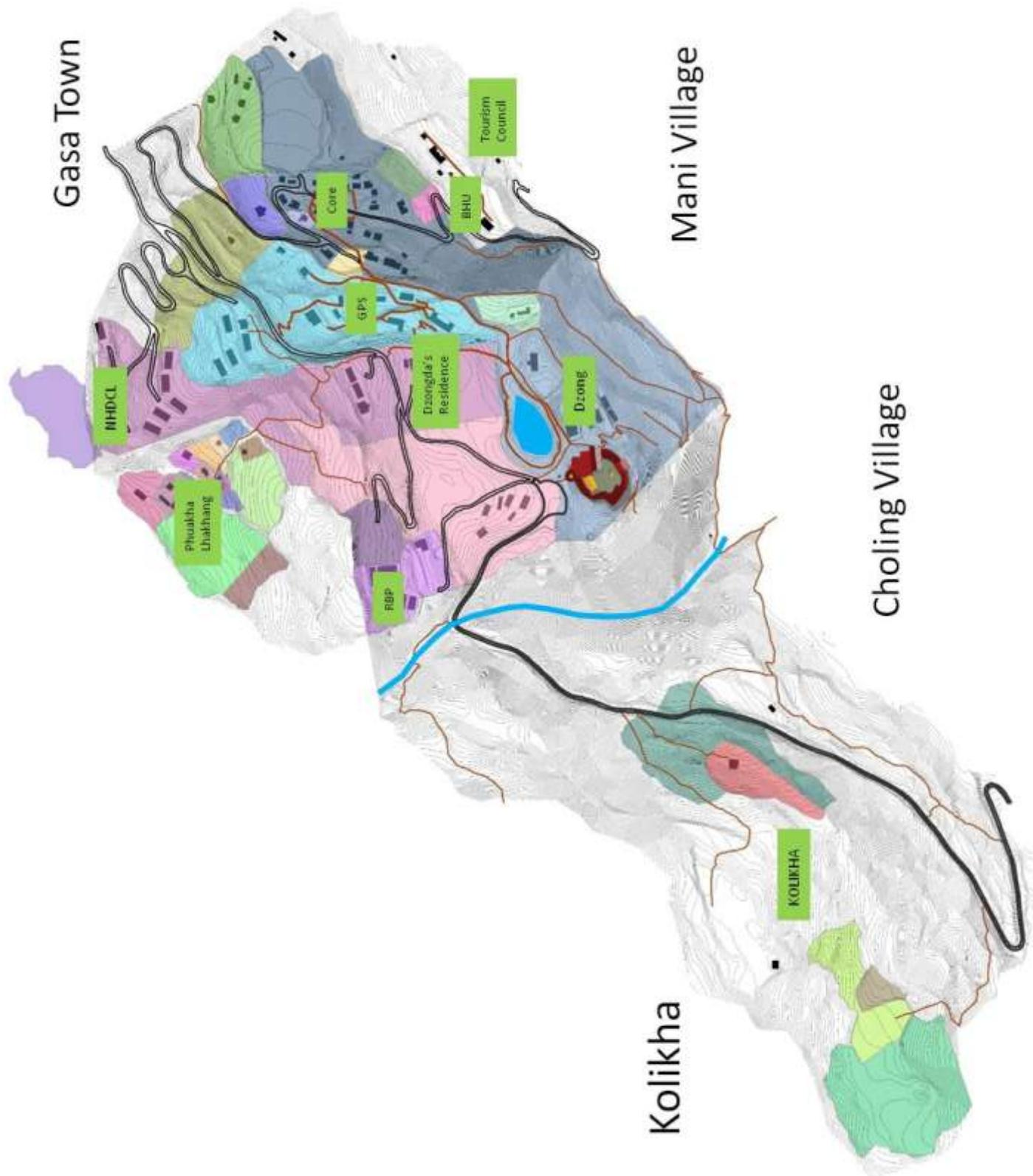
2



3

- 1 Ekra and stone masonry
- 2 Ekra and stone masonry
- 3 Temporary structure

The structures are constructed of stones and *ekra* (mud plastered on woven bamboo infill supported with wooden frames). The *ekra* forms the front facades with doors and window openings. Most of the structures are single storey with few 2 storey structures. Except for few structures; all the structures are built out of locally available materials. The structures built out of dressed stone and cement are observed in some institutional buildings in the Gasa town. However, these structures are in minimal number that it does not imbalance the harmony of the place. In the near future and if development is not regulated, there is threat of these type of structures developing at a larger scale and destroying the uniqueness and harmony of Gasa.



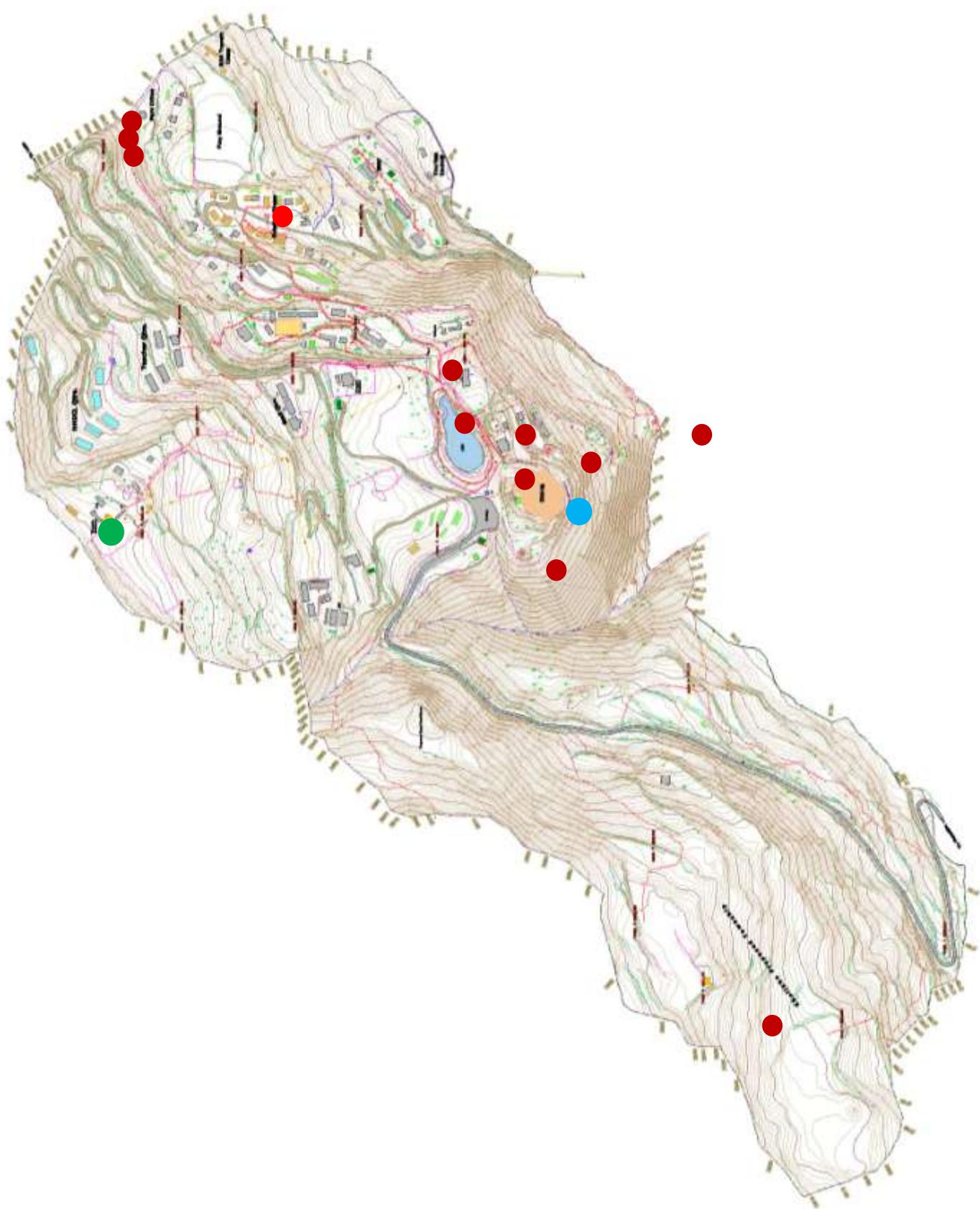
Landownership Pattern

The plots are mostly under ownership of different institutions in the existing Gasa town and under private ownership in Phulakha Village. The plots are irregular in shapes with limited road access.

Huge portion of land also falls under steep hazard zone, which has to be excluded for any developmental activities. Therefore, in Gasa the steep areas have been identified and designated as forest/steep areas so that no construction shall be allowed.

In the Kolikha area there are few plots under different agency ownership and one under the private ownership. The Kolikha is the new area identified for expansion of existing Gasa town. The Dzongkhag Administration has mobilized the land for planning and development purposes.

As per the cadastral data received, there are about 42 plots in total out of which 19 are under private and 23 are under different agencies ownership.



Spiritual, Cultural and Natural landscape



1



2



3



4

- 1 Phulakha Lhakhang
- 2 Gasa Dzong
- 3 Festival Ground
- 4 Lake

There are several spiritual and cultural landscape within the town. *Phulakha Lhakhang* is one of them and it is located on the top northern part of the town. It is one of the important spiritual site for the locals and even tourists.

The other is large open space near the Dzong and it is used for public activities. Public activities/gathering takes places in the open space, for example *Nyagoe Dendhur*.

← Spiritual buildings and elements

- Dzong
- Lhakhang
- Manidungkhor
- Chorten

The other significant feature is the natural lake in front of Dzong. There is potential for further enhancement of the lake area for recreational activities for the local as well as for tourists.

The *Mani Dungkhar* surrounded by open space at the centre of existing core also act as spiritual and entertainment space for people of all age groups.



1



2



3



4

Infrastructure/ Amenities

Water Supply

At present Gasa town is supplied water with the rural water scheme and doesn't have the water treatment plant facilities. The town is provided with individual water supply system tapped from the same source. The existing source Shintag Chhu is located about 2.10kms from the existing reservoir which has capacity of 163 cum. Currently, Gasa municipality is supplied water by 80mm dia GI pipe. The NHDC colony has separate reservoir and the colony is supplied water by 75mm dia HDPE pipe. The municipality does not monitor the water supply to NHDC colony. As per the water feasibility study conducted by Water and Sanitation Division, DES in April 2016, the Shintag Chhu has the capacity to cater to the existing town for next 10-15 years if there is not drying up of the source.

Solid Waste Disposal System

At present Gasa does not have proper waste collection and disposal system in place. The individual houses collects their waste in bins and dispose in nearby pits. The wastes in the pits are burnt after they are filled. There is no segregation of wastes at source and are all burnt together.

A solid waste disposal site has been identified at Pangri, which is about 6km away from the town. The road connectivity to the site is in the process and land fill site has to be developed.

1. Location of source and tanks of the existing water supply
2. Shintag Chhu (Existing source)
3. Reservoir
4. Location of new solid waste disposal site

Population



Kolikha (land holding capacity method)

No of proposed plots in Kolikha	National average household size (as per PHCB 2005)	Number of apartment unit in a plot	Estimated population in 2030
66	4.6	4 units	1215

Existing Gasa Town

Year	Population (1.6% growth rate)
2015	1000
2016	1016
2017	1032
2018	1049
2019	1066
2020	1083
2021	1100
2022	1118
2023	1136
2024	1154
2025	1172
2026	1191
2027	1210
2028	1229
2029	1249
2030	1269 (approx. 1270)

Gasa Dzongkhag was the least populated in year 2005 with a density of 1 person/hectare and existing Gasa town had only 402 people as per the Population and Housing Census of Bhutan 2005 (PHCB 2005) report. Since it is almost a decade and there are no population record in between 2005-2015, the projection will be based on present population (yr 2015). The present population is about 1000 people including students and institutional staff (as per Approved Dzongkhag and Yenlag Thromde Boundary June 2015 report).

The projection for existing Gasa town is carried out using the natural growth rate of 1.6 % (PCHB 2005) as there is very less space for development/growth. The population of existing town will be about 1270 people in 2030. For Kolikha area since it is a vacant land, the land holding capacity method is adopted to calculate the population it can accommodate. In total, there will be about 1215 people in Kolikha as per the projection. There will be about 2500 in Gasa Dzongkhag Thromde in the year 2030 .The proposal for amenities and services is based on the population projection.



Tourism

Due to its pristine forests and exceptionally scenic location of Gasa Dzong, Gasa has become a tourist destination. The other tourist attractions of Gasa are Tsachhu (hot springs), festival, Snowmen trek and Jomolhari-Laya-Gasa Trek. The Snowmen trek is one of the most challenging treks in the Himalayas. Gasa is also famous for its Layap people, ethnically distinct group of people with its unique lifestyle. The Laya-Gasa trek is one of the most scenic treks in the country as it offers breath taking views of the pristine and unspoiled natural landscapes. The trek starts from Drukgyel in Paro, takes through the Jomolhari base camp, Lingshi, Laya terminates at Gasa or the Gasa hot springs. Snowmen Trek is one of the most difficult treks of the world as per the Lonely planet report. It is an extension of the beautiful Laya-Gasa Trek and leads into the high altitudes of Himalayas.

Gasa has more of nature-based tourism due to its scenic environment and unique culture from the other districts of Bhutan. In spite of Gasa's huge potential for tourism, it still remains the district with the least number of tourist arrivals in the western region besides Haa. As per the Bhutan Tourism Monitor (BTM) report, this is due to lack of hotels/resorts and also lack of accessibility.

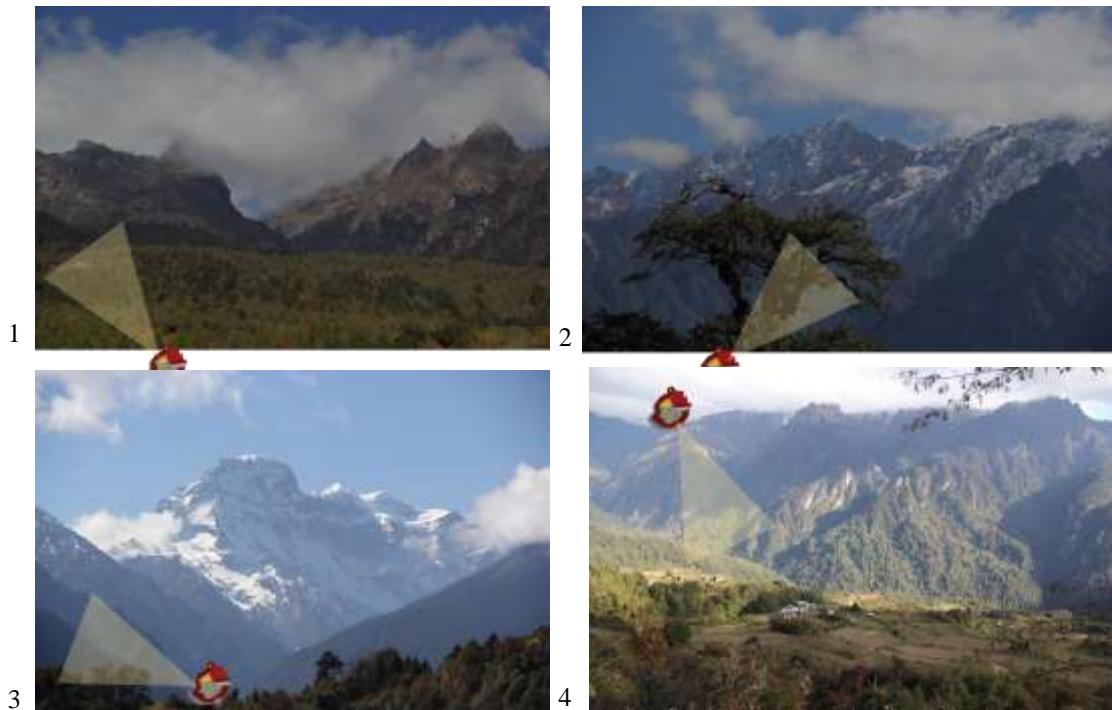
Tourism

All the settlement within the Gasa District are not connected by road. The road is till the Gasa town and the villages like Laya and Lingshi do not have road access. In a way, it is an advantage as these areas are untouched by urbanization/globalization and stands out unique in terms of culture and environment, due to which tourists trek or make a visit to experience a different aspect of the country. It will be a great challenge to preserve its uniqueness once these areas become accessible by road.

As per the BTM (Bhutan Tourism Monitor) reports, there has been 1896 numbers of tourists arrivals in 2010 and then the numbers reduced to about 400 in the subsequent years and rose to over 500 in year 2015. However, the numbers of bed nights have remained almost steady with the highest record of about 3600 bed nights in 2015, as shown in the table below.

Year	No of tourist arrivals	No. of bed nights
2010	1896	2629
2011	409	3003
2012	416	2864
2013	401	2710
2014	480	2998
2015	543	3627

No of tourist arrivals (2010-2015)



The number of Laya/Gasa trekkers has been the highest in 2015 with over 290 trekkers and lowest in 2013 with just over 180. It is of a sizeable amount; however the direct benefit to the local people through treks is still questionable as the out of pocket spending will be non-existent or minimal. However, in Gasa if there are tourism based services available in the town and with the intervention from Tourism Council of Bhutan through inclusion in their package, it could benefit the local people.

From the Dzong

- 1 View towards north
- 2 View towards east
- 3 View towards west
- 4 View towards south

Year	Laya/Gasa Trek Arrivals
2010	224
2011	274
2012	274
2013	189
2014	291
2015	297

No. of trekkers (2010-2015)

Tourism



Tourism

(Gasa Tsachhu)

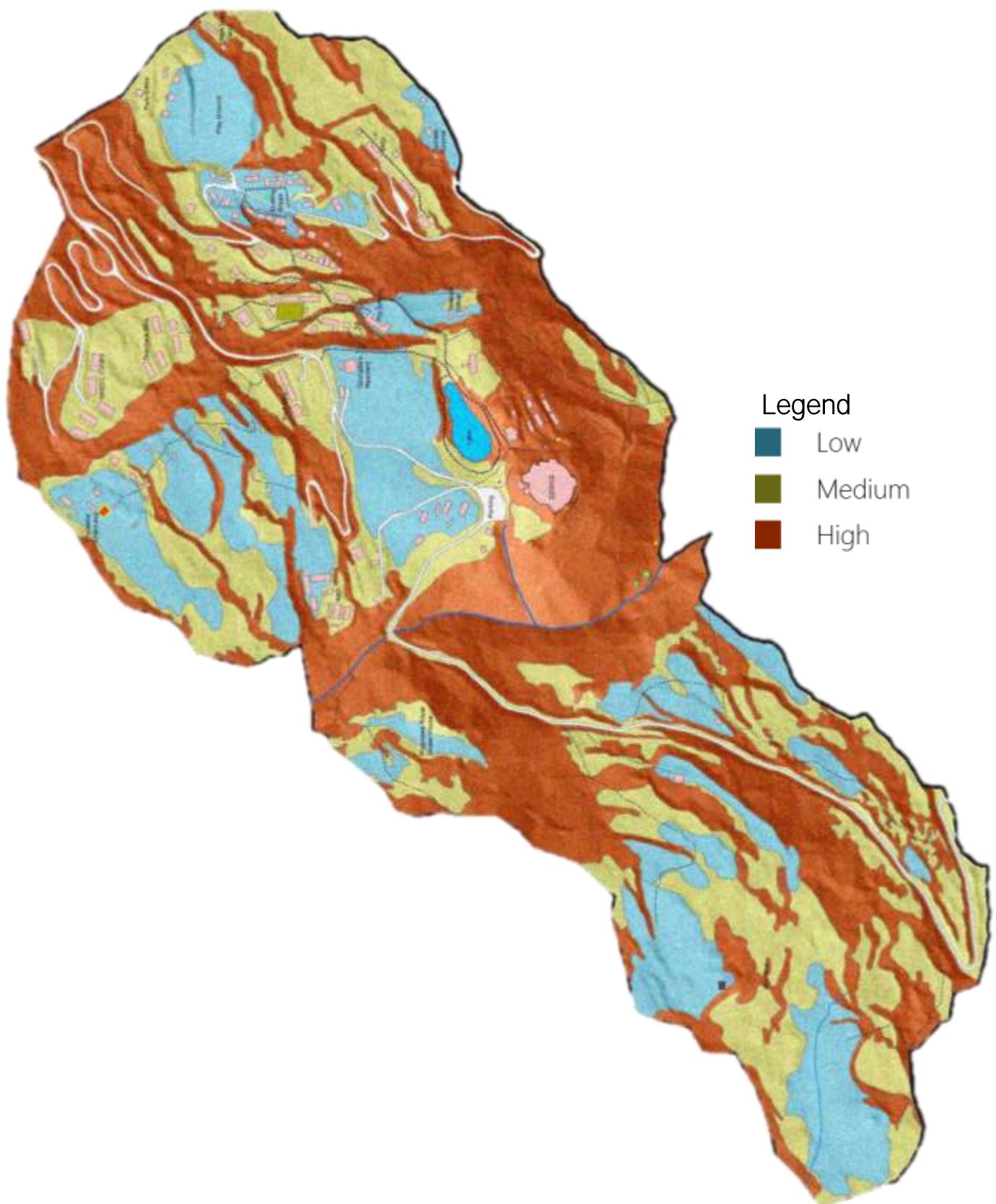
Gasa Tsachhu is the most popular hot springs in the country known for cure of wide ailments. It is located on the right bank of Mochhu and about 30 minutes drive by car from Gasa town. It is frequented by Bhutanese young and old and also by tourists. The Tsachhu area was washed away by flood in 2009 and it was reconstructed in 2011.

The Tsachhu is one of the attraction of Gasa and people from all over Bhutan visit mostly during winters. Initially people used to camp around the Tsachhu area and at present there are guest houses available nearby Tsachhu. There are about 76 units in these guesthouses, which is not sufficient during the peak season which falls in the winter months (i.e. September till March). As per the information received, the total revenue generated from renting of guest house units were Nu.14,70,000 in the financial year 2014-15. This figure shows that an average of over Nu.1,20,000 is generated per month, which is a good amount for sustaining the guest houses and for improvement of the services/amenities.

Attraction in Gasa:

1. Gasa Dzong
2. Lake near the Dzong
3. Phulakha Lhakhang
4. Snowcapped mountains
5. Gasa Tsachhu guest house
6. Gasa Tsachhu

Tsachhu has an economic potential even in long run due to its healing power, warmth and comfort it provides. Most of the tour operators have included the visit to hot springs as a part of the tour package and it is gaining popularity among the tourists. The provision of well serviced and good guest houses will also form a major part of attraction for tourist planning visit to the hot springs. In addition, provision of international standard hotels//resorts in Gasa town, which is half an hour drive from the Tsachhu will also form an advantage for the economy of the place and people.



Hazard Zonation

The Gasa hazard zonation map is the result of the geotechnical study undertaken in 2015. The mapping of slope, geological conditions, flood areas etc., are carried out to create hazard map.

The hazard map received from geotechnical study indicates that about 48% (almost half of the total Gasa Thromde area that is 102 acres) falls under high hazard and about 21% (45 acres) of the area under medium . As per the geotechnical report, the development is not allowed in high hazard and restricted development to be allowed in the medium. Since the development on steep slopes involves cutting of slopes and dense forest, which will gradually degrade the slope characteristics, affecting the soil stability and increase surface run-off. Therefore, it is necessary to restrict or not allow development in the identified medium/high hazard zones respectively.

In the low hazard, which accounts for 31 percent of the total area (66 acres), the development/construction is to be allowed. The development plan is proposed within the available developable area falling in low hazard and to some extend in the medium hazard zone. Moreover, the main idea behind development of Koliha inclusive of Gasa town is to develop on minimal area to preserve the natural beauty and setting of the town.

SWOT Analysis

SWOT analysis method originated from company management but it is extensively used in strategic planning and urban development. Through this method Strength, Weaknesses, Opportunities and Threats to the city are assessed and the result of the analysis is used as a basis to formulate strategies. It helps to develop a strategic plan that maximizes on city's strengths, minimizes its weaknesses, use opportunities and avoid threats.¹

SWOT analysis is qualitative and subjective in nature, which does not have exact method of execution and the results are not hard data. The city, region or an organization is analyzed by positioning it in its environments and development situation. The strengths are internal positive factors and weaknesses are internal negative factors as indicated below.²

Strengths, weaknesses, opportunities and threats

	internal factors	external factors
positive factors	strengths	opportunities
negative factors	weaknesses	threats

Strengths

The strength indicates the town's internal capabilities and amenities.

1. Gasa has picturesque environment
2. It is the administrative head quarter of Gasa Dzongkhag
3. There is a beautiful lake near the Dzong area
4. There are amenities such as school, basic health unit, bank, telecom, Bhutan Power Corporation office etc. in the town.
5. Certain percentage of generally flat area is available in Kothikha .
6. The existing development are in harmony with the environment.

Weaknesses

The weaknesses are the town's internal problem.

1. There is no proper road connectivity within the town
2. There is lack of integrated water supply , sewage and waste disposal system
3. Available flat terrain in the existing Gasa town is already built up
4. There is lack of enough residential units in the town (all are institutional staff quarters and National Housing Development Corporation apartments)
5. There is lack of resorts/hotels

¹ CDP-Delhi, 'Chapter – 16: SWOT analysis' prepared by IL&FS Ecosmart Ltd.

² ViTo, South East Europe, jointly for our common future,' Revealing conditions for urban development and revitalisation-transnational and national SWOT analyses'



Development that harmonizes with the site

Opportunities

The opportunities are external factors that offer potential for the town. For instance, opportunities include future project, economy, environment etc.

1. There is huge potential for tourism because of its natural beautiful environment and rich flora and fauna (Whole of Gasa falls under Jigme Dorji National Park) and the Gasa hot-springs/Tsachhu

Threats

Existing weaknesses, if not addressed might pose threats to the development of the town in future. The threats are the existing weaknesses.

1. Threats of huge structures developing in Gasa, which will not blend with the natural setting.

The strategies for development of Gasa and Kolikha are derived from the SWOT analysis and accordingly the vision for the town is developed.

Development Plan

Gasa has serene and beautiful environment, which has to be preserved or enhanced through the development plan. The proposal are centered around this main idea and the proposals have evolved through it.

The Gasa Dzongkhag Administration had requested the Department for plan preparation for Kolikha area ,which is 1/2 km walking distance from the existing Gasa town. Since there is lack of space for expansion in existing Gasa town and especially the commercial core area, the Dzongkhag Administration has proposed for relocation of core to Kolikha. The Kolikha area has plot under different ownership such as Gasa *Rabdey*, community forest ,veterinary etc. The Dzongkhag Administration has mobilized the land for development in Kolikha.

The plan preparation is a consultative process involving the relevant stake holders at different stages of plan preparation. Two public consultation has been held in Gasa and several presentation and discussion in the Department. The plan was appreciated by the public and finally endorsed in the 13th NCCHS meeting.

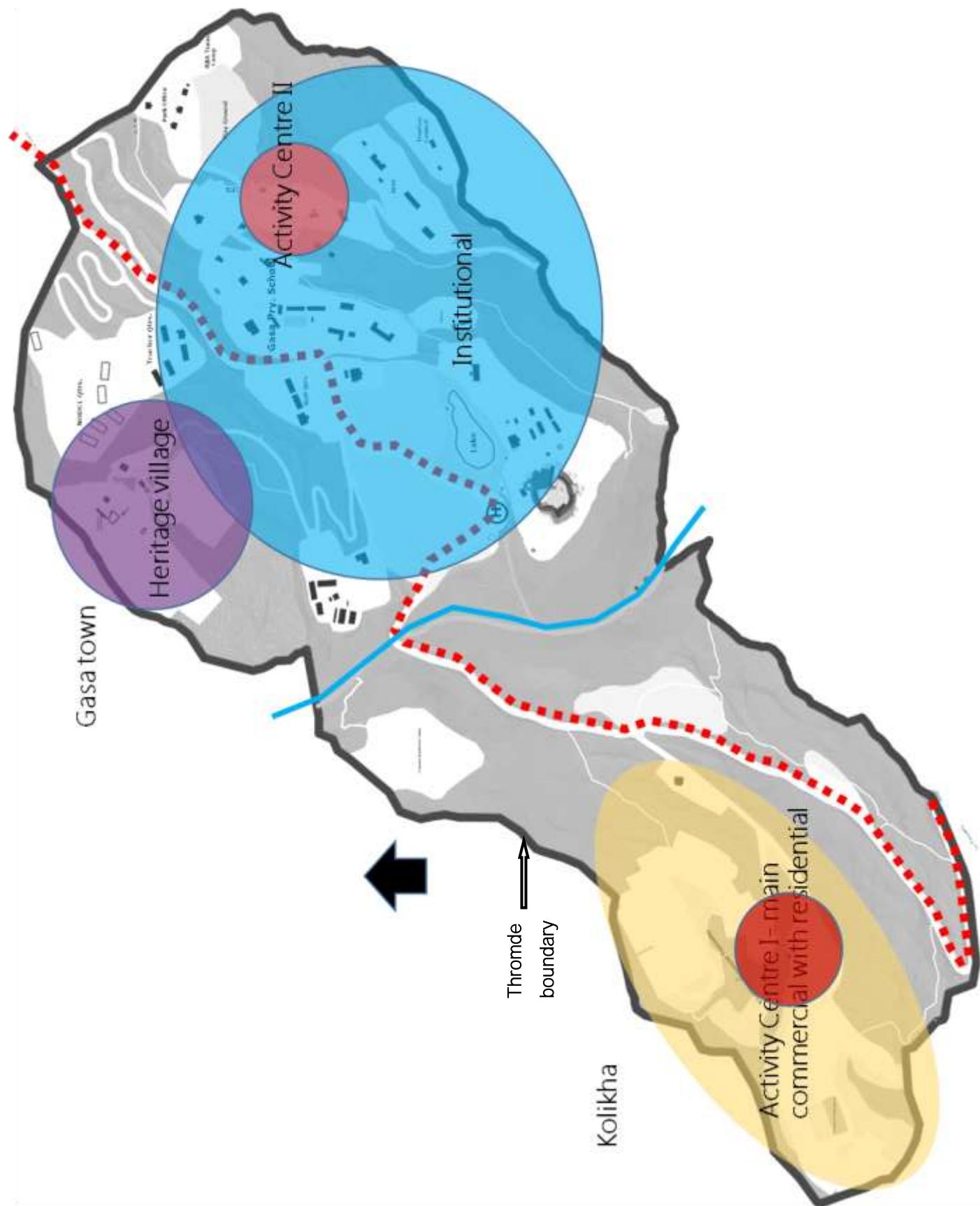
The development is proposed in a minimal area and the proposal is for structures of human scale to blend with the setting of Gasa. The analysis of existing amenities and services were carried out and new proposal are included to cater to the population growth.

Vision and Strategies

*Gasa will develop in to **economically and culturally vibrant town** with abundance of open spaces, play areas and greenery.*

The vision of Gasa town will be achieved through the following strategies :

- Development in **minimal area** to preserve the natural setting and beauty of Gasa
- **Human scale development** that harmonizes with the Gasa's environment/setting
- **Enhancement of existing and proposal** for new footpaths to connect the **main activity centers** for easy accessibility
- Encourage use of **local materials** for development/construction
- Creation of **integrated community and mix use** development
- Creation of more **public domain and recreational** facilities to have more social interaction
- Preservation and enhancement of **old villages**
- Preservation and **enhancement of area around the lake** and the green open spaces.



Concept Plan

The stream which passes through the middle of the Gasa Thromde divides the Gasa physically into almost two halves.. It is about half a kilometer walking distance between the two. The existing Gasa town is predominantly institutional with some commercial land use and Kolikha is vacant land.

As per the Dzongkhag Administration, the proposal was to shift all the commercial core in existing town to Kolikha and propose open space or institutional use in the existing core area. However, for convenient access to basic necessity by the people residing in existing Gasa town, the provision of some shops is still recommend in the existing core.

The proposal for commercial core is designated at Kolikha and in the existing Gasa core. The Kolikha will have main commercial centre (activity centre I) catering to whole of Gasa Dzongkhag and the small commercial core (activity centre II) at the old core for basic good and services. The Kolikha area will have resorts, residences, children play area, kindergarten and mix use buildings. Whereas the Gasa town will be institutional with some commercial, residential and predominantly institutional land use.

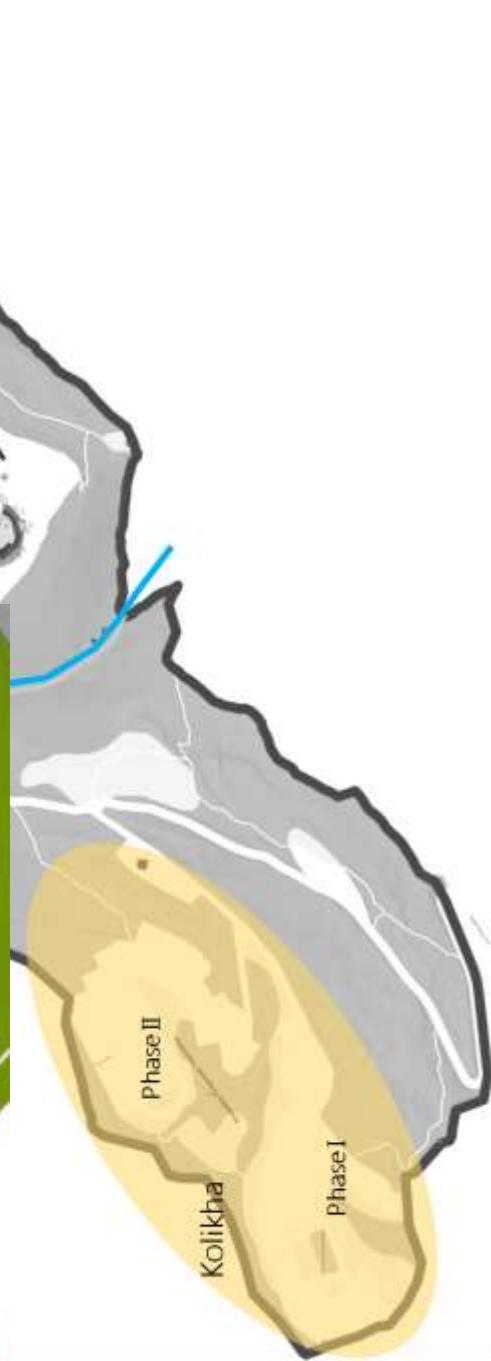
The plan preparation is based on study and analysis of the whole Thromde area and the planning intervention in the existing town is through widening of roads, designation of heritage village at Phulakha and preservation of green spaces only, as it is already built up. The Kolikha area is proposed to be developed into phases I and II.



Kolikha Phase-II



Kolikha Phase-I



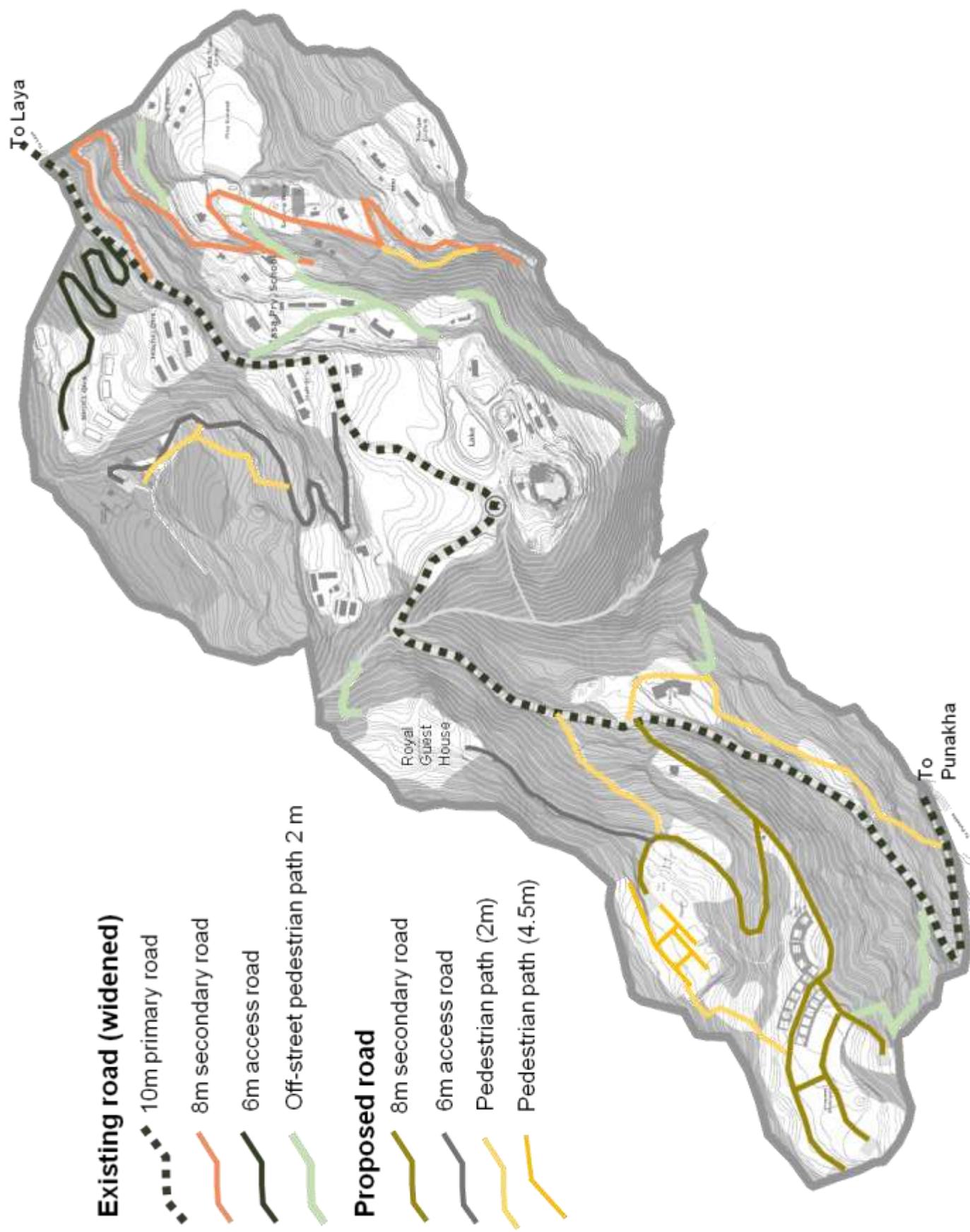
Kolikha

Kolikha Phase I

Kolikha plan proposal will be phased out into two phases. The lower flat land will be phase I with intensive commercial core and mix use, as we move farther from the core. The core will have a central square where people can sit, relax, chat and shop around. A vegetable market is proposed next to the square along with a parking. This core is envisioned to be an active center with different kind of activities. The proposal for kindergarten and children play area is proposed in the center of the mixed use precinct

Kolikha Phase II

It will be purely residential land use with resorts at the entrance to the settlement. The location of the Kolikha Phase II is on the higher level than the Gasa Dzong, therefore the settlement for Kolikha is planned away from the edge of hill , towards the inner side, for the settlement not to overshadow the Dzong. Just at the entrance is the parking area along with children play area. The only access within the town is pedestrian access and the vehicular access is restricted till the parking area. The 4.5m wide pedestrian access is provided for free pedestrian movement and it will also serve for emergency movement in the event of fire or other calamities. This wide footpath will also serve as a place for people to sit, relax etc.



Mobility

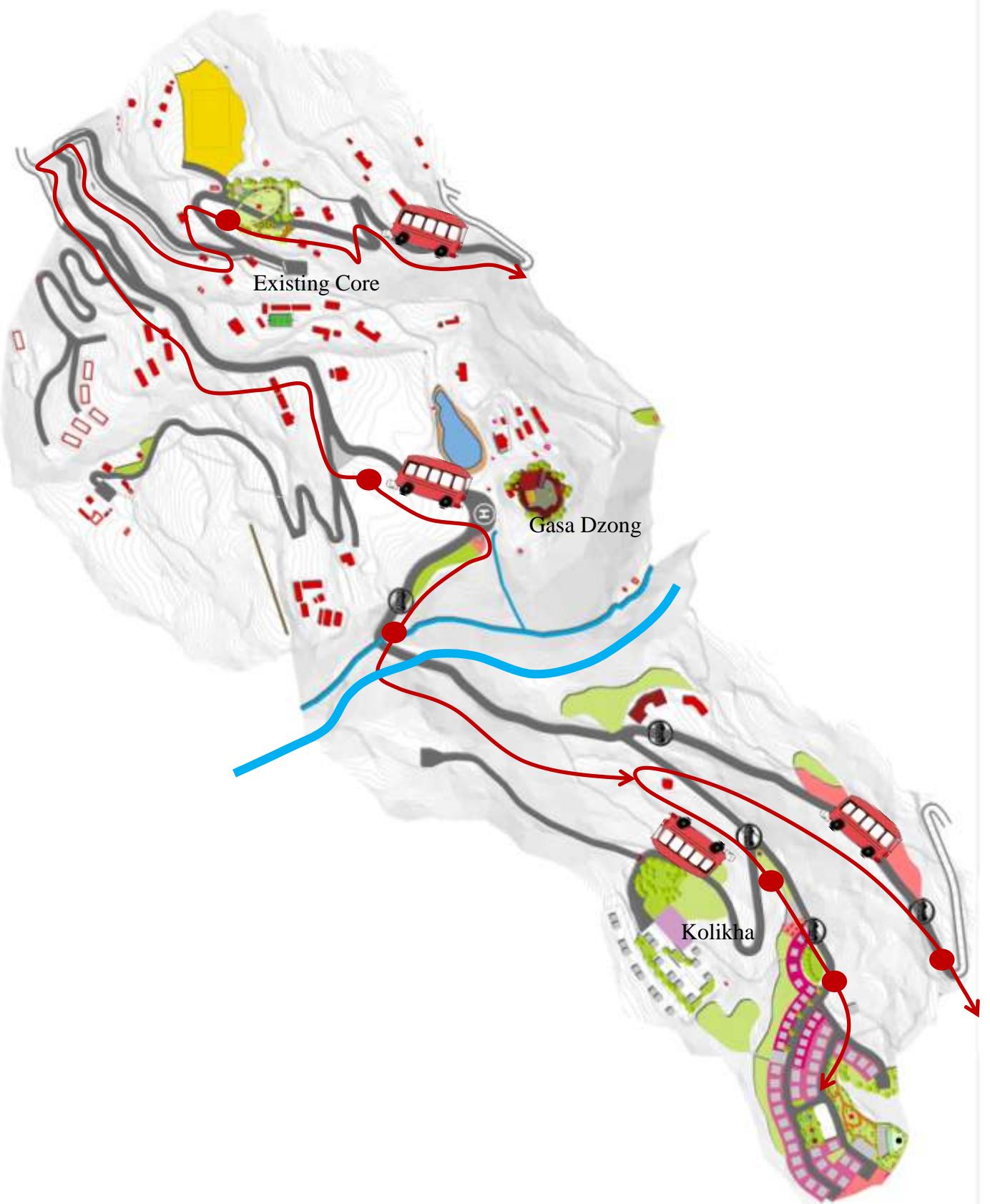
The existing main road in Gasa is the extension of highway, which connects to Damji and then Punakha. The existing road width is approximately 3m, which is proposed to be widened to 10m. Presently, this road is the only route, which connects Damji to the south and will connect Laya in the north.

Within Gasa town, three road hierarchies have been proposed i.e. primary road 10m ROW, secondary road with 8m ROW and access road with 6m ROW. A new road has been proposed from the main road to provide access for Kolikha new town development. Two way lanes are proposed with 3.5m for each direction. The detail illustration for each road has been described with section drawings. Proposed utilities such as drains, electricity, sewerage and water supply lines is proposed under the footpath.

Off-street pedestrian paths of 2m wide are also proposed in-order to create walkable neighborhood and eco-friendly environment. Pedestrian paths has a major role to play in Gasa town as the settlement falls mostly under steep slope, as the roads needs to follow the slope gradient. Enhancement of existing pedestrian path as well as new pedestrian paths have been proposed to connect all the activity centers. The pedestrian streets within Kolikha Phase II is of 4.5m wide for easy pedestrian movement and can be used for emergency vehicle access. The streets of Gasa are proposed to be at a human scale and will follow the natural terrain which will encourage minimum earth cutting and filling.

An access road of 6m is proposed for the new Royal Guest House. However, detail study and survey needs to be carried out to check the feasibility of the road proposal.

◀ Existing and Proposed road/pedestrian network



Mobility

Transportation conditions will be improved and developed for pedestrians and cyclists – both for tourists as well as for the local people. Especially in the settlement areas, pedestrians and cyclists will be able to pass through safely through interesting views and vistas.

Greater acceptance and use of public transport can be brought about through the establishment of transportation access points covering a large catchment area, strategically placed interchanges and central open-air parking facilities. Further, these will lead to reduction in the number of private vehicle users in residential areas.

Seasonal peak times (the tourist season, the festival season, pilgrimages) can be responded to through suitable official regulatory procedures such as the closing of roads to private vehicles, diversions, increasing the frequency of public transport and the employing of extra buses.

- ← Public Transportation system,
Bus route

Road Sections

Access Road



ROW 6m

Carriage way 4.5m

Pedestrian path 1.5m on one side
along with cycle track

Parking no

Secondary Road



ROW 8m

Carriage way 6.5m

Pedestrian Path 1.5 m on one side
along with cycle track

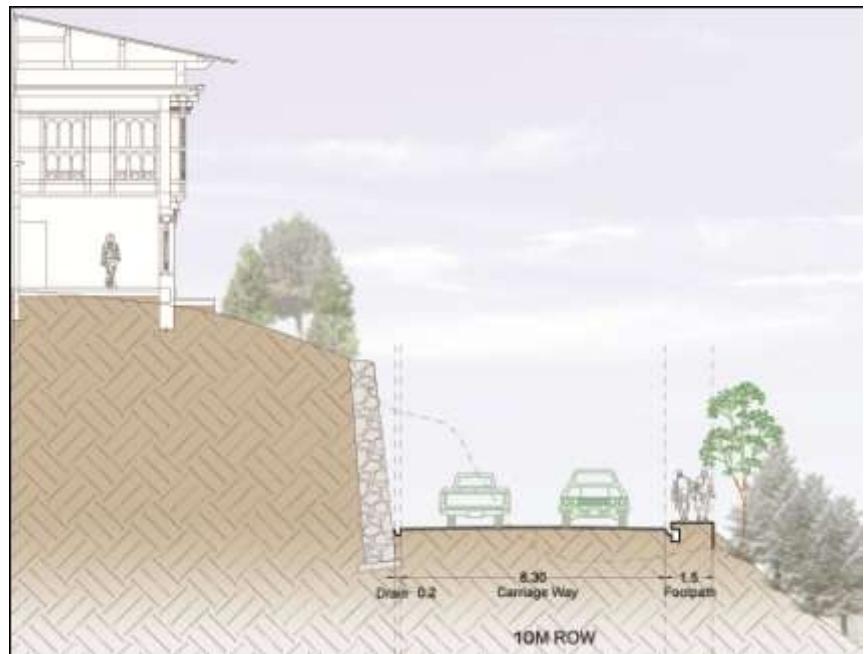
Parking no

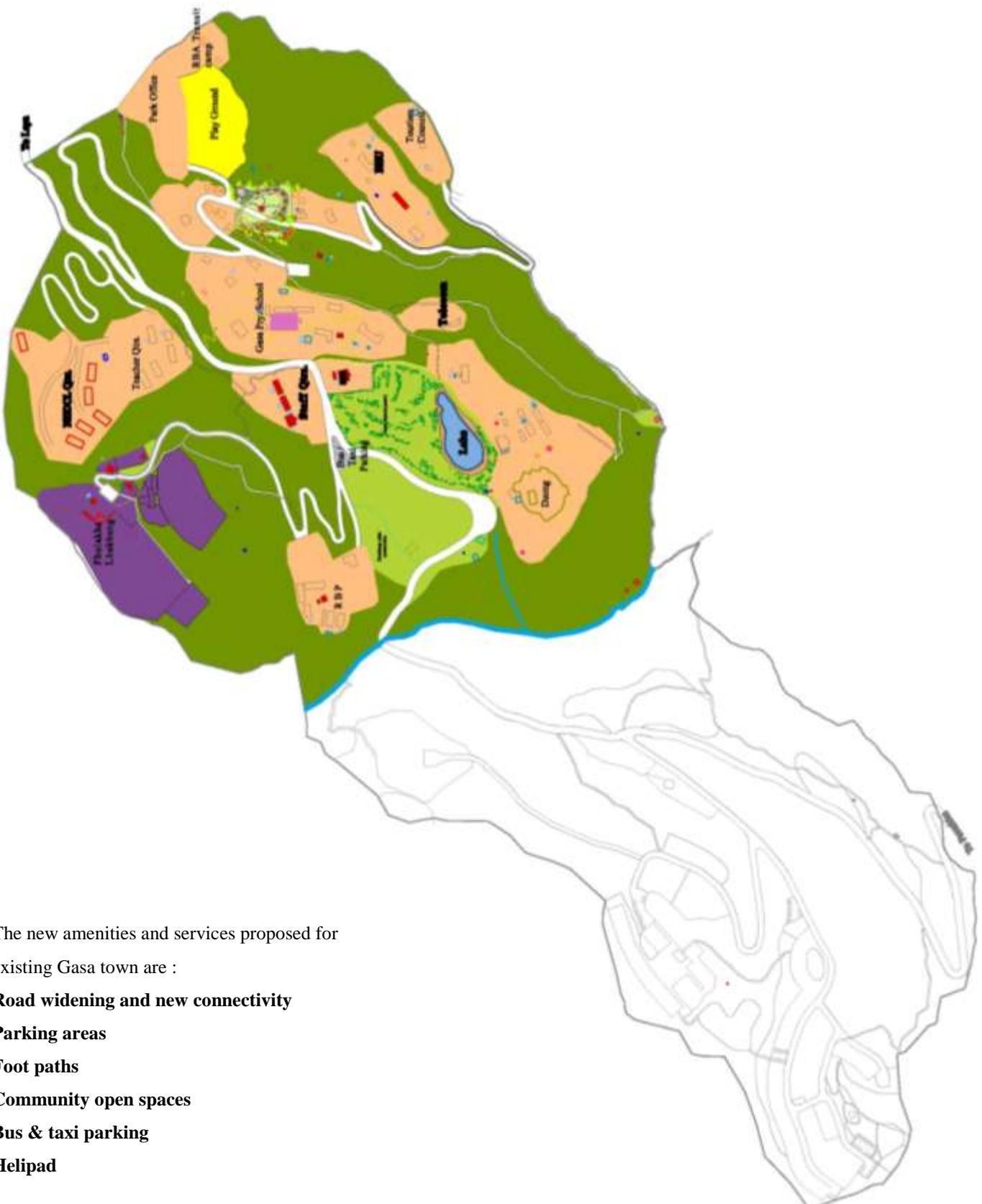
Road section through the commercial core of Kolikha

Development Plan

Primary Road

ROW	10m
Carriage way	8.5m
Pedestrian path along with cycle track	1.5 m on one side
Parking	no





The new amenities and services proposed for existing Gasa town are :

Road widening and new connectivity

Parking areas

Foot paths

Community open spaces

Bus & taxi parking

Helipad

Plot Reconfiguration

(Existing Gasa town)

The existing Gasa town is institutional in nature with a small core for commercial activities. The land ownership is under different agency ownership except for Phulakha village, where there are private land holdings. The existing roads and the pedestrian paths are widened or enhanced for easy access and new connection are proposed for better connectivity. The plots are reconfigured into a more regular shape excluding hazard zones.

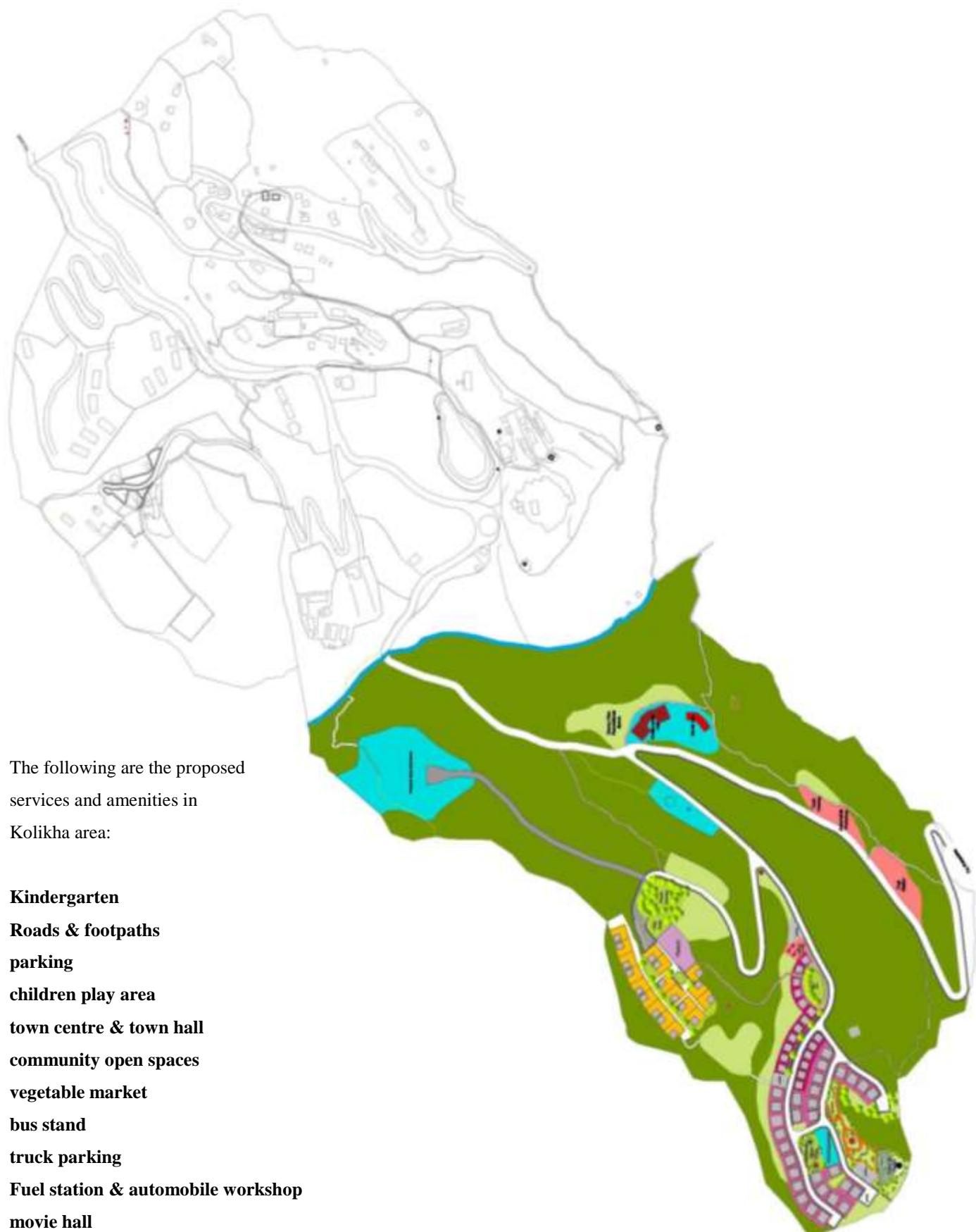
The existing core has been designed for community open space with urban design elements with the existing *Mani Dungkhor* in the middle. Initially, the proposal for the existing town core was to retain some shops to serve the basic needs of the institutions without having to commute to Kolikha. During the public consultation, it was proposed not to have commercial activity and create only green open space. However, the proposal to retain some shops around the open space is still recommended by the planners for convenient shopping and minimize commuting distance.

← Categories of settlement

- █ Registered Plots
- █ Registered Plots (Historic Village)
- █ Parking
- █ Football field
- █ Open space within settlement
- █ Forest / steep slope
- █ Existing structures
- █ Lake

Phulakha village, which is located on the northern part of the town has been identified as historic village because of the traditional character of the settlement around an old Phulakha Lhakhang. A 6m wide road access is provided to the village and the plots are reconfigured to a regular shape.

A helipad has been proposed near the Dzong parking incase of medical emergency. The lake and surrounding areas of the Dzong has been developed as active/passive recreational space . Bus and taxi parking has been proposed for inter-city transportation.



Plot Reconfiguration (Kolikha)

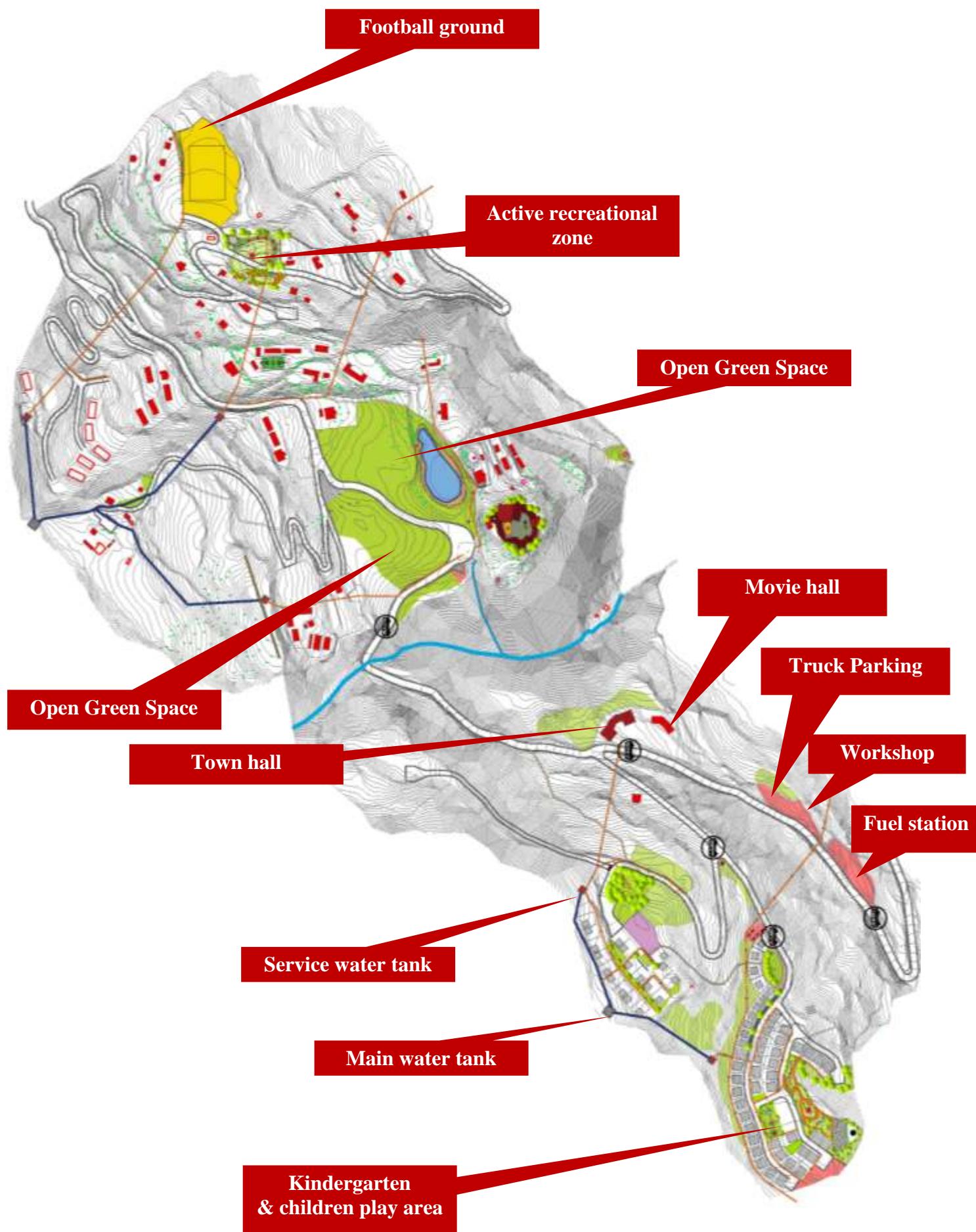
The plot sizes considered for planning is 4000 sq.ft (371.612 sq.m) for mixed and residential uses; and 2400 sq.ft (222.967sq.m) for commercial use . The Kolikha area comprises of two pockets of developments. The Phase-I has 48 plots, where commercial (centre zone) and mixed uses (main development zone) have been proposed, whereas Phase –II has 18 plots for residential along with resorts.

The Kolikha plan reconfiguration has been carried out as per the planning principles developed from the site and its context. The development have been focused on available low and medium hazard area which are deemed fit for development. The services such as automobile, fuel station and truck parking are provided below the highway connecting to Punakha and up towards Laya. The other facilities are town hall and movie hall below the road. Within Kolikha, a vegetable market is provided right at the entrance. There are kindergarten, children play area and open area theater as we enter into mixed use zone.

← Categories of settlement

- █ Main development zone
- █ Centre zone
- █ Scattered Settlement Zone
- █ Service Zone
- █ Institutional zone
- █ Football field
- █ Open space within settlement
- █ Forest / steep slope

The plots provided in Kolikha cannot be subdivided or fragmented as it is of minimum size. Maximum greens have been retained/proposed in order to preserve and blend with the existing character of the Gasa Thromde.

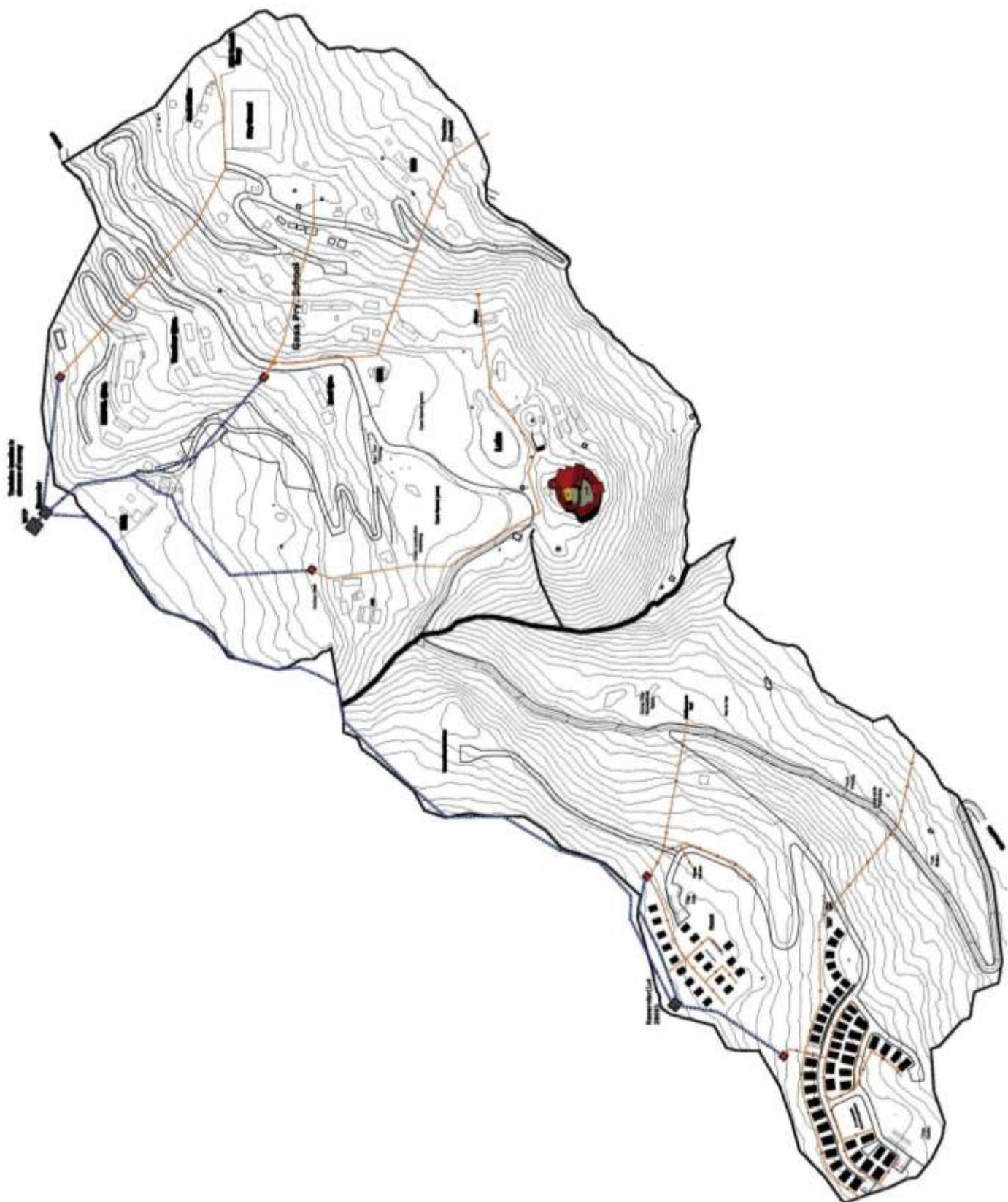


Infrastructure/ Amenities

The existing amenities such as a primary school, basic health unit, telecom and power office exist in Gasa town. All the amenities are located on the available flat area and is well connected by trails or pedestrian paths.

The analysis of existing amenities and services were carried out to study the sufficiency of amenities and propose new for the future projected population. As per the population projection, there will be about 2000 people in Kolikha and Gasa town in 2030. As per the analysis and as per the requirement stated by residents during public consultation, there is a need for fuel station, auto repair workshop, kindergarten, children play area, vegetable market, movie hall and a town hall. The following are the amenities and services provided for Kolikha:

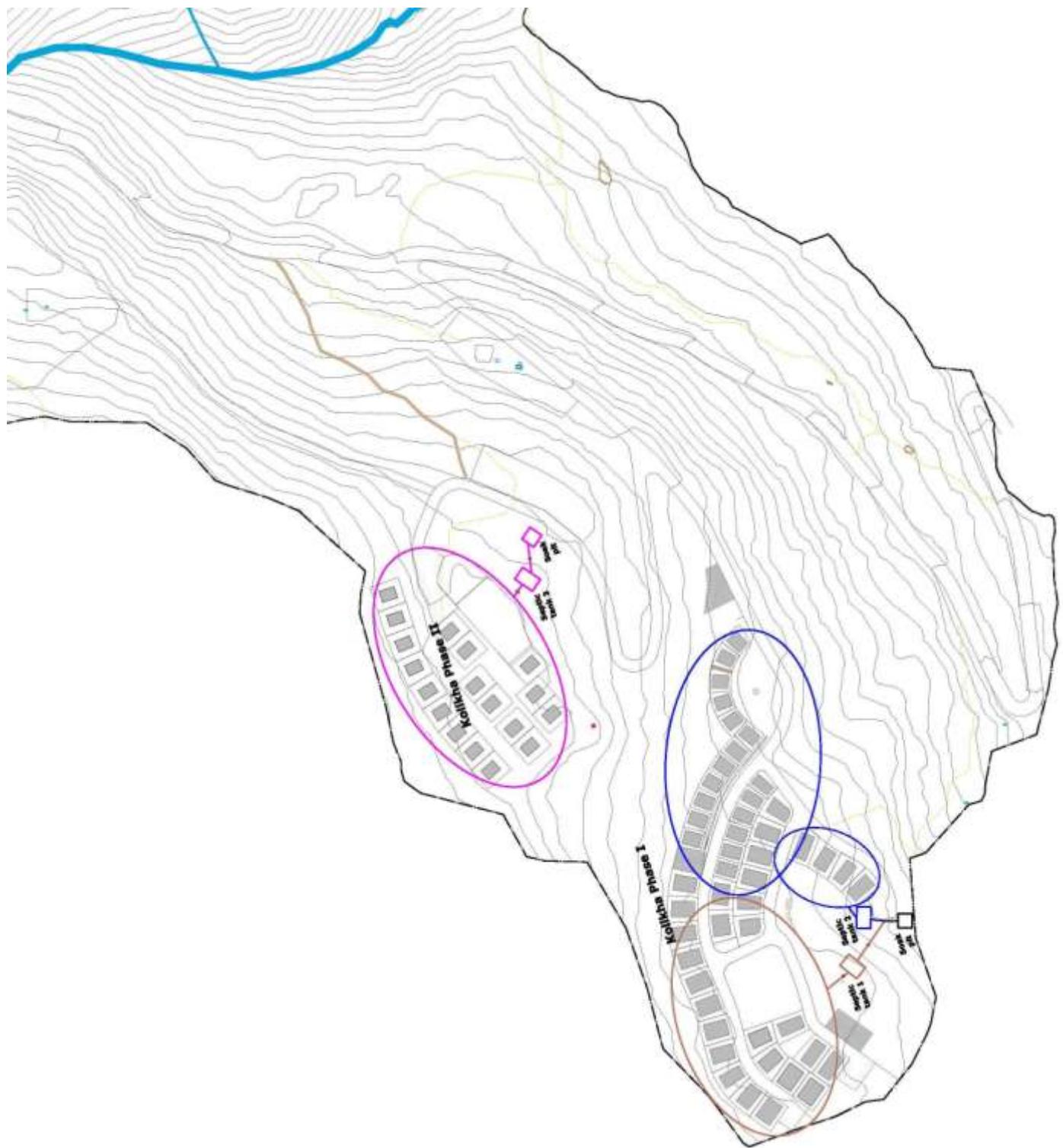
Sl. No	Proposed Ameni- ties/Services	Catchment population as per Draft Plan- ning Standard	Area required (in square meters – sq.m)	Area requirement for services/ amenities
1	Kindergarten/ Nursery	2500-5000	960 sq. m (for 30 children)	floor space required 5- 7 sq.m per child, lot area required 20-25 sq.m per child
2	Play ground	2500-4000	560	6-12 years : 1.5- 2sq.m per inhabitant
3	Green Areas		7000	4-6 sq.m per inhabi- tant (0.5 hectare mini- mum)
4	Football Ground		6500	
5	Fuel Station	2500-15000		500sq.m minimum
6	Auto repair work- shop	2500-15000		500sq.m minimum



Water Supply

The total projected population will be about 2500 in year 2030 and would require 500cum per day using 200 liters per capita per day (lpcd) including all losses.

To cater to the future population growth, an additional source Zamjhena chhu was identified by WSD,DES in April 2016. It is located about 2.20 km from the existing reservoir, located above Phulakha Lhakhang. As per the feasibility study, the yield at the confluence was 100 lps approximately. The WTP area was identified at the location just above the existing service reservoir of the Gasa Town. In the long run the integrated water supply has to be adopted to supply whole Gasa Thromde area including Kolikha new town area. The treated water from the water treatment plant (WTP) at Phulakha Village will be supplied to reservoirs located just below the WTP and one at the top of Kolikha . The water will be then distributed to different parts of the town through distribution pipes and supply lines. The schematic diagram shows the layout of water supply system. A detail analysis and design of the new water supply system has to be carried out before implementation.



Sewerage

At present there is no proper sewerage facilities for some household and some have individual septic tanks in the existing Gasa town. There is need to provide proper integrated sewerage in form of common septic tank and soak pits.

For the new Kolikha town, it is proposed to have three septic tanks and two soak pits to cater to about 1200 people in year 2030. The sewerage will be collected from three zones (indicated by circle in the map along side), wherein there will be two septic tanks for Kolikha Phase I with one soak pit and one septic tank and soak pit for Kolikha Phase II. The location of the septic tank is proposed at the lowest point to allow for gravity fall.

Since the proposal is schematic, it is recommended to have a more detailed proposal by the experts in the field for the design and implementation on ground.

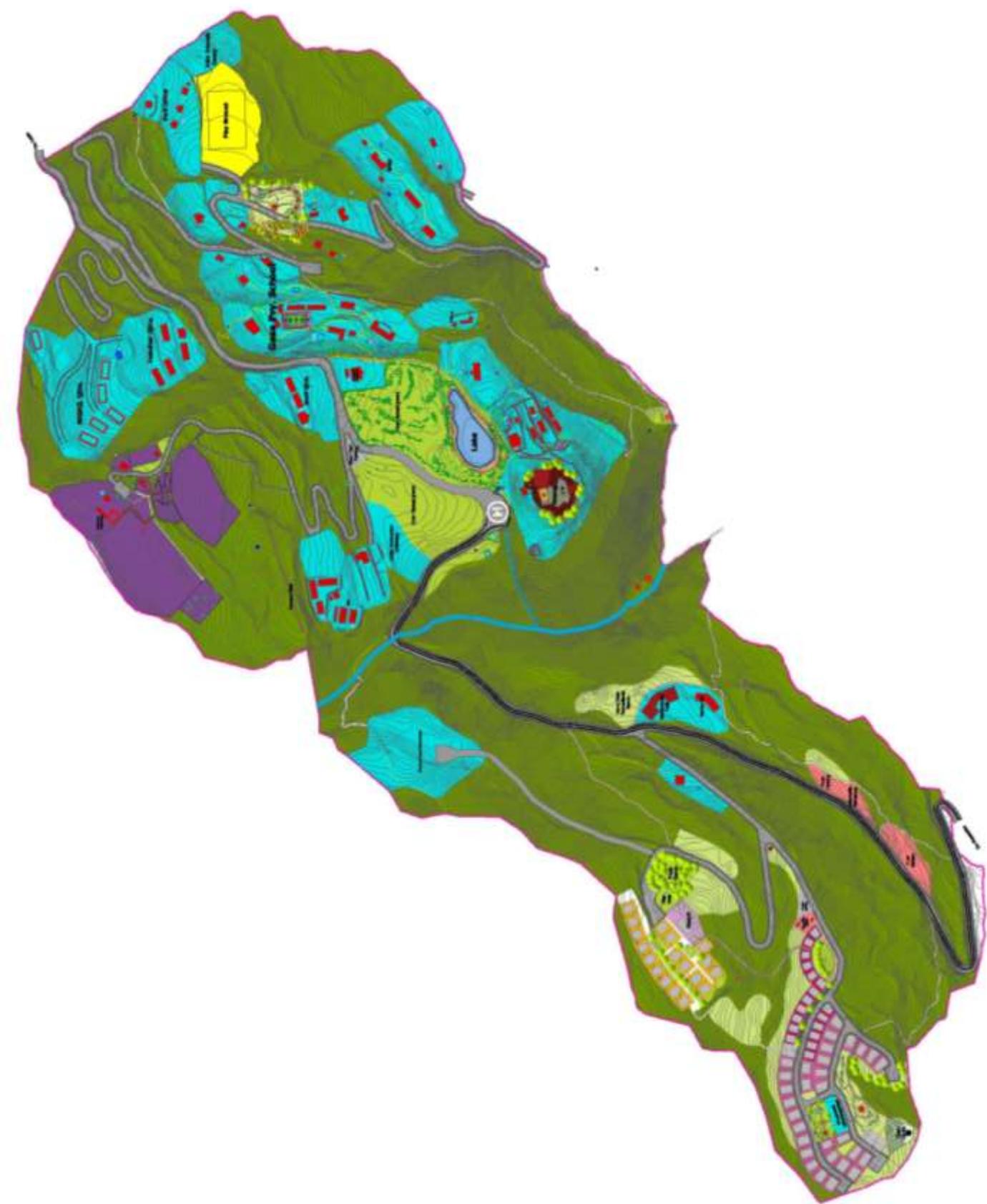
Precinct Plan





← Categories of settlement

- Historic village
 - Main development zone
 - Centre zone
 - Scattered settlement zone
 - Service
 - Institutional zone
 - Football field
 - Open space within settlement
 - Forest / steep slope
 - Existing structures



Settlement Rules / Precincts / DCR

The center of the city is what gives it life and character. It is essential that the core generates exuberance and a variety of activities. It must be safe, clean and easy to move around. Presently, the core gives a unique character with the presence of the Dzong, lake and the heritage village at the top of the town, which gives an opportunity to enhance Bhutanese tradition and culture as well as public domains that could suit the place climatically and be acceptable to the users. The Kolikha area will also serve as the commercial centre for the town.

The residential area has to be lively for residents to interact, live and play. It will be characterized by sufficient greenery, children play area and safe for the communities. To achieve this, a set of regulations called DCR or settlement rules have to be in place.

← Categories of settlement

- █ Historic village
- █ Main development zone
- █ Centre zone
- █ Service
- █ Institutional zone
- █ Football field
- █ Open space within settlement
- █ Forest / steep slope
- █ Existing structures

The settlement rules or the development control regulations are set of rules/regulations to regulate development to achieve the vision and objectives of the plan. The DCR regulates

1. Land use type - centre zone(commercial,public use), main development zone (mixed use, residential) etc.
2. Land use intensity - through regulation of building height, ground coverage and density using parameters such as ground coverage, set-backs
3. Form of built fabric - through regulation of building typology

The rules/regulations are outlined in the following pages :-

Centre zone

Objective	develop
Range of Use	commercial mixed use Public amenities
Density	high
Storeys	2
Plot Coverage	50-55 %
Building material	mud, stone masonry, wood
Maximum floor height (measured from top of the floor to the surface of the ceiling)	2.8m

This zone will be vibrant with high level of commercial activities and people from different areas for shopping or relaxing in the central green public space.

High-quality public spaces which bring together the various public usages are important (meeting rooms, facilities for social interaction, spaces for intercommunication). The entire floors of a building can serve as commercial, offices etc , however mixed uses are also permitted in this zone. 1.5 m front setback shall be maintained for all plots within this zone. Plot subdivision/fragmentation shall not be allowed. The set-back area shall not be paved or built on but shall be landscaped permeable area with trees, shrubs or groundcovers. **The boundary walls construction shall not be allowed. Use of local materials(wood, stone, mud) is mandatory for building construction.** The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.



Plot Size (Sq.m)	Range of Uses	Minimum Setback
222.967	Commercial Mixed use Public amenities	Front—1.5m Sides –2 m

Main development zone

Objective	develop
Range of Use	residential mixed use
Main Use	residential
Density	medium
Storeys	1- 2
Plot Coverage	45-50 %
Building material	mud, stone masonry ,wood
Maximum floor height (measured from top of the floor to the surface of the ceiling)	2.8m

This zone represents the highest development potential area within Gasa. The development shall be in such a way that blends with the existing beauty and character of Gasa. The maximum number of storey permitted are two . The ground floor can be used for commercial purpose. A 2 meters setback at the front shall be maintained for all the plot within this zone. The set-back area shall not be paved or built on but shall be landscaped permeable area with trees, shrubs or groundcovers. Plot subdivision/fragmentation shall not be allowed. **Use of local materials (wood, stone, mud) is mandatory for building construction.** **The boundary walls construction shall not be allowed.** The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.



Plot Size (Sq.m)	Range of Uses	Minimum Setback
371.612	Residential Mixed Use	Front- 2m Sides- 3m

Scattered Settlement Zone

Objective	develop
Range of use	residential resorts*
Main Use	residential
Density	low
Storeys	1-2
Plot Coverage	35-40%
Building material	mud, stone masonry, wood
Maximum floor height ((measured from top of the floor to the surface of the ceiling)	2.8m

The Kolikha Phase II has been designated as the scattered settlement zone. It will be low residential development connected by pedestrian paths and no vehicular entry shall be allowed except for emergency vehicles. The set-back area shall not be paved or built on but shall be landscaped permeable area with trees, shrubs or groundcovers. Plot subdivision/fragmentation shall not be allowed. **The boundary walls construction shall not be allowed. Use of local materials(wood, stone, mud) is mandatory for building construction.** The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.

resorts*	
Density	low
Storeys	1-2
Plot Coverage	35-40%
Building typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm. A distance of 6m shall be maintained between the structures within the plot
Building material	mud, stone masonry ,wood
Maximum floor height ((measured from top of the floor to the surface of the ceiling)	2.8m

Plot Size (Sq.m)	Range of uses	Minimum Setback
371.612	residential	All sides– 3.5 m
1589.294	Resort	



Historic village

Objective	protect / add
Range of Use	residential mixed use heritage hotel
Main Use	residential
Density	medium
Storeys	2
Plot Coverage	30-40 %
Building typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm
Building material	mud, stone masonry, wood

The area is characterized by traditional village settlement around *Phulakha Lhakhang*, which needs be preserved or enhanced further.

The existing traditional structures shall not be dismantled/replaced instead preserved, and renovated and restored with care. The local material such as mud, wood etc shall be used for new constructions and the new structures should blend/ enhance the existing character of the village. The structures can be converted into heritage hotels, restaurants for tourists while preserving the essence of the village. **Construction of RCC and modern structures shall be strictly prohibited.** The building color shall be as specified in the Building Color Code of Bhutan 2014 prepared by Ministry of Works and Human Settlement in September 2014.



Plot Size (Sq.m)	Range of use	Minimum Setback
371.612 - 743.224	residential mixed use	All sides -3m
> 743.224	mixed use residential public amenities heritage hotels	All sides - 3 m

Objective	develop
Range of use	community parking

Community Parking/ Bus & Taxi Parking

This zone is reserved for the community parking for the residence and the visitors.

Objective	preserve / develop
Range of use	fuel station automobile workshop vegetable market other services
Density	low / medium
Plot Coverage	30-40 %
Minimum setback	All sides- 3m
Building Typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm (exception for town hall and movie hall)
Maximum floor height ((measured from top of the floor to the surface of the ceiling))	2.8m

Services

This zone include services required for the development zones such as fuel station, workshop, power station, solid waste site etc The solid waste disposal site needs to be identified outside the town by the Dzongkhag Administration.

Objective	develop
Range of use	kindergarten offices town hall movie hall Other ancillary structures
Storeys	2
Plot coverage	30– 40%
Minimum setback	All sides- 3m
Building Typology	The maximum plinth area shall not exceed 200 sq.m. Plural form of building typology shall be adopted if the ground coverage exceeds 200sqm (exception for town hall and movie hall)
Maximum floor height ((measured from top of the floor to the surface of the ceiling))	2.8 m (exception for movie hall and town hall given the nature of use)

Institutional zone

This area includes existing public facilities such as kindergarten, town hall, movie hall, offices buildings, etc. All the institution structures shall be built in such as way that it blends with the site and does not overshadow the Dzong.

Settlement Rules



Open space within settlement areas

Objective	preserve
Range of use	open space public uses temporary uses

The open spaces in the town will serve as a space for public gathering, social interaction ,passive/active recreational spaces etc. The spaces shall be designed with minimum paved surfaces and more green which will also form as a connection to surrounding landforms.

Forest/Steep slope

Objective	preserve
Range of use	Activities related to environment enhancement or recreational activities elements like gazebo,footbridges,pedestrain path etc.

No constructions or development shall be allowed in forest/steep slope precinct. It should be preserved as forestland and plantation may be done on steep slopes to prevent landslides or other hazards.

Site Development

During the site development, there should be minimal grading to retain the natural topographic character as much as possible. This implies minimum cut and fill during site development/construction. Besides the building drawings, a site plan with topographical information such as contours and any other natural features such as streams gully and drops, etc., shall be submitted for sanction by the Authority.

Plot Coverage and Set Back Rules

The permissible plot coverage shall be within the set back rules. Balconies (not enclosed or roofed) projecting up to 1.2m from the external wall face shall be permitted for residential buildings and such cantilevered balconies shall be allowed only at the rear side of the commercial or mix use buildings.

In case of corner plots having curvature on one or two sides, the shape of the building shall be developed in line with the shape of the plot.

Discharge of Storm Water

Every site should have storm water drain/channels at lower elevation/level of the site which collects rainwater runoff over the site and discharges into public storm water drains or the rain water harvesting mechanism installed in the plot. The lower plot shall provide an easement or allow/ provide a right of way or channel for the discharge of storm water runoff from natural sources or adjacent plots of higher elevation into the public storm water drains.

Tree Plantation



Pine Tree / Blue Pines

Tree plantation at the rate of one tree at every 100 square meter of plot area, shall be undertaken and maintained in all developments within the Thromde . These trees shall preferably be planted at a spacing of 4m along the edge of the footpaths and common open spaces. Cutting down trees in the Forest/steep slope precinct is strictly prohibited.



Willow Tree

Deciduous trees that shade in summer and shed their leaves to let sunlight through in winter are ideal for Gasa. Only native trees should be planted on streets in order to minimize irrigation requirements and prolong tree life.

The main street specially in Kolikha, tree plantation should be mandatory. Colorful trees for example rhododendron should be planted at a definite interval along the main roads.



Rhododendron

Street Lighting

There are no proper street lighting systems in the existing Gasa Thromde. Therefore, an adequate street lighting system is proposed along the road network. Appropriate lighting will also be provided along the off-street footpaths. This would aid the safety of pedestrians on pavements after dark.

Street lighting must not pollute the environment, i.e. no night sky light pollution. Energy efficient fixtures should be utilized. While placing street lights, ensure adequate gaps and spacing from the tree canopies to ensure that performance of lighting is not compromised.



Blue Poppy



Land Marks and Way Findings

Landmarks that blends with the natural character of Gasa has to be developed/built separately or as a part of a project for instance in resort area or kindergarten.

Frayer flags in Kolikha



Chorten in Gasa Tsachhu area

Parking

Different community parking area has been proposed in Kolikha area to cater to the future parking needs, The parking area shall be develop in such a way that it allows for infiltration during rain and prevent too much of surface runoff. The ecological aspect have to be taken care during its development. There should be tree plantation along the boundary of parking and green landscapes within the parking area



Parking in Kolikha

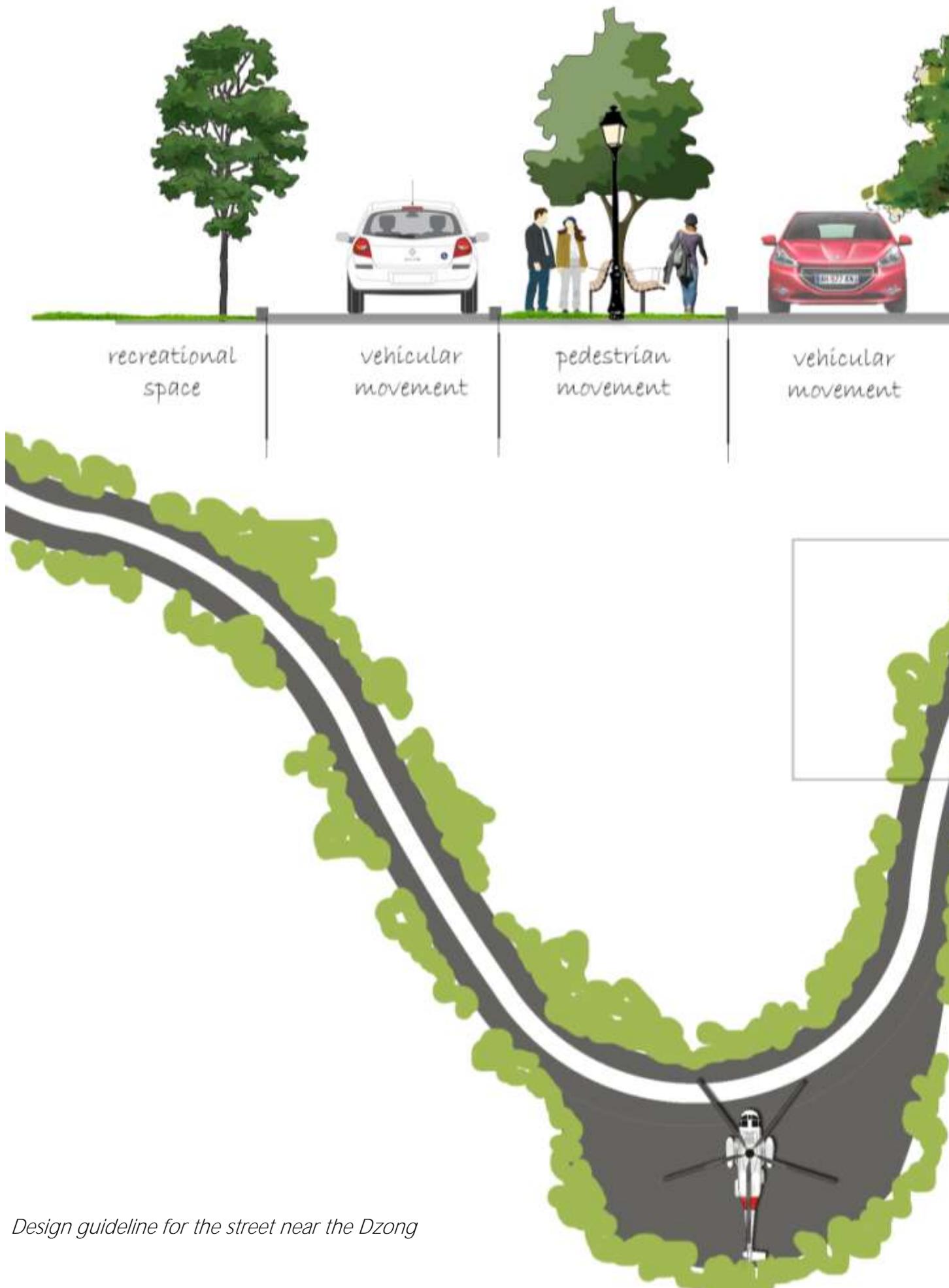


Parking in Kolikha

Rain Water Harvesting

Installation of rain water harvesting system should be made compulsory at every plot level in the long run. This can be done by collecting rain water from the roofs sheeted either with tiles or corrugated mild steel where the latter is preferable as it is the easiest to use and gives the cleanest water.

Asbestos sheeting and lead painted surfaces should be avoided. This rain water can be collected from the roofs through gutters along the eaves of the building. The rain water drains through the down-pipes which discharge into the storage tank. These storage tanks can be installed either on the ground or underground. The first run-off collected should be flushed out since it may contain dirt from the roof and the surrounding air. It should be placed in a location where seepage from septic tank and soak pit doesn't occur. The collecting box with mesh strainers and other filter media should be used to prevent the ingress of potential pollutants.



Street form near Dzong

The streets will have to be lively with wide pedestrian walkway and plenty of greenery along the street for social interaction, cycling and walking.

recreational space

Lake



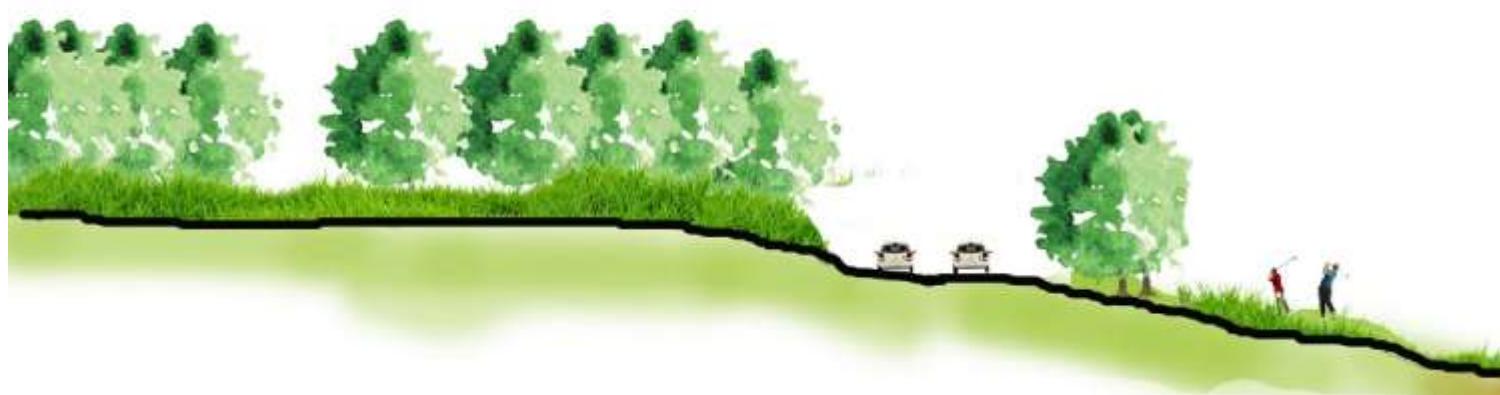
3D view of proposed kolikha town

3D View

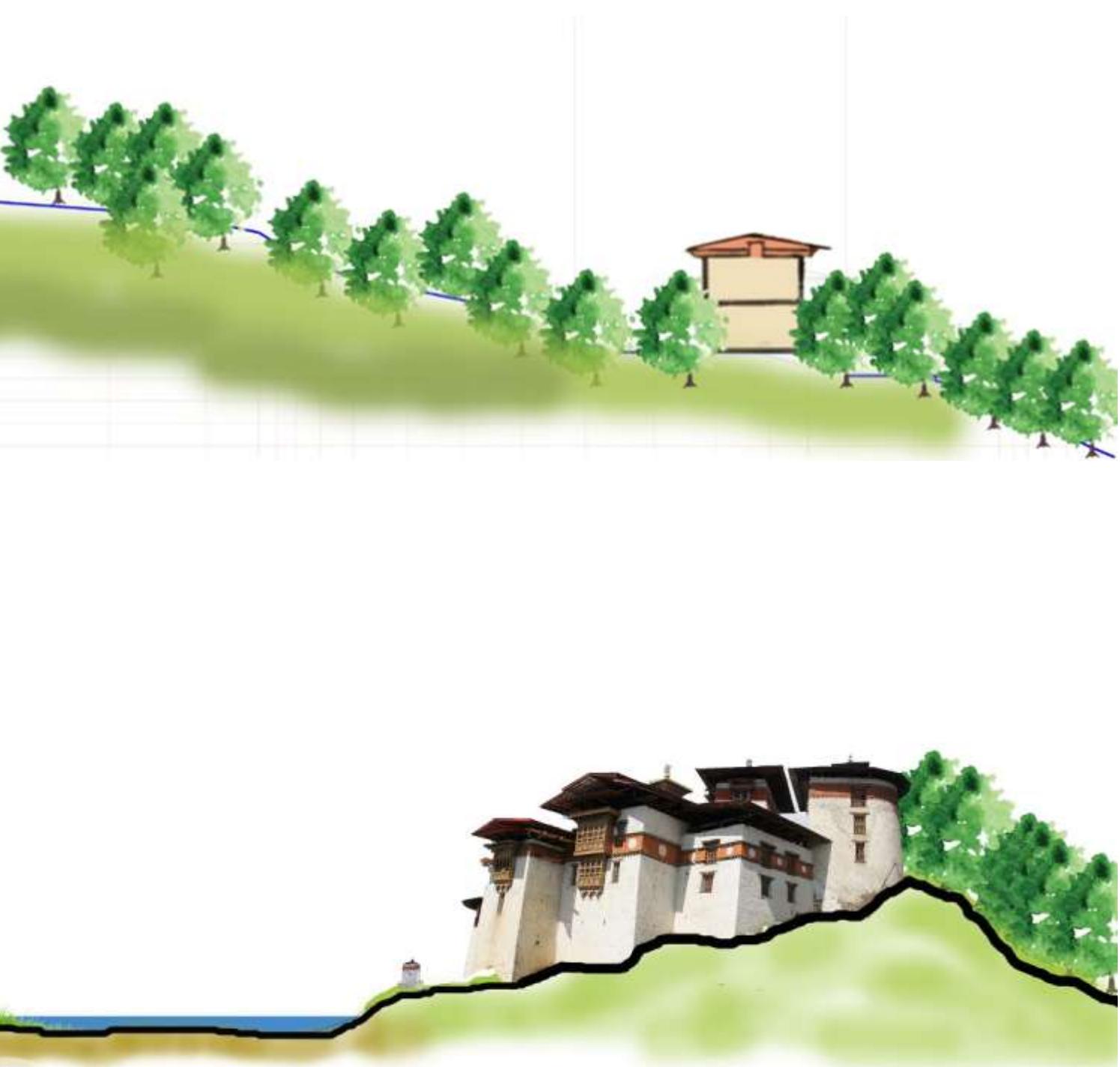




Section of along Kolikha



Section of the green space around the Dzong





3D view of proposed Kolikha town



3D view of proposed Kolikha town main street

3D View



3D view of proposed Kolikha town



3D view of existing Gasa town core



3D view of Gasa Dzong



3D view of Gasa Dzong with the lake



3D view of Gasa Dzong



Two Public consultation were held during the plan preparation



Prepared by-
Urban Planning and Development Division
Department of Human Settlement
Ministry of Works and Human Settlement
RGoB, Bhutan