

LAND USE LAND COVER 2020



BHUTAN

LAND USE LAND COVER

2020

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REPORT SUMMARY

This report presents an overview of the findings from the Land Use Land Cover assessment 2020. The report includes detailed Maps and Statistics for each of the 20 Dzongkhags, providing comprehensive insights into the distribution of different land cover categories. This information is vital for strategic planning and development at both national and local levels. Accurate and current Land Use Land Cover data is essential for informed decision-making and in facilitating sustainable land use planning. Moreover, this mapping data contributes to Bhutan's commitment to environmental conservation and well-balanced development amid evolving numerous land management practices in the country.

The analysis of LULC 2020 reveals that the primary land cover is forest, covering approximately 69.0% of the total country area, excluding Shrubs and Alpine Scrubs, which makes up 4.11% and 8.89% respectively. Agricultural land was found to occupy 2.96% which is equivalent to approximately 281,186.290 acres. The lowest land cover categories were Non-built up, Landslides, Sandy bank, Moraines, Built-up and Water bodies constituting less than 1% each. These findings provide insights into the distribution and composition of land cover classes in the country.

Sl.No	Land cover class	Area(km ²)	Area (%)
1	Snow and Glacier	1852.95	4.83
2	Agriculture Land	1137.92	2.96
3	Built up	96.83	0.25
4	Shrubs	1576.40	4.11
5	Forests	26414.32	69.00
6	Landslides	26.42	0.07
7	Water Bodies	233.54	0.61
8	Sandy Bank	48.49	0.13
9	Meadows	1685.34	4.39
10	Non Built up	9.68	0.03
11	Moraines	164.12	0.43
12	Rocky Outcrops	1736.18	4.52
13	Alpine Scrubs	3411.81	8.89
Total		38394	100

Table of Contents

Report Summary..... 7

Land Use Land Cover 2020 Map..... 8

Bumthang Factsheet..... 12

Bumthang Land Use Land Cover 2020 Map..... 13

Chhukha Factsheet..... 14

Chhukha Land Use Land Cover 2020 Map 15

Dagana Factsheet 16

Dagana Land Use Land Cover 2020 Map 17

Gasa Factsheet..... 18

Gasa Land Use Land Cover 2020 Map..... 19

Haa Factsheet..... 20

Haa Land Use Land Cover 2020 Map..... 21

Lhuentse Factsheet 22

Lhuentse Land Use Land Cover 2020 Map..... 23

Mongar Factsheet..... 24

Mongar Land Use Land Cover 2020 Map..... 25

Paro Factsheet..... 26

Paro Land Use Land Cover 2020 Map 27

Pemagatshel Factsheet..... 28

Pemagatshel Land Use Land Cover 2020 Map..... 29

Punakha Factsheet 30

Punakha Land Use Land Cover 2020 Map..... 31

Samdrup Jongkhar Factsheet..... 32

Saamdrup Jongkhar Land Use Land Cover 2020 Map 33

Samtse Factsheet 34

Samtse Land Use Land Cover 2020 Map 35

Sarpang Factsheet 36

Sarpang Land Use Land Cover 2020 Map 37

Tashigang Factsheet..... 38

Tashigang Land Use Land Cover 2020 Map..... 39

Tashi Yangtse Factsheet..... 40

Tashi Yangtse Land Use Land Cover 2020 Map 41

Timphu Factsheet..... 42

Timphu Land Use Land Cover 2020 Map 43

Trongsa Factsheet..... 44

Trongsa Land Use Land Cover 2020 Map..... 45

Tsirang Factsheet 46

Tsirang Land Use Land Cover 2020 Map 47

Wangdue Phodrang Factsheet..... 48

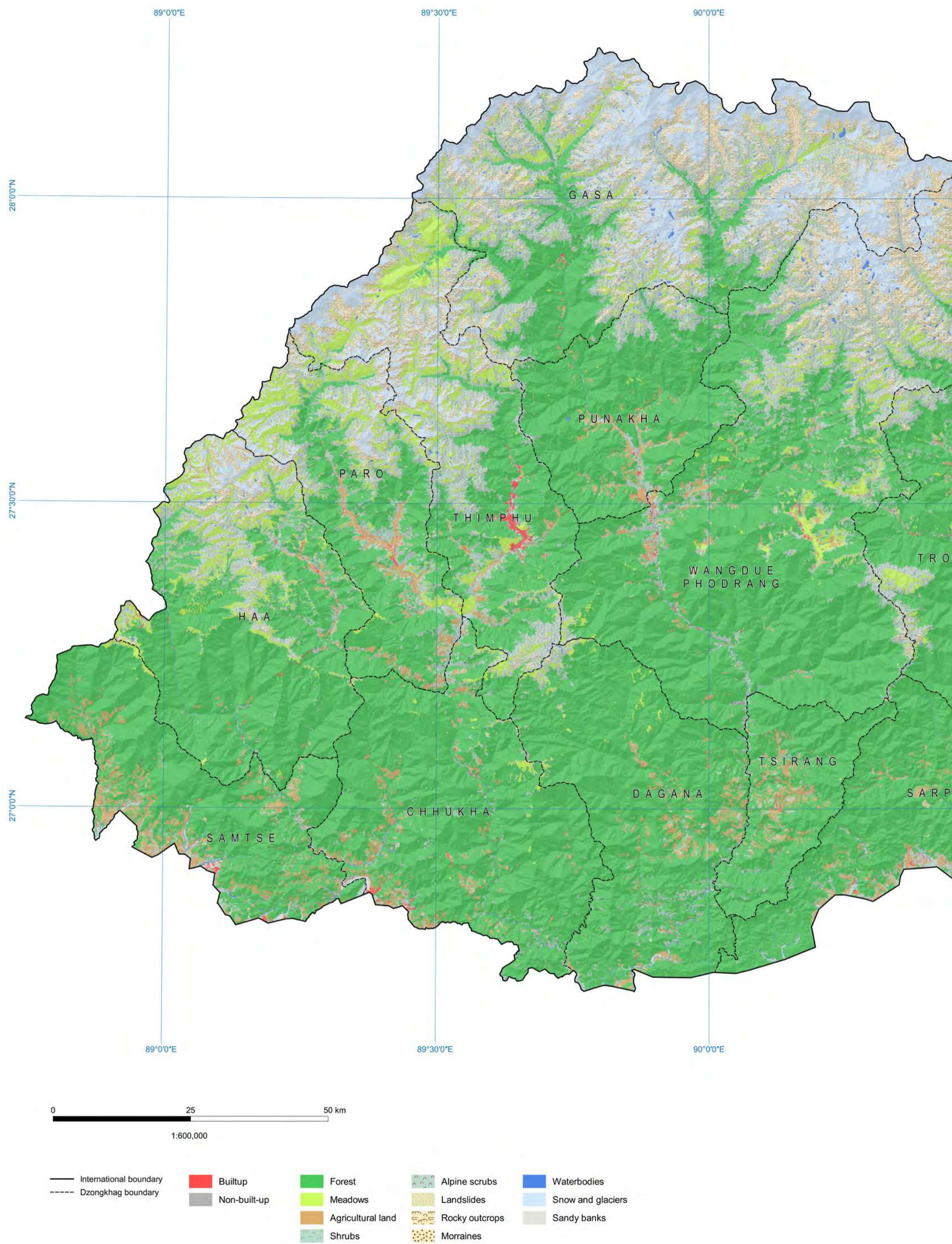
Wangdue Phodrang Land Use Land Cover 2020 Map..... 49

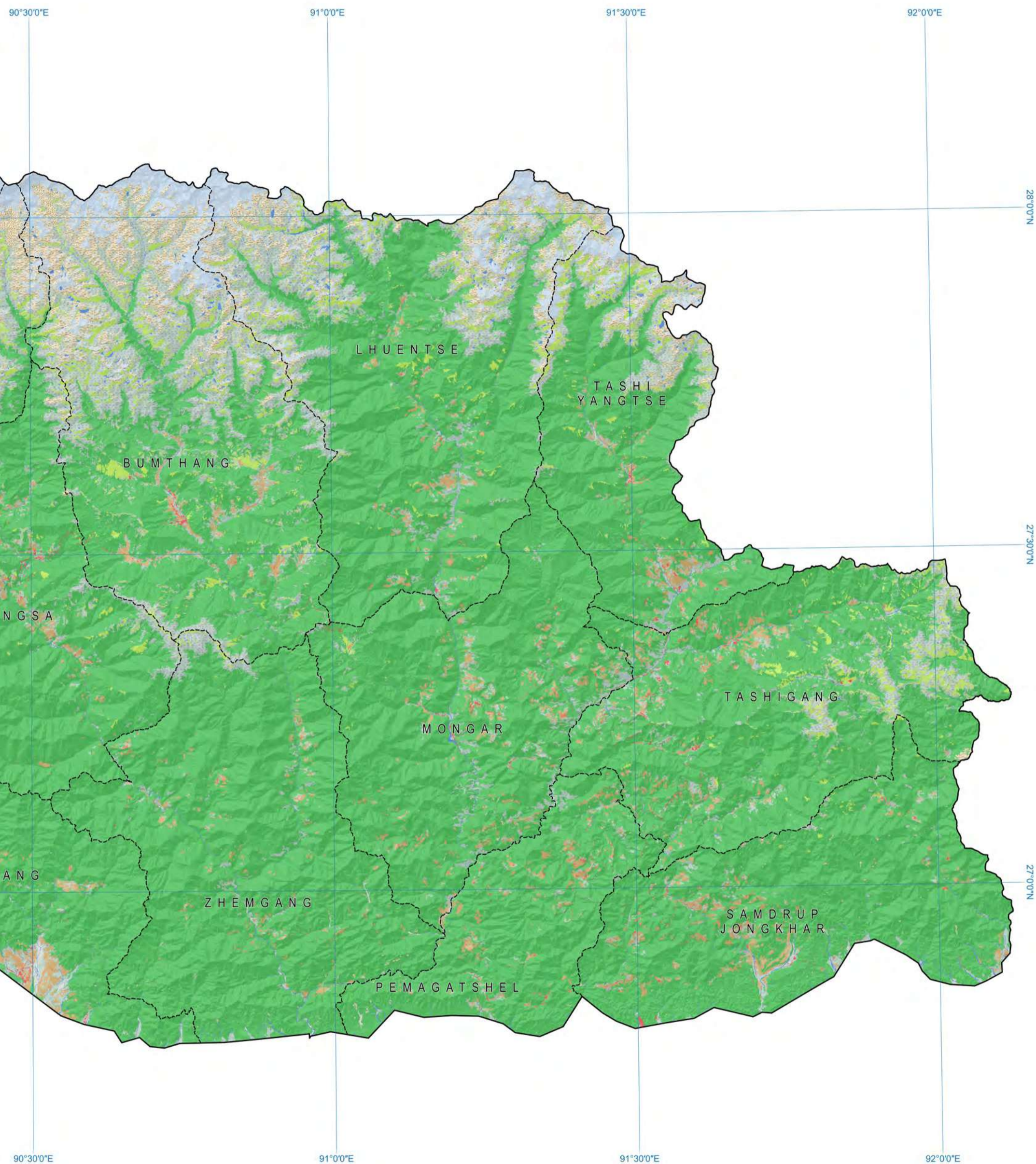
Zhemgang Factsheet 50

Zhemgang Land Use Land Cover 2020 Map..... 51



Land Use Land Cover 2020





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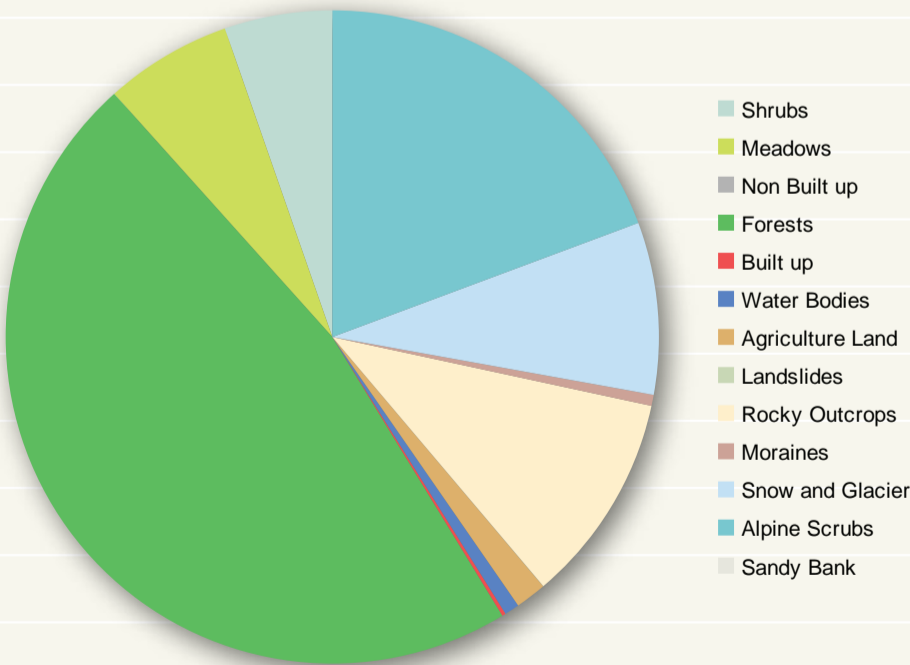
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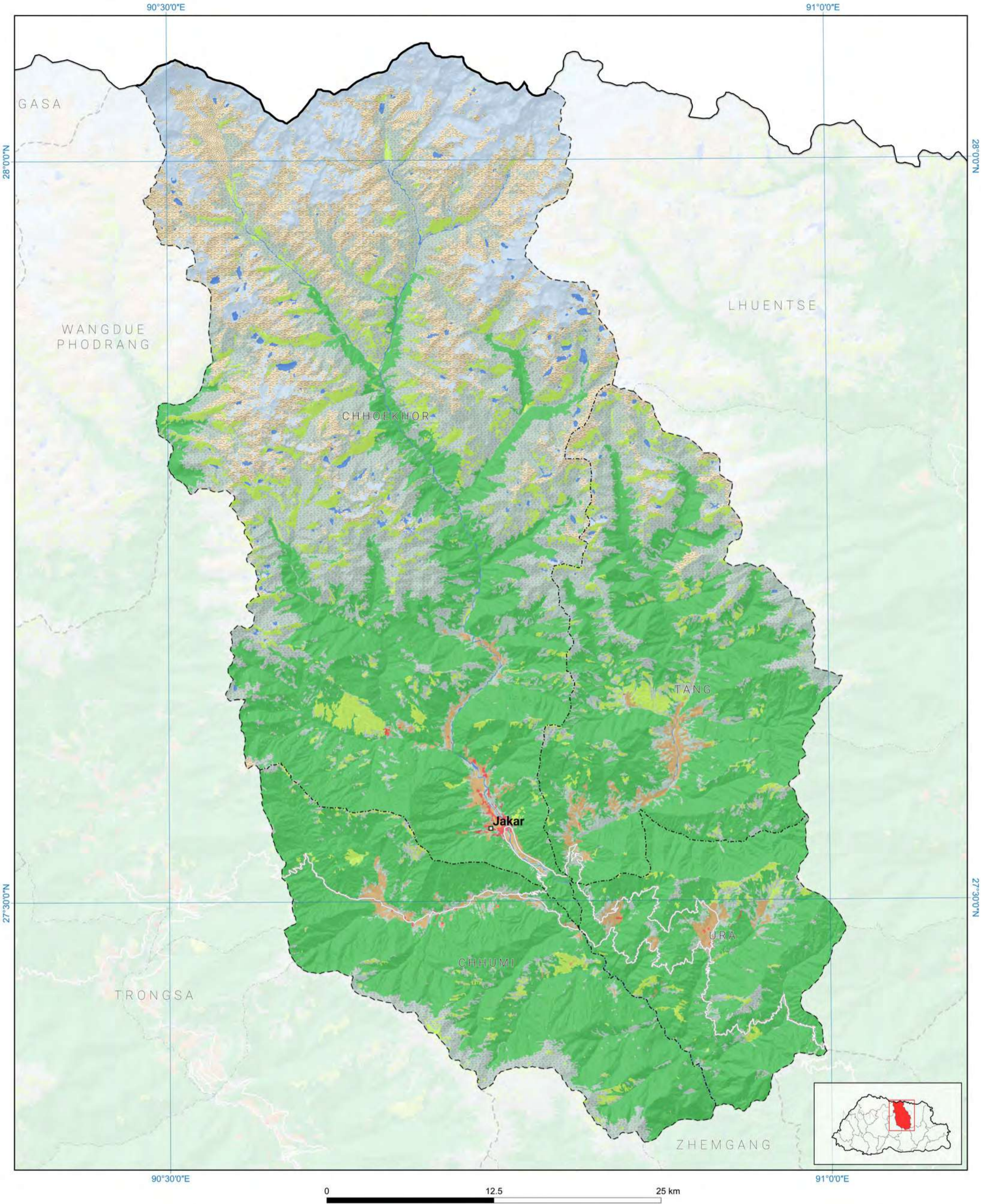


FACTSHEET

Bumthang Dzongkhag consists of four main valleys: Ura, Chumey, Tang, and Choekhor. These valleys collectively cover a vast area of approximately 2713.866 square kilometers, with elevations ranging from 2400 meters to 6000 meters above sea level. Throughout most of the year, the Dzongkhag experiences cold weather conditions. Forests cover about 47.8% of Bumthang’s total area, while alpine scrubs and other high altitude land cover classes, including snow and glaciers, make up a significant portion. Agricultural land accounts for around 1.53% of the Dzongkhag’s area, showing a slight increase compared to the past.

Land cover class	Area(km²)	Area (%)
Shrubs	144.86	5.34
Meadows	170.95	6.30
Non Built up	0.06	0.00
Forests	1277.82	47.08
Built up	4.84	0.18
Water Bodies	20.04	0.74
Agriculture Land	41.62	1.53
Landslides	0.25	0.01
Rocky Outcrops	283.10	10.43
Moraines	14.74	0.54
Snow and Glacier	231.22	8.52
Alpine Scrubs	524.25	19.32
Sandy Bank	0.11	0.00





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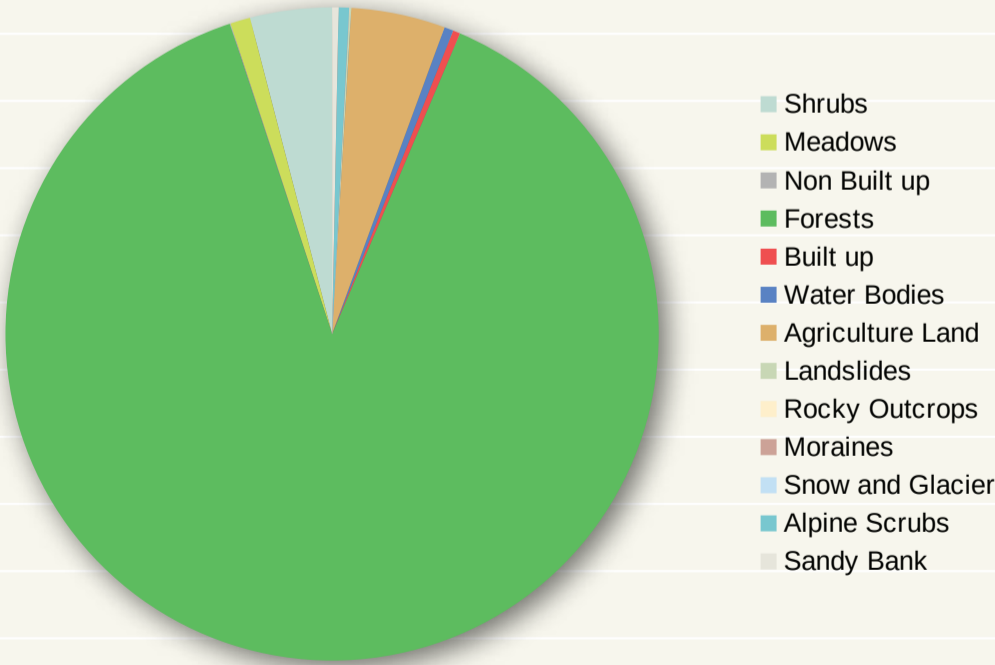


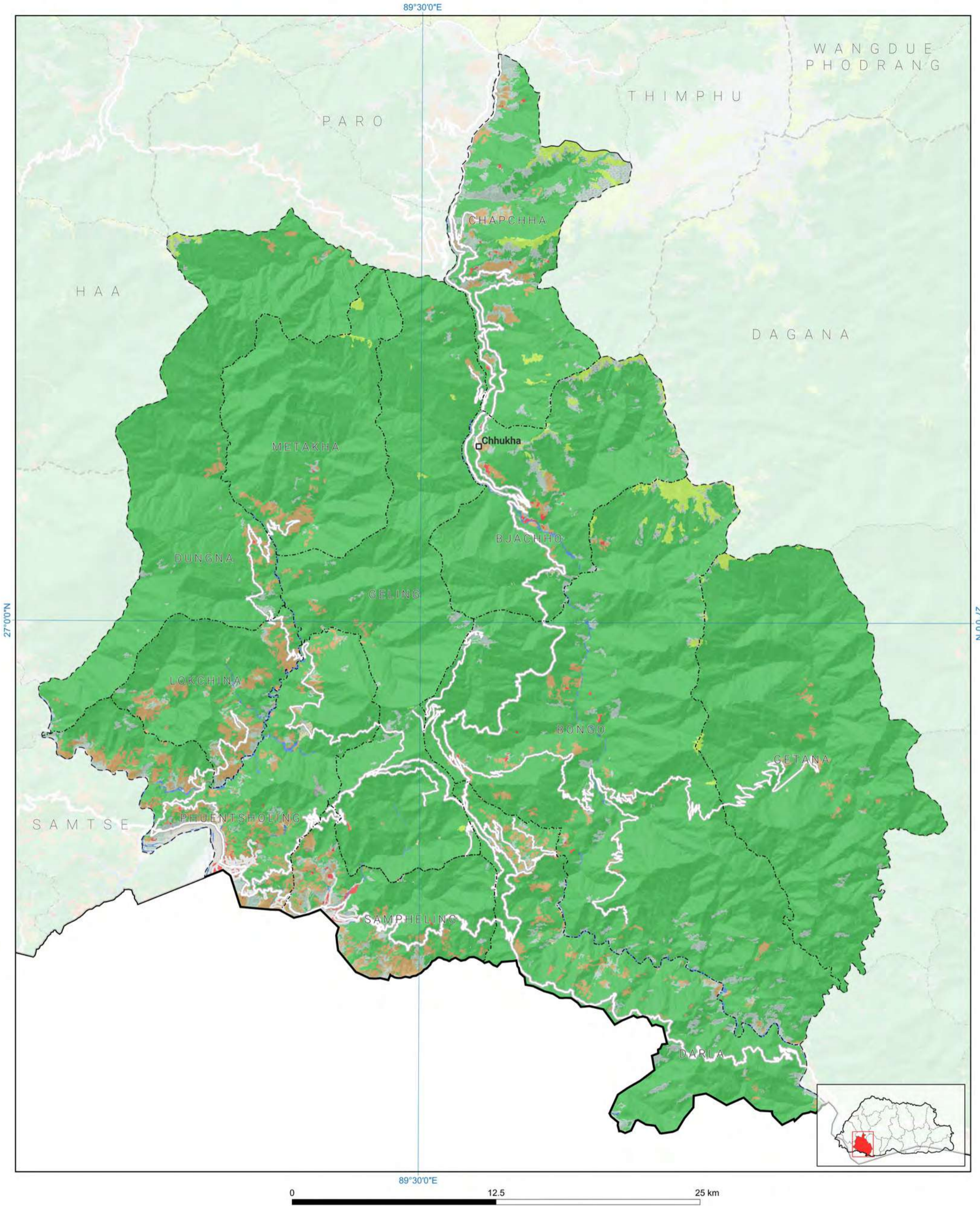
FACTSHEET

Administratively, the Dzongkhag is subdivided into one Drungkhag, one Thromde, and eleven gewogs, encompassing an area of 1884.366 square kilometers. Bordered by India to the south and Samtse Dzongkhag to the west, the elevation in the region varies from approximately 200 meters to 3500 meters above sea level.

The primary land cover in the Dzongkhag is dominated by forests, accounting for 88.52% of the total area. Following closely is agricultural land, covering 4.66% of the region. The Dzongkhag retains its rich biodiversity, with the agriculture sector being the main source of livelihood for the local population.

Land cover class	Area(km ²)	Area (%)
Shrubs	76.26	4.05
Meadows	18.73	0.99
Non Built up	0.64	0.03
Forests	1668.12	88.52
Built up	6.72	0.36
Water Bodies	8.49	0.45
Agriculture Land	87.78	4.66
Landslides	1.68	0.09
Rocky Outcrops	0.25	0.01
Moraines	0.00	0.00
Snow and Glacier	0.00	0.00
Alpine Scrubs	9.75	0.52
Sandy Bank	5.94	0.32





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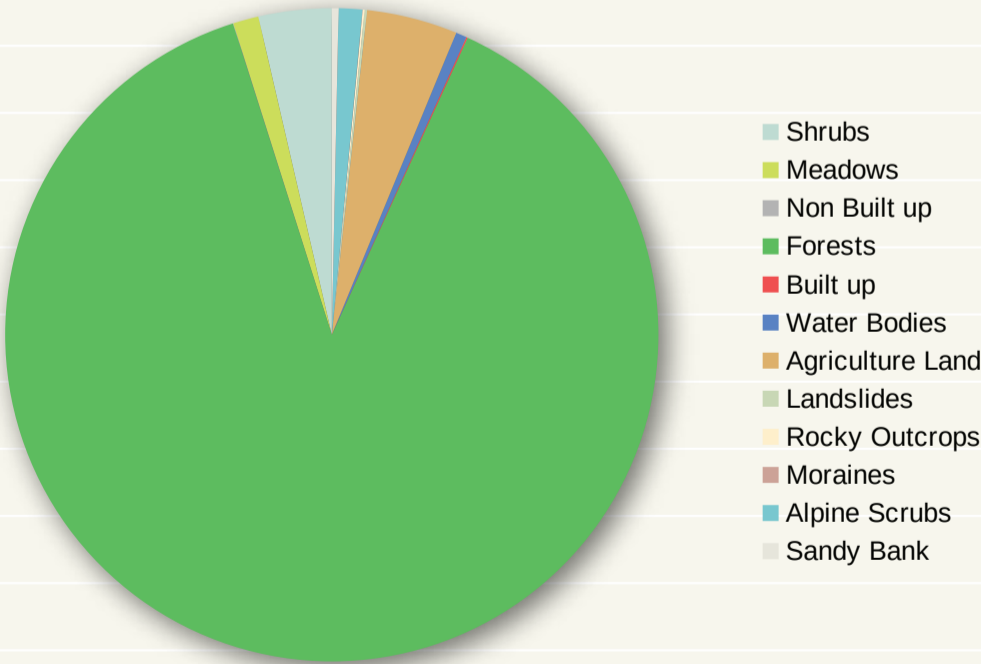
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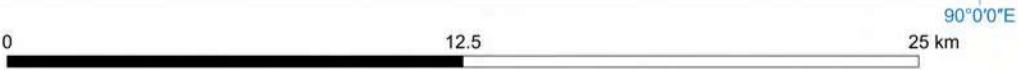
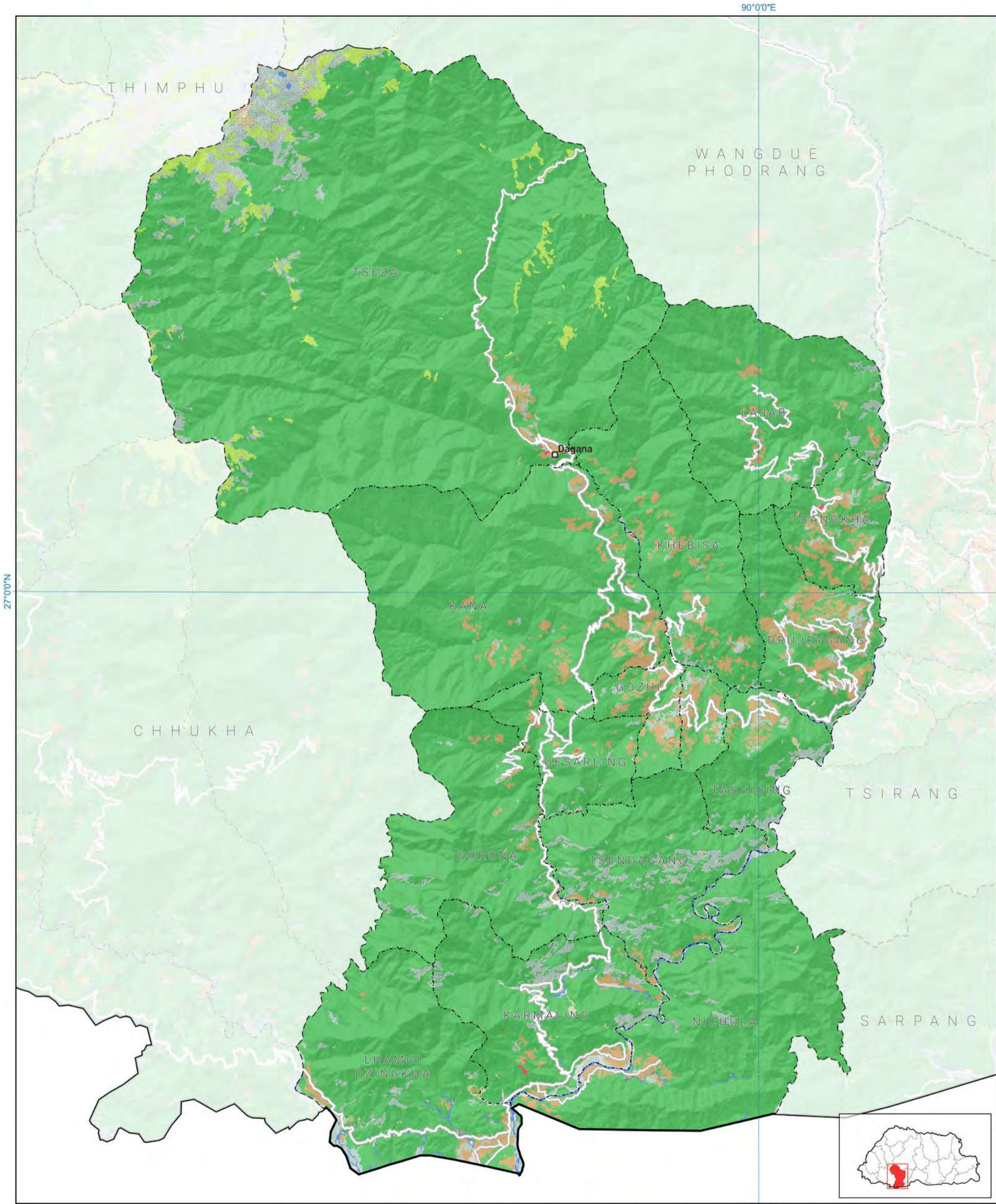


FACTSHEET

Dagana is situated in the South-Central region, encompassing elevations ranging from 600 meters to 3800 meters above sea level. Covering an approximate area of 1723.568 square kilometers, the Dzongkhag comprises fourteen gewogs, making it the largest among the 20 Dzongkhags. Currently, about 88.27% of Dagana’s total area is under forest cover, showing a slight decrease compared to the figures from 2016. On the other hand, the Dzongkhag has experienced a slight increase in agricultural land, now accounting for approximately 4.50% of the total Dzongkhag area.

Land cover class	Area(km ²)	Area (%)
Shrubs	62.35	3.62
Meadows	21.81	1.27
Non Built up	0.25	0.01
Forests	1521.47	88.27
Built up	1.18	0.07
Water Bodies	9.31	0.54
Agriculture Land	77.49	4.50
Landslides	2.02	0.12
Rocky Outcrops	1.69	0.10
Moraines	0.15	0.01
Alpine Scrubs	20.15	1.17
Sandy Bank	5.70	0.33





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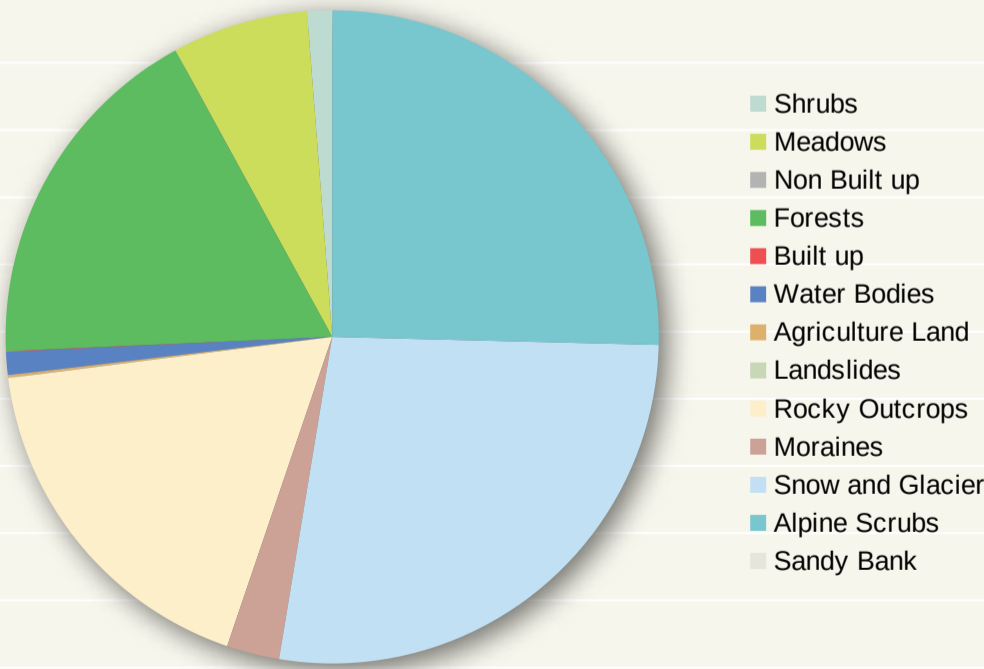


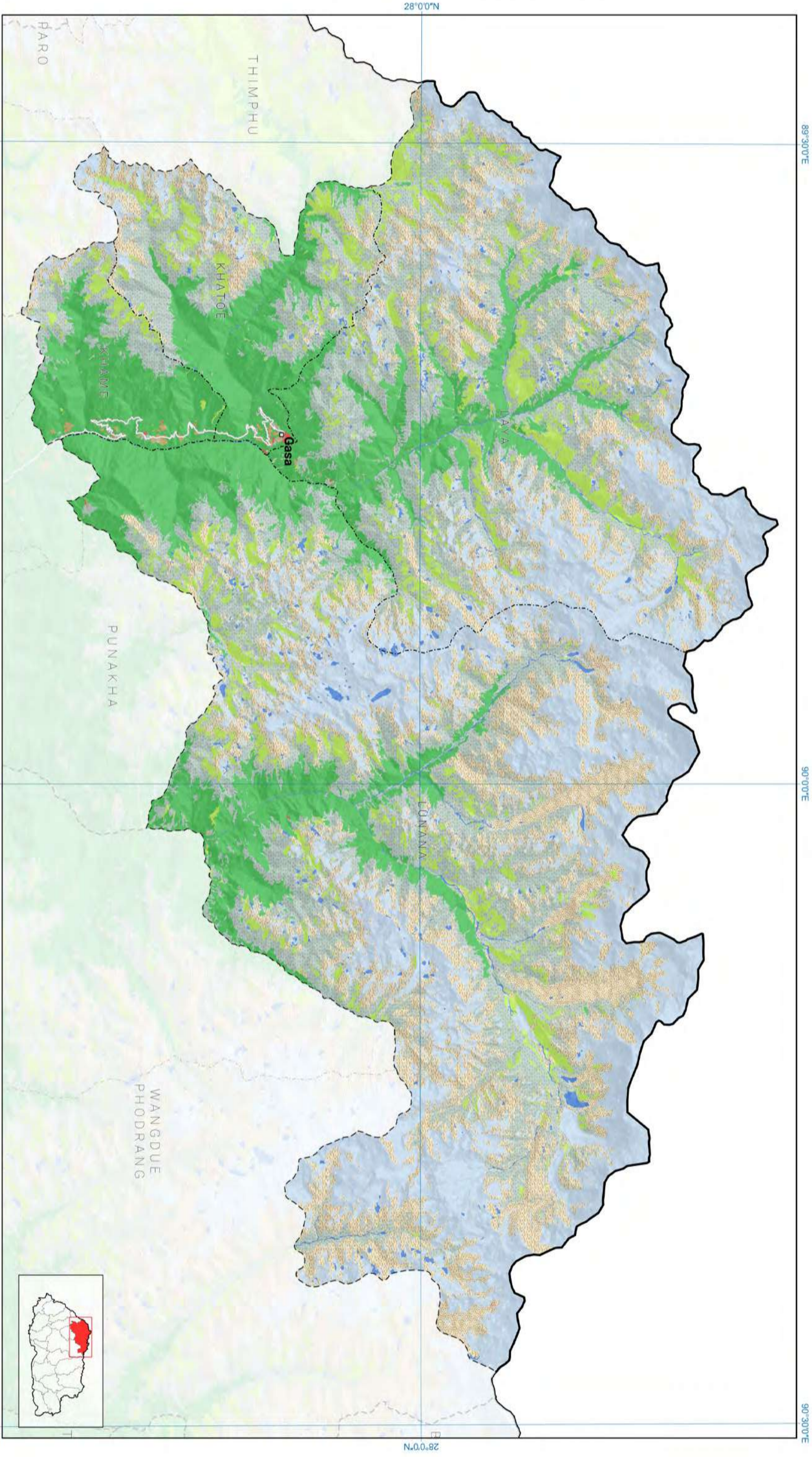
FACTSHEET

Gasa Dzongkhag is situated at elevations ranging from 1500 meters to 4500 meters above sea level. This region boasts distinctive and breathtaking beauty, but it experiences extremely long and cold winters with brief summers. Despite its vast land coverage, Gasa is the least populated and most sparsely inhabited area in the country. The Dzongkhag covers approximately 3134.412 square kilometers and is divided into four gewogs.

Forest coverage in Gasa accounts for about 17.73%, which is lower compared to other land cover classes like Snow & Glaciers, Alpine scrubs, and Rocky Outcrops. The majority of the forest is found in the lower altitudes of the Dzongkhag. Owing to its high altitude, rugged terrain, and harsh climate, farming is not as suitable in Gasa as it is in other regions. Consequently, only a mere 0.12% of the total land is utilized for agricultural purposes.

Land cover class	Area(km ²)	Area (%)
Shrubs	38.65	1.23
Meadows	211.09	6.73
Non Built up	0.25	0.01
Forests	555.70	17.73
Built up	0.98	0.03
Water Bodies	35.90	1.15
Agriculture Land	3.75	0.12
Landslides	0.61	0.02
Rocky Outcrops	556.84	17.77
Moraines	81.92	2.61
Snow and Glacier	852.80	27.21
Alpine Scrubs	795.87	25.39
Sandy Bank	0.07	0.00





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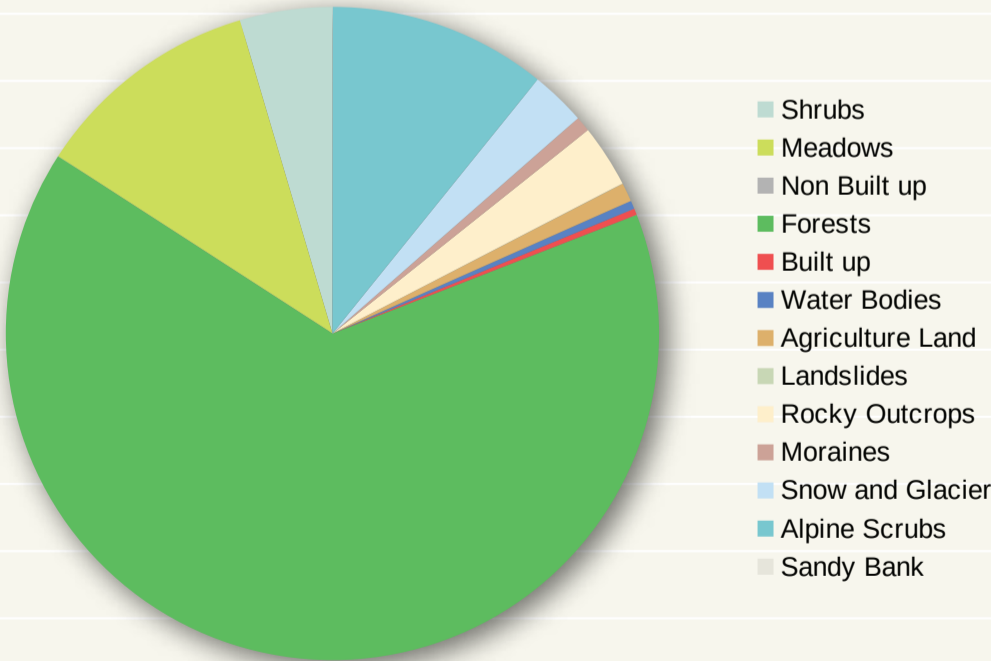


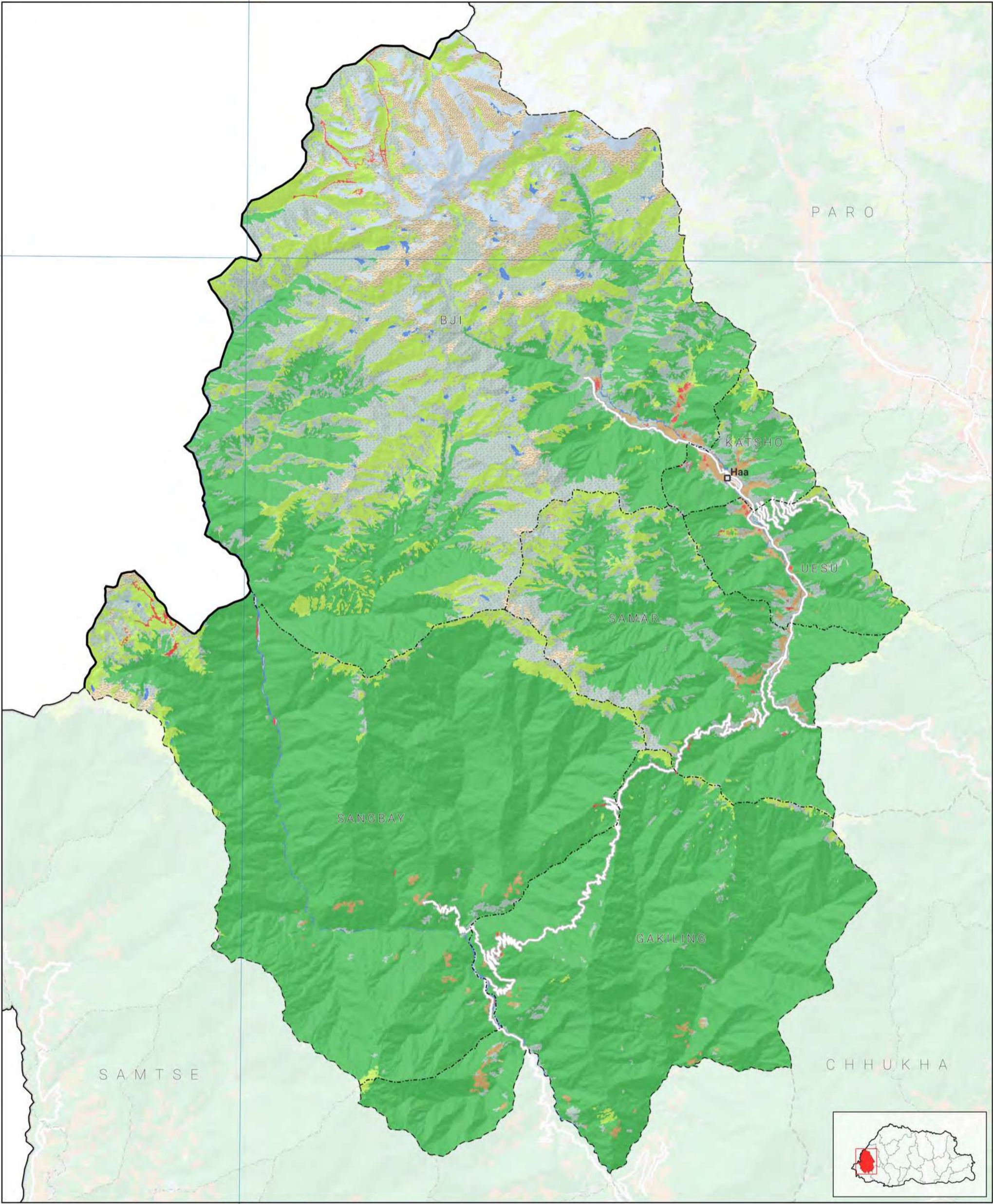
FACTSHEET

Haa Dzongkhag is situated in the far west of the country and shares its borders with Chhukha and Samtse to the south, the Indian State of Sikkim to the west, and China to the west and north of the Dzongkhag. Covering an area of approximately 1903.364 square kilometers, it comprises six gewogs. The elevation in Haa ranges from 800 meters to 5600 meters above sea level.

The Dzongkhag is predominantly covered by forests, accounting for about 65.05% of the total land area. Due to its challenging and harsh weather conditions, the region has a low percentage of agricultural land (0.93%), similar to other high altitude Dzongkhags.

Land cover class	Area(km ²)	Area (%)
Shrubs	87.10	4.58
Meadows	215.04	11.30
Non Built up	0.06	0.00
Forests	1238.07	65.05
Built up	6.09	0.32
Water Bodies	7.84	0.41
Agriculture Land	17.63	0.93
Landslides	0.28	0.01
Rocky Outcrops	59.19	3.11
Moraines	14.27	0.75
Snow and Glacier	51.97	2.73
Alpine Scrubs	205.61	10.80
Sandy Bank	0.22	0.01





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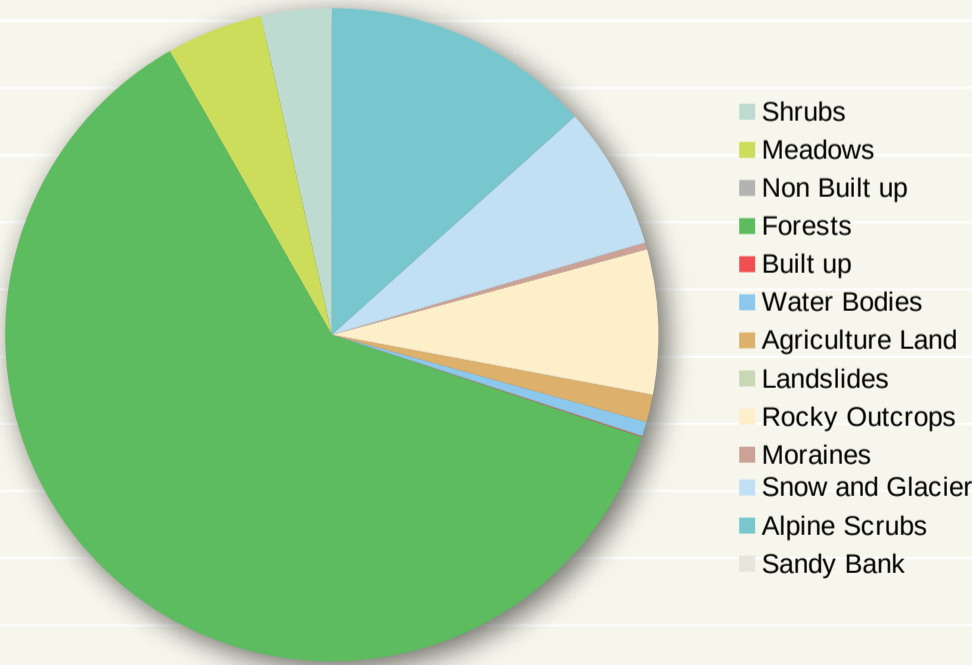
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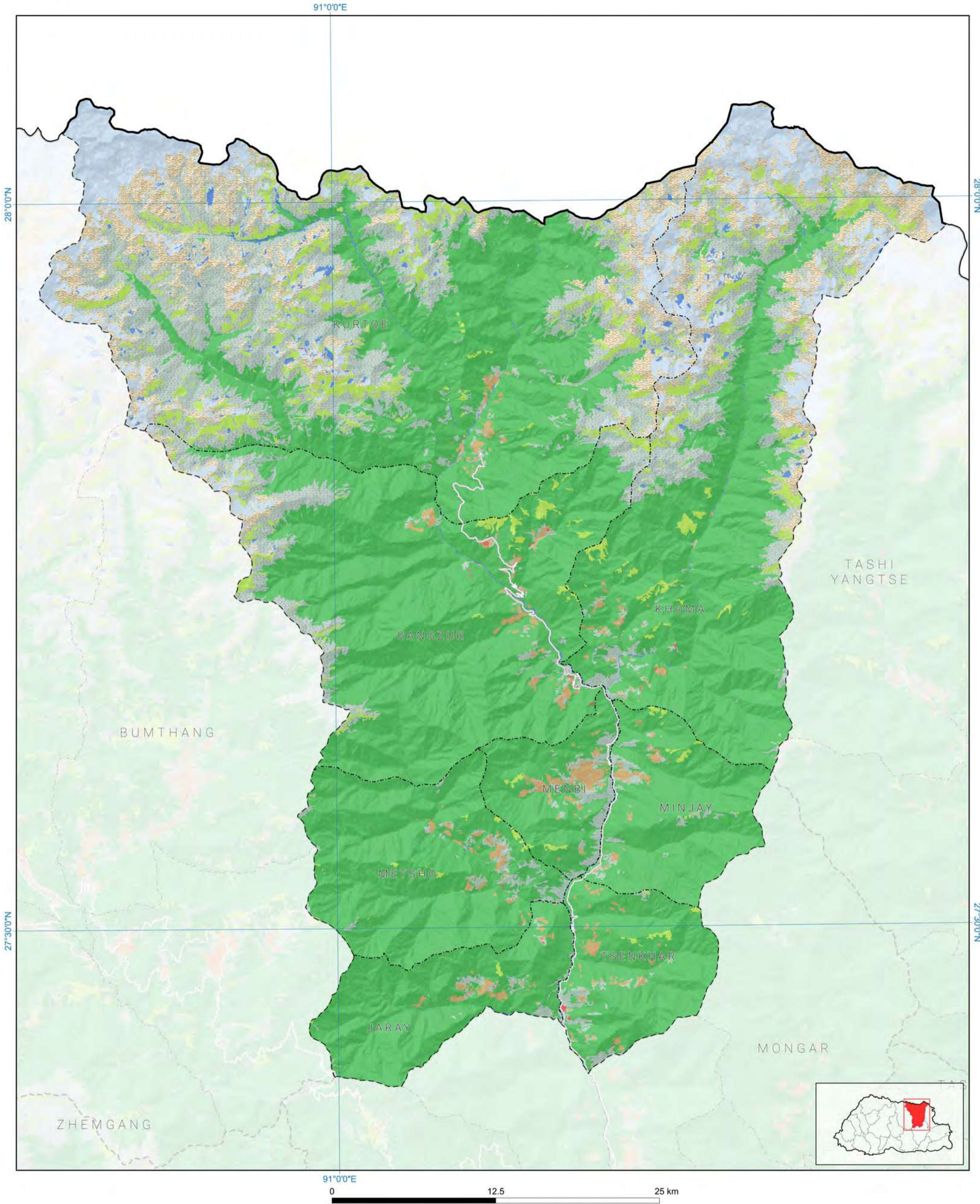


FACTSHEET

Lhuentse Dzongkhag is bordered by Bumthang to the west, Trashiyangtse to the east, and Mongar to the south. To the north, it shares its border with China. Covering an area of approximately 2860.973 square kilometers, Lhuentse comprises eight gewogs. The elevation in this region ranges from 800 meters to 6500 meters above sea level. The Dzongkhag is characterized by an extensive forest cover, accounting for approximately 61.67% of its total area. Additionally, there are other significant land cover types such as Alpine scrubs, Rocky Outcrops, Meadows, and Shrubs, among others.

Land cover class	Area(km²)	Area (%)
Shrubs	99.74	3.49
Meadows	136.54	4.77
Non Built up	0.08	0.00
Forests	1764.34	61.67
Built up	1.34	0.05
Water Bodies	20.48	0.72
Agriculture Land	38.73	1.35
Landslides	0.20	0.01
Rocky Outcrops	204.90	7.16
Moraines	9.60	0.34
Snow and Glacier	202.98	7.09
Alpine Scrubs	381.97	13.35
Sandy Bank	0.07	0.00





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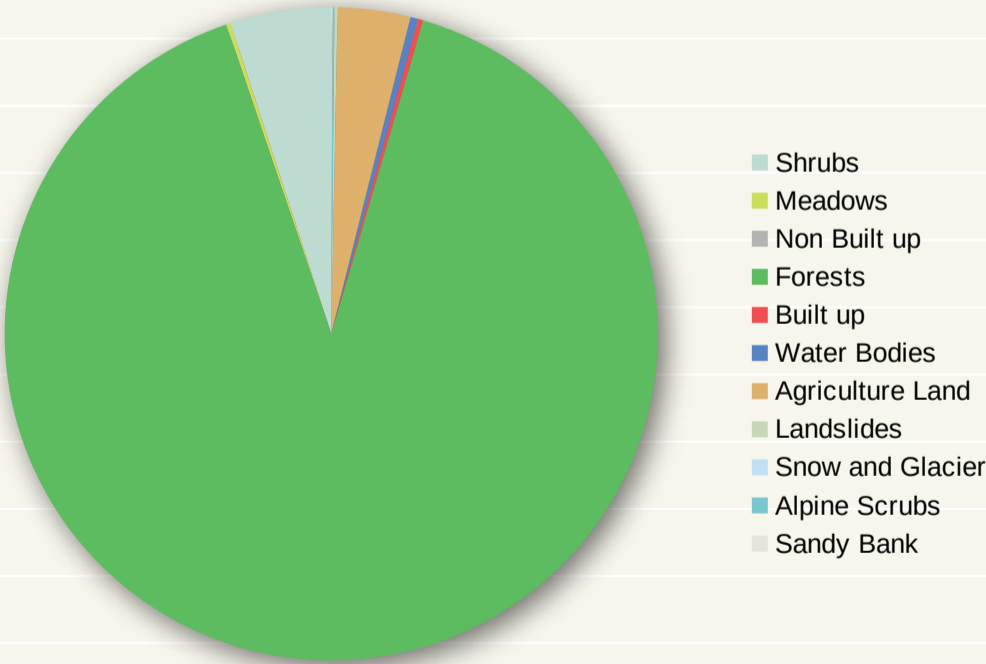
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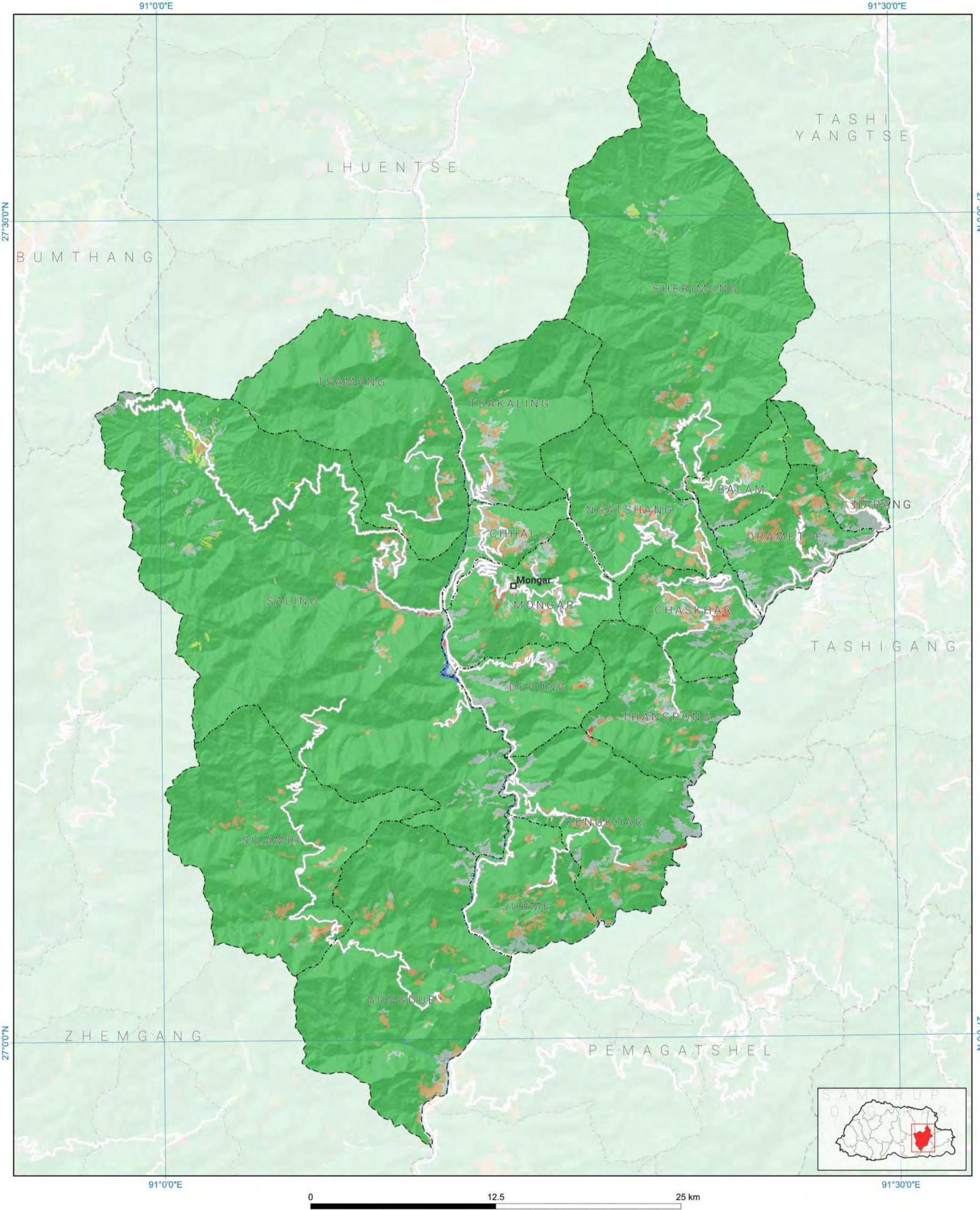


FACTSHEET

Mongar Dzongkhag is situated at elevations ranging from 400 meters to 4000 meters above sea level. It shares its borders with six other Dzongkhags, namely Transhigang, Trashiyangtse, Lhuentse, Bumthang, Zhemgang, and Pemagatshel. Administratively, the Dzongkhag is divided into seventeen gewogs and one Drungkhag. Covering an area of approximately 1946.901 square kilometers, the Dzongkhag spans elevations between 300 meters to 4200 meters above sea level. Forests cover a significant portion, approximately 90.24%, of the total area of Mongar Dzongkhag. Agriculture land makes up 3.59%, showing a slight increase from the previous Land Use and Land Cover report in 2016.

Land cover class	Area(km²)	Area (%)
Shrubs	97.21	4.99
Meadows	4.13	0.21
Non Built up	0.28	0.01
Forests	1756.94	90.24
Built up	5.02	0.26
Water Bodies	7.35	0.38
Agriculture Land	69.86	3.59
Landslides	2.99	0.15
Snow and Glacier	0.00	0.00
Alpine Scrubs	1.88	0.10
Sandy Bank	1.24	0.06





- | | | | |
|------------------------|-------------------|----------------|-------------------|
| builtup | forest | alpine scrubs | waterbodies |
| non-built-up | meadows | landslides | snow and glaciers |
| | agricultural land | rocky outcrops | sandy bank |
| | shrubs | moraines | |
| International boundary | Dzongkhag centers | | |
| Dzongkhag boundary | Highway | | |
| Gewog boundary | | | |

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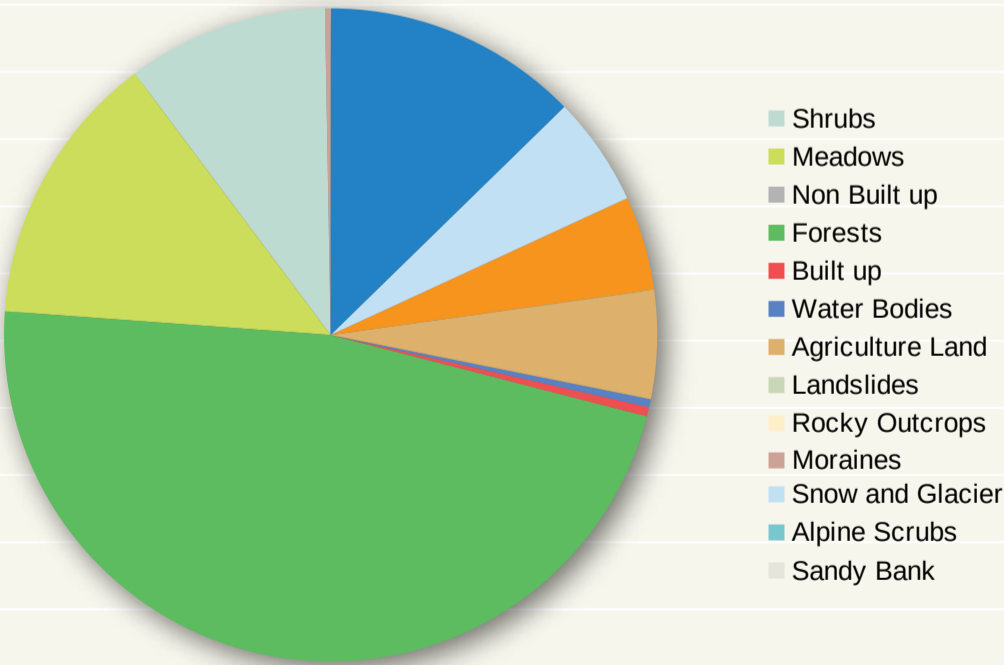
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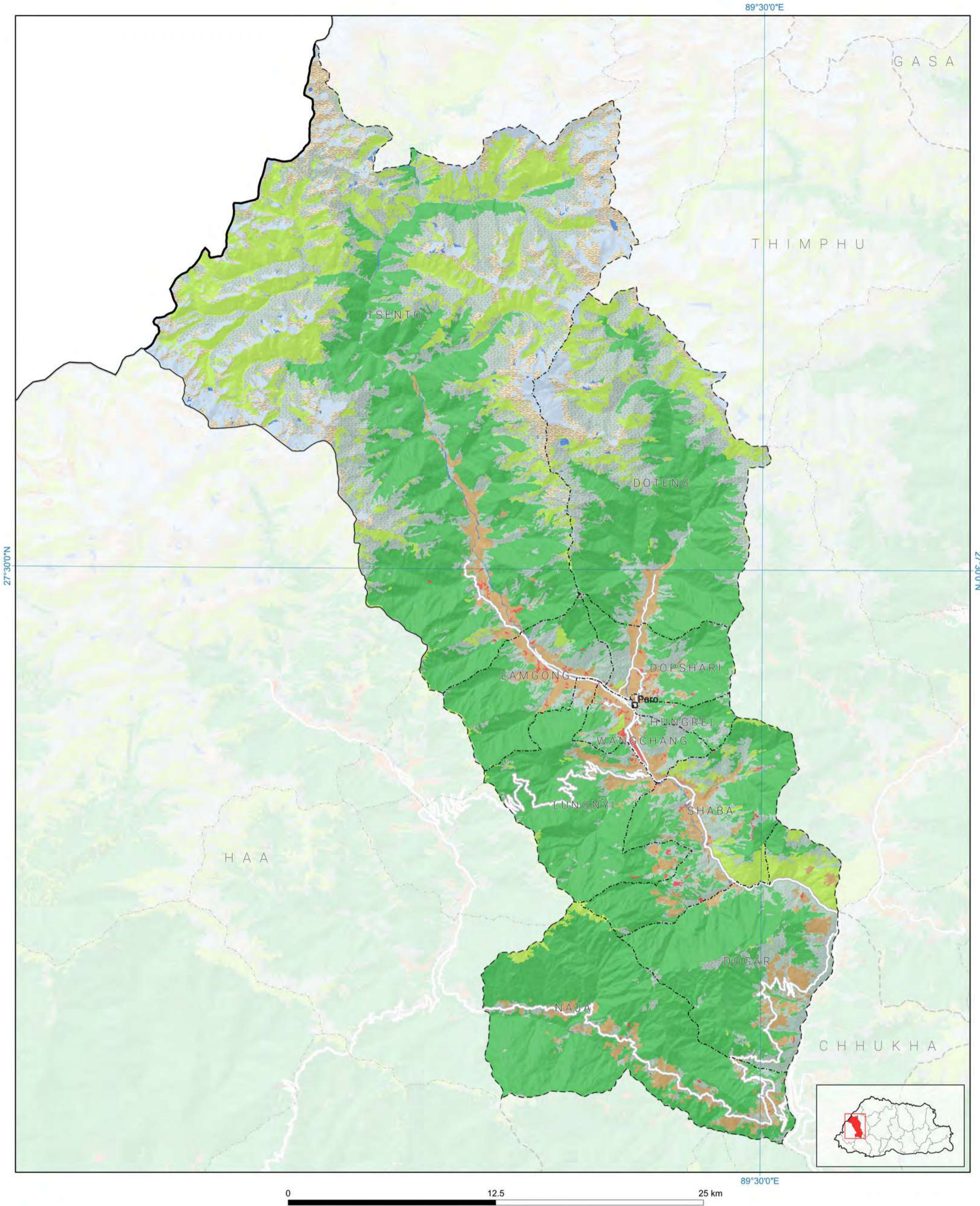
FACTSHEET

Paro Dzongkhag is positioned to the east of Haa and to the west of Thimphu Dzongkhag. It encompasses a geographical area of approximately 1285.094 square kilometers, comprising eight gewogs popularly known as Tsho Chen Gyed. The elevation in Paro Dzongkhag ranges from 2000 meters to 5600 meters above sea level. Notably, the beautiful Paro valley is home to the only international airport in the country.

The dominant land cover in the region is forest, covering approximately 47.14% of the total area of Paro Dzongkhag. Agriculture land is also prominently featured, surpassing most other land cover types and ranking as the third highest among all Dzongkhags in the country.

Land cover class	Area(km²)	Area (%)
Shrubs	127.96	9.96
Meadows	174.85	13.61
Non Built up	0.07	0.01
Forests	605.75	47.14
Built up	5.90	0.46
Water Bodies	5.17	0.40
Agriculture Land	68.77	5.35
Landslides	0.32	0.02
Rocky Outcrops	59.86	4.66
Moraines	3.58	0.28
Snow and Glacier	69.77	5.43
Alpine Scrubs	163.01	12.68
Sandy Bank	0.09	0.01





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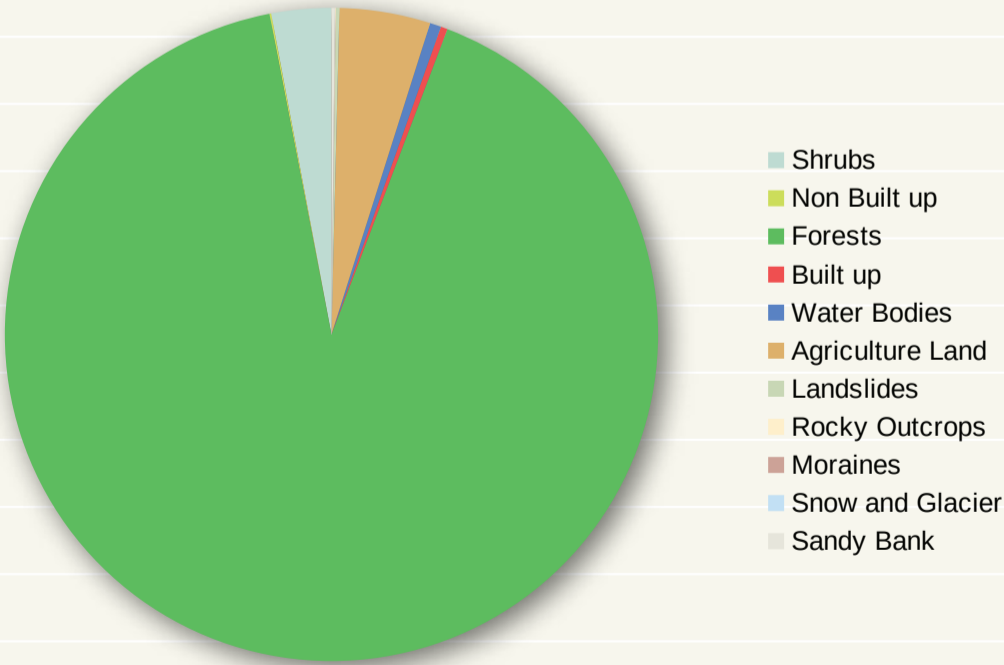
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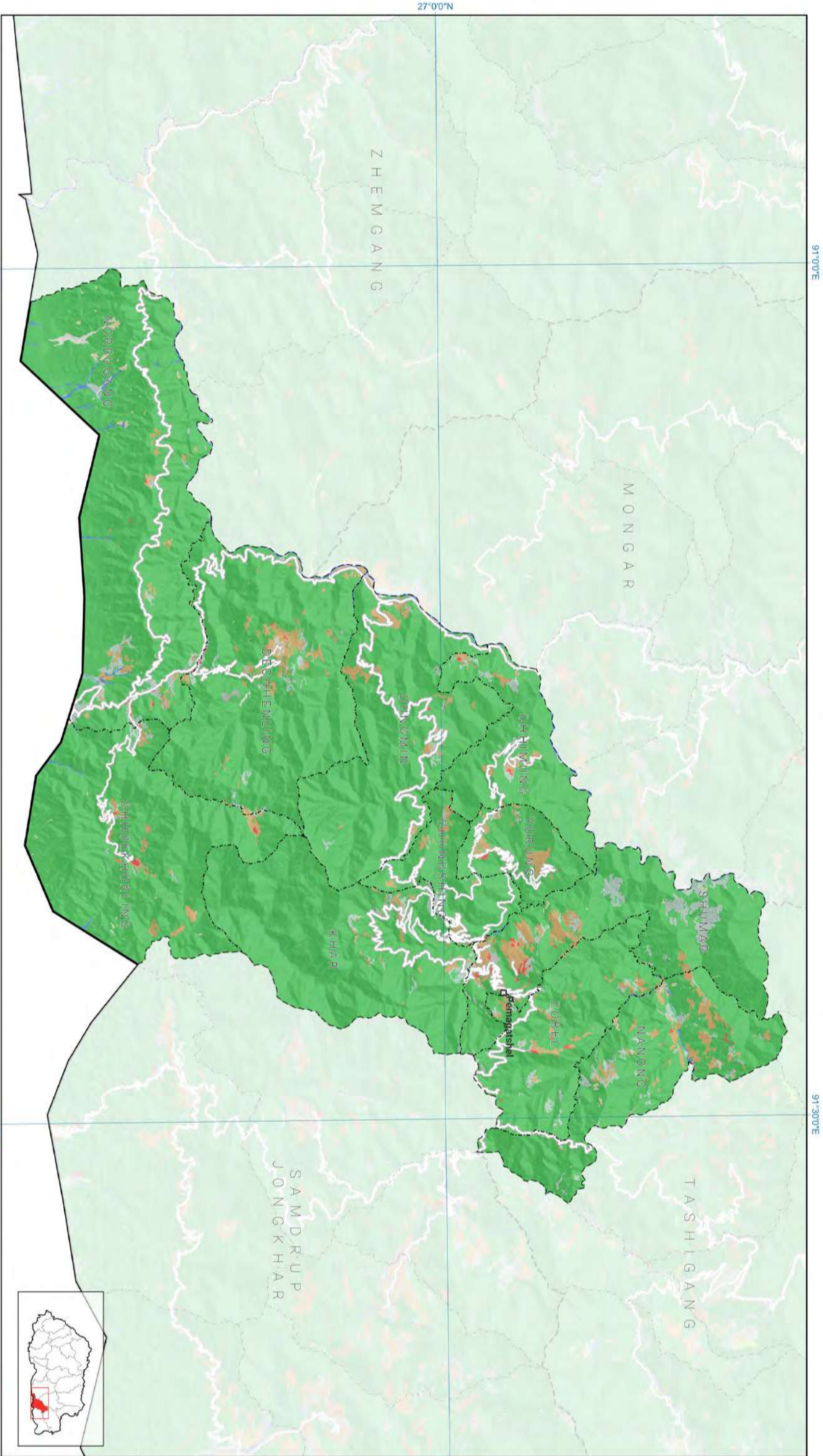
Pemagatshel Dzongkhag is situated in the southeastern part of Bhutan. It shares its borders with Mongar, Transhigang, Samdrupjongkhar, and Zhemgang Dzongkhags. Additionally, the Dzongkhag shares its southern border with the Indian state of Assam. It is subdivided into eleven gewogs, with one Drungkhag administration, covering an area of approximately 1023.41 square kilometers.

The elevation in Pemagatshel Dzongkhag ranges from 1000 meters to 3500 meters above sea level. The region is characterized by highly dissected mountain ranges, steep slopes, and narrow valleys. Despite these challenging geographical features, the majority of the population relies on agriculture farming as their primary livelihood.

Pemagatshel Dzongkhag claims a significant forest cover, occupying approximately 91.18% of the total area. Among other land cover classes, agriculture land accounts for 4.50% of the Dzongkhag region.

Land cover class	Area(km²)	Area (%)
Shrubs	30.27	2.96
Non Built up	0.87	0.08
Forests	933.17	91.18
Built up	3.43	0.33
Water Bodies	5.67	0.55
Agriculture Land	46.03	4.50
Landslides	1.81	0.18
Rocky Outcrops	0.43	0.04
Moraines	0.00	0.00
Snow and Glacier	0.00	0.00
Sandy Bank	1.74	0.17





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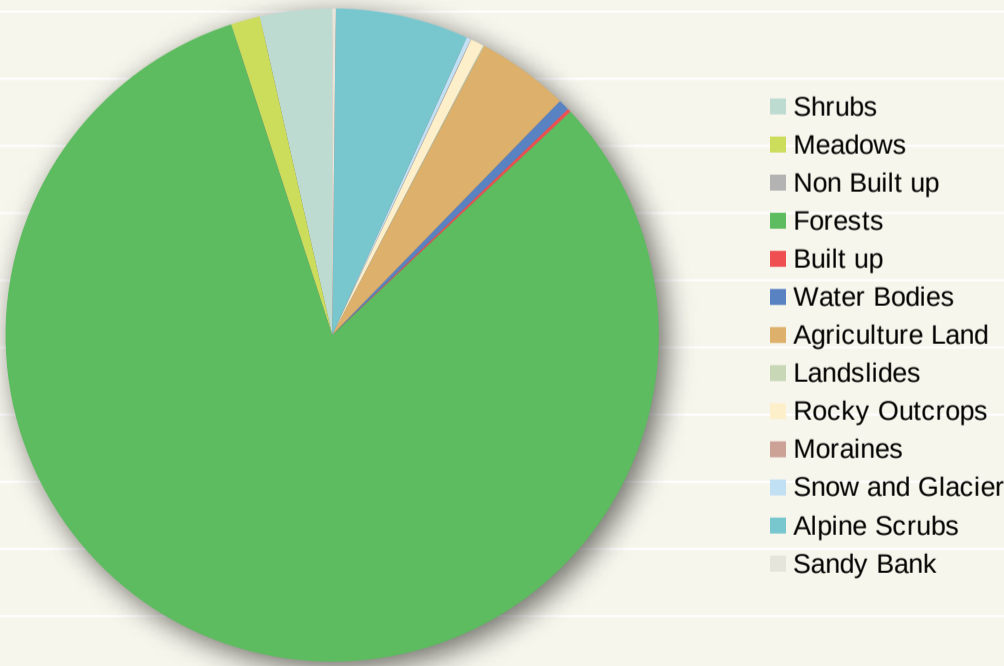
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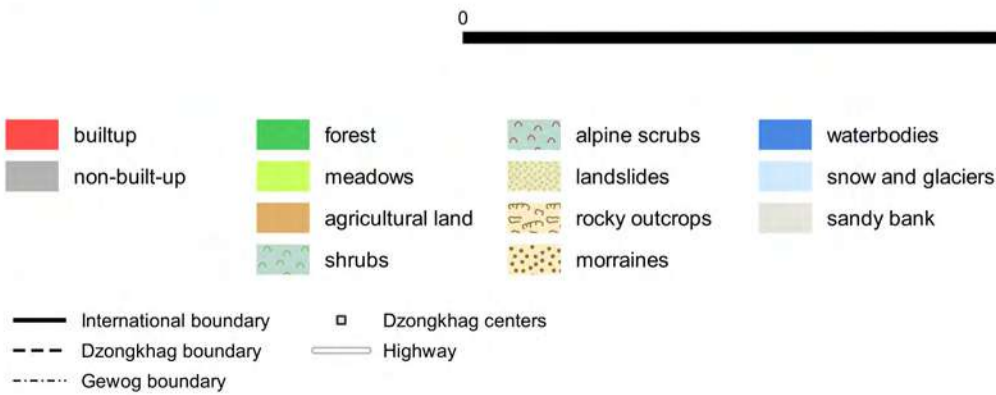
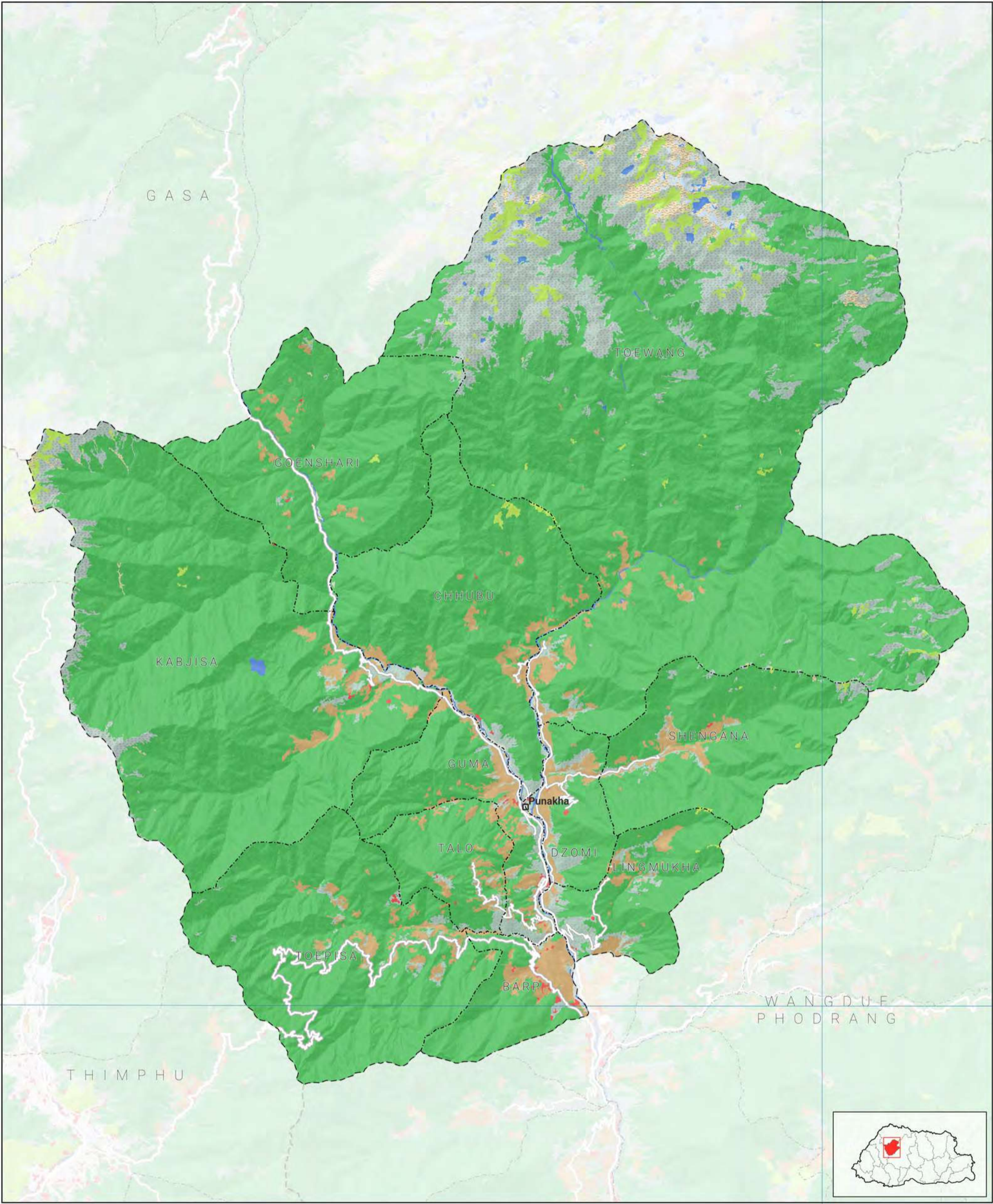


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Punakha Dzongkhag is located in the western region of Bhutan and shares borders with Gasa to the north, Thimphu to the west, and Wangdiphodrang to the east and south. Covering an area of approximately 1110.793 square kilometers, the Dzongkhag experiences elevations ranging from 1000 meters to 4800 meters above sea level. The dominant land cover in Punakha Dzongkhag is forest, covering approximately 81.99% of the total area. Additionally, about 4.59% of the Dzongkhag area is designated as agricultural land.

Land cover class	Area(km²)	Area (%)
Shrubs	39.55	3.56
Meadows	16.02	1.44
Non Built up	0.02	0.00
Forests	910.69	81.99
Built up	1.87	0.17
Water Bodies	6.16	0.55
Agriculture Land	50.93	4.59
Landslides	0.50	0.04
Rocky Outcrops	7.29	0.66
Moraines	0.26	0.02
Snow and Glacier	2.38	0.21
Alpine Scrubs	73.16	6.59
Sandy Bank	1.96	0.18





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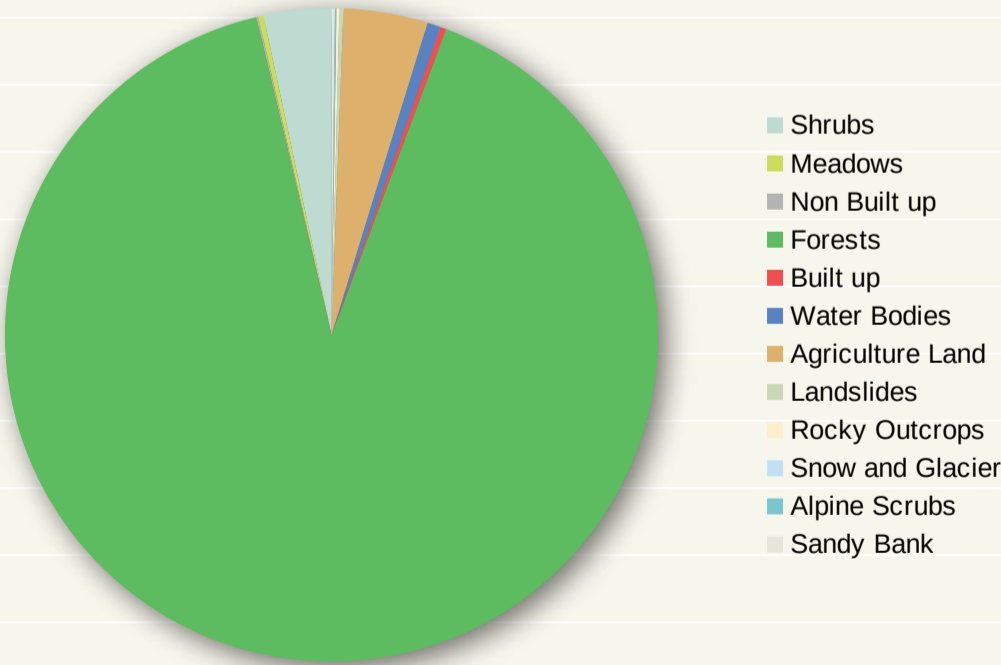
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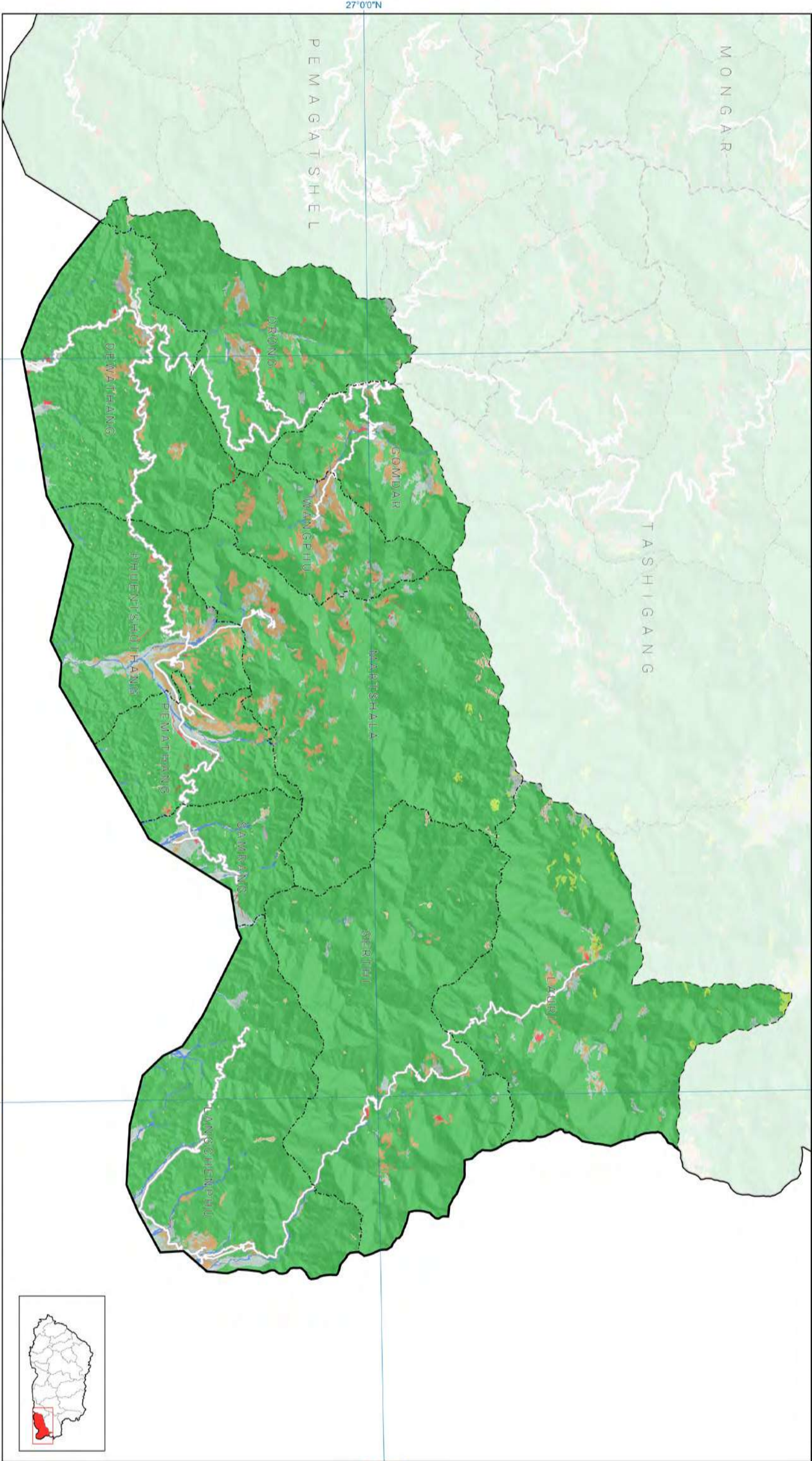
Samdrupjongkhar Dzongkhag is situated in the South-Eastern region of Bhutan and shares its border with the Indian state of Assam, as well as two other Dzongkhags, namely Trashigang and Pemagatshel. It is administratively divided into eleven gewogs and one Drungkhag administration, encompassing an area of approximately 1871.941 square kilometers.

The Dzongkhag features highly dissected mountain ranges, steep slopes, and narrow valleys. The elevation in this region ranges from 200 meters to 4300 meters above sea level.

Forest cover dominates the landscape of Samdrupjongkhar Dzongkhag, accounting for about 90.60% of the total area. Agriculture land covers approximately 4.17% of the Dzongkhag area.

Land cover class	Area(km²)	Area (%)
Shrubs	62.62	3.35
Meadows	4.93	0.26
Non Built up	1.67	0.09
Forests	1695.91	90.60
Built up	5.44	0.29
Water Bodies	12.43	0.66
Agriculture Land	78.05	4.17
Landslides	3.69	0.20
Rocky Outcrops	2.72	0.15
Snow and Glacier	0.00	0.00
Alpine Scrubs	1.43	0.08
Sandy Bank	3.05	0.16





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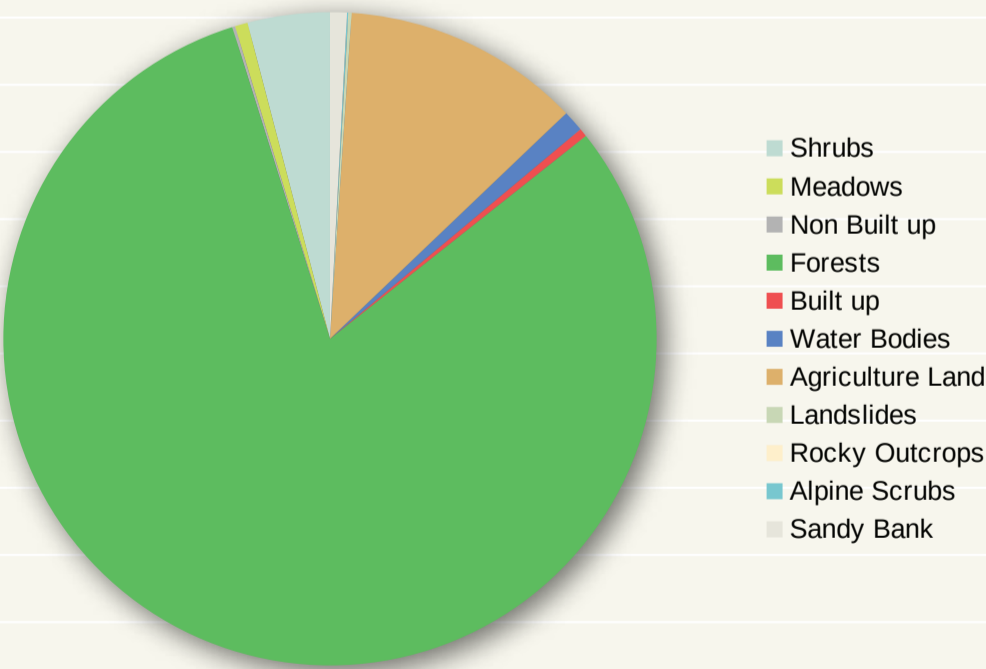


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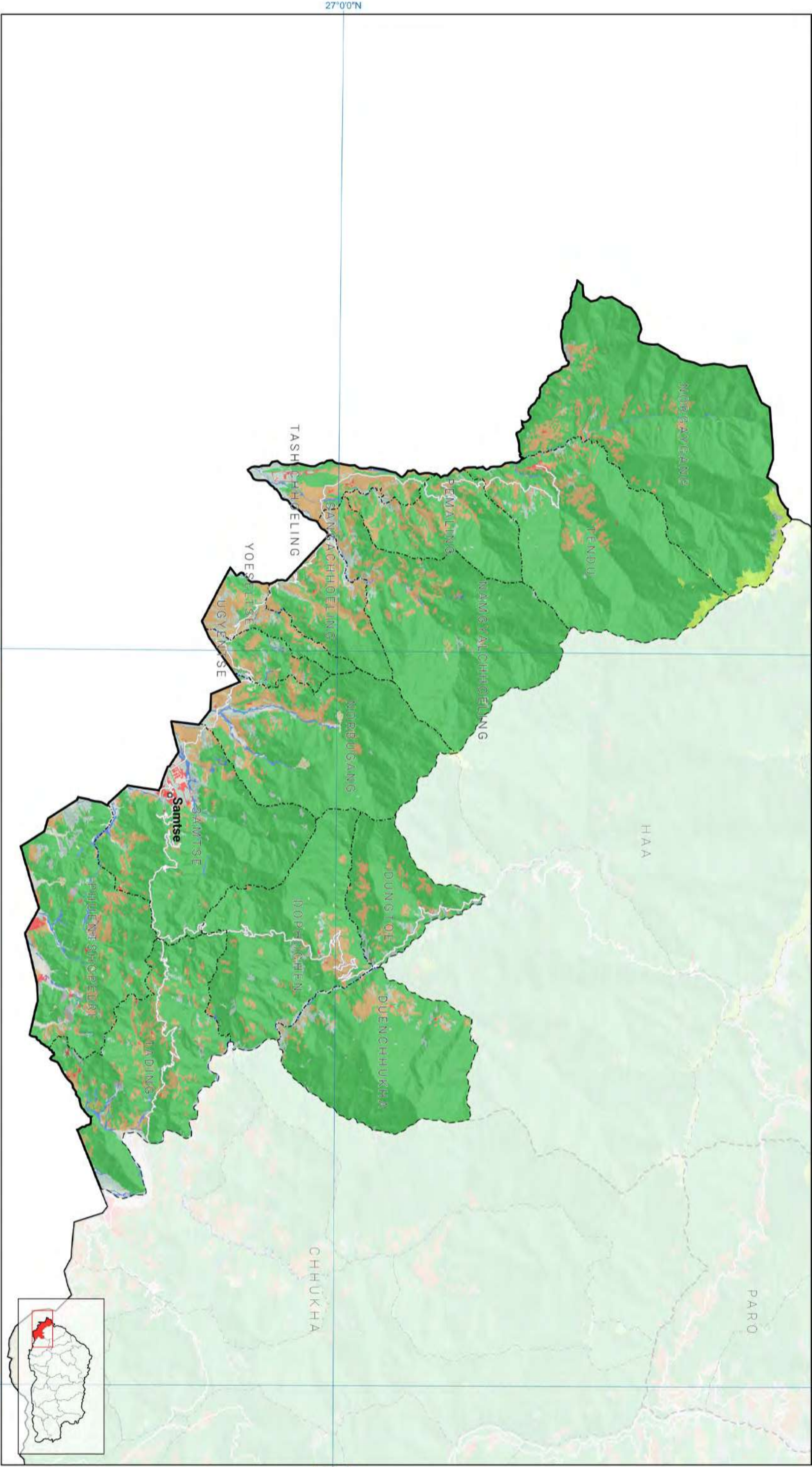
Samtse Dzongkhag covers an area of 1300.85 square kilometers and is divided into two Drungkhags (Dorokha & Sipsu) administration and fifteen gewogs. It is bordered by Chhukha Dzongkhag to the east, Haa Dzongkhag to the north, and the Indian states of West Bengal and Sikkim to the south and west, respectively. The elevation in this region ranges approximately from 200 meters to 4200 meters above sea level.

Samtse Dzongkhag is known for its rich biodiversity, with approximately 80.83% of its total area covered by forests. Additionally, it boasts the highest percentage of agricultural land among all Dzongkhags, with about 11.81% of the total area being used for agriculture.

Land cover class	Area(km ²)	Area (%)
Shrubs	52.93	4.07
Meadows	8.20	0.63
Non Built up	1.82	0.14
Forests	1051.52	80.83
Built up	5.40	0.41
Water Bodies	13.62	1.05
Agriculture Land	153.62	11.81
Landslides	1.99	0.15
Rocky Outcrops	0.12	0.01
Alpine Scrubs	0.84	0.06
Sandy Bank	10.79	0.83



Land Use Land Cover 2020



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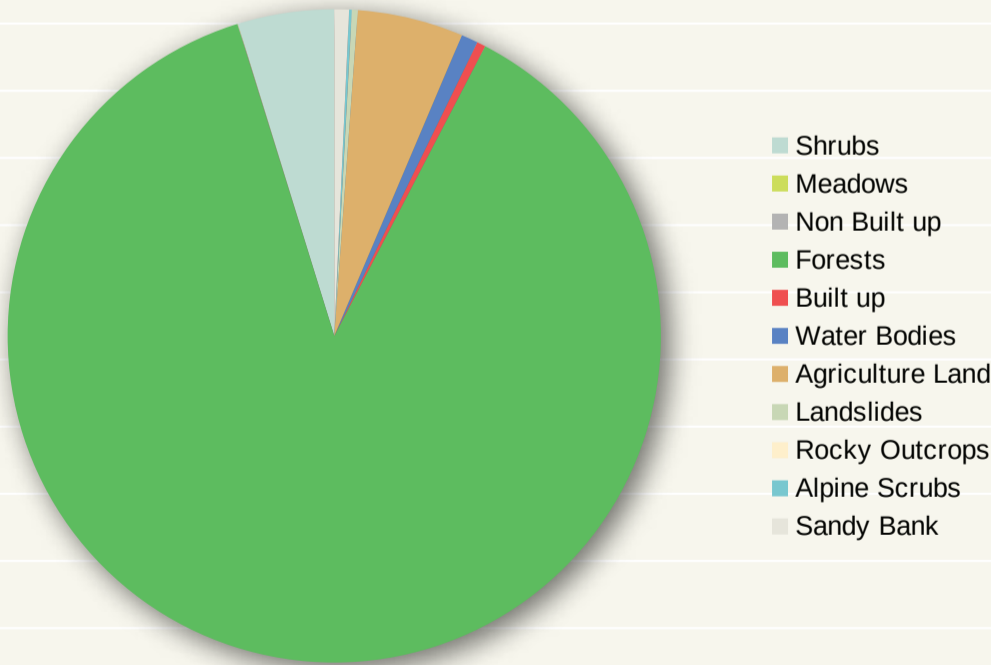
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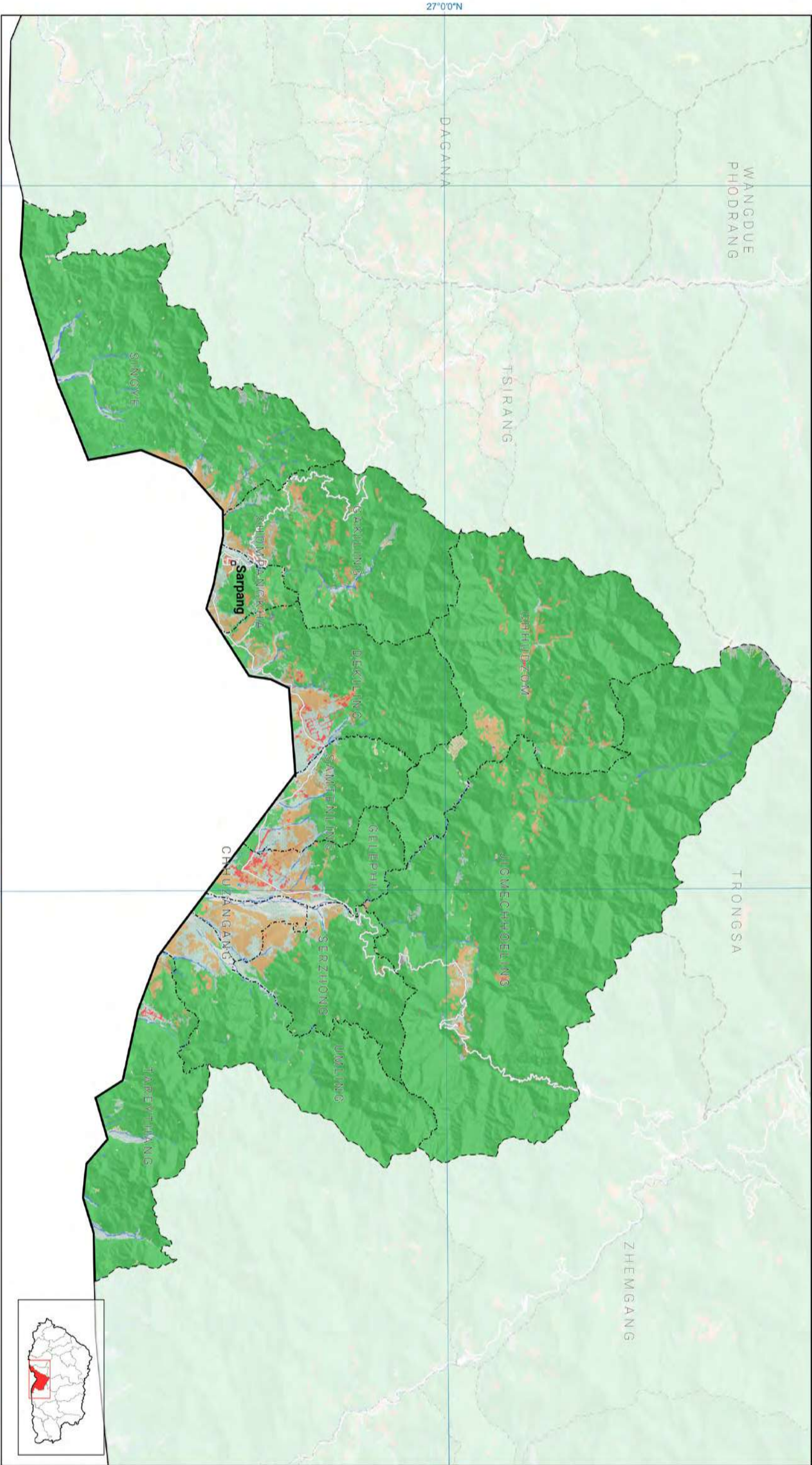


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Sarpang Dzongkhag is situated in the central part of southern Bhutan and serves as one of the three gateways to the country from India, through Gelephu. It shares its border with the Indian state of Assam to the south, and Zhemgang and Tsirang Dzongkhags to the east and west, respectively. The Dzongkhag boasts a domestic airport connected to the international airport in Paro, making it an important economic hub of the country. Geographically, the Dzongkhag is divided into twelve gewogs, with one Thromde administration located in Gelephu. Sarpang Dzongkhag takes immense pride in its rich biodiversity, with forests covering approximately 87.55% of the total area. The Dzongkhag is home to two Wildlife Sanctuaries, namely Royal Manas Park and Phibsoo, which provide natural habitats to numerous species, including some that are globally endangered.

Land cover class	Area(km ²)	Area (%)
Shrubs	78.90	4.77
Meadows	0.19	0.01
Non Built up	0.37	0.02
Forests	1448.92	87.55
Built up	7.10	0.43
Water Bodies	13.72	0.83
Agriculture Land	86.74	5.24
Landslides	4.65	0.28
Rocky Outcrops	0.17	0.01
Alpine Scrubs	2.21	0.13
Sandy Bank	11.94	0.72





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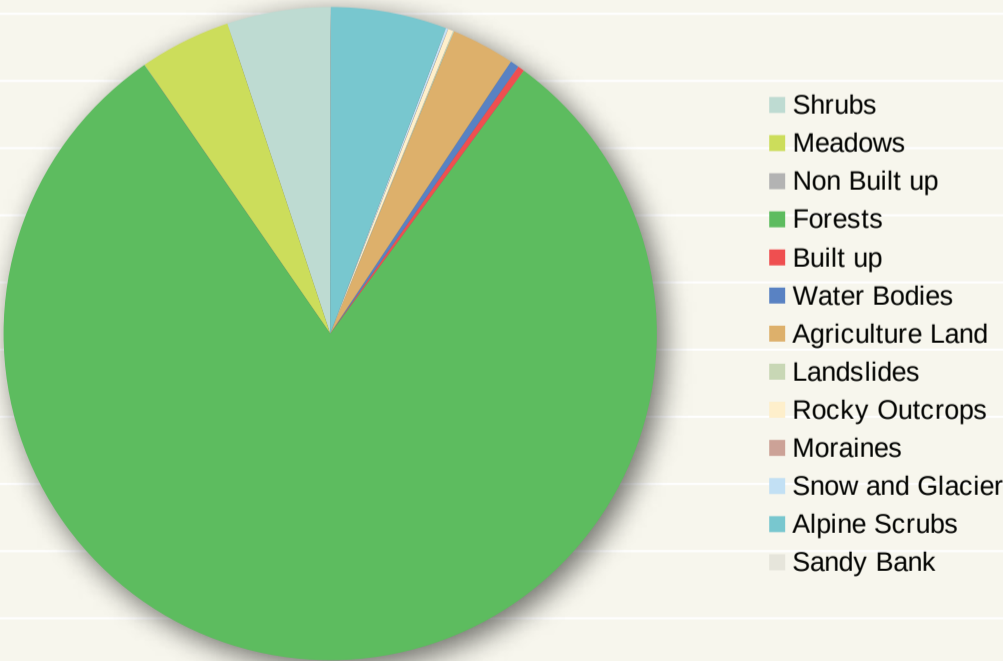


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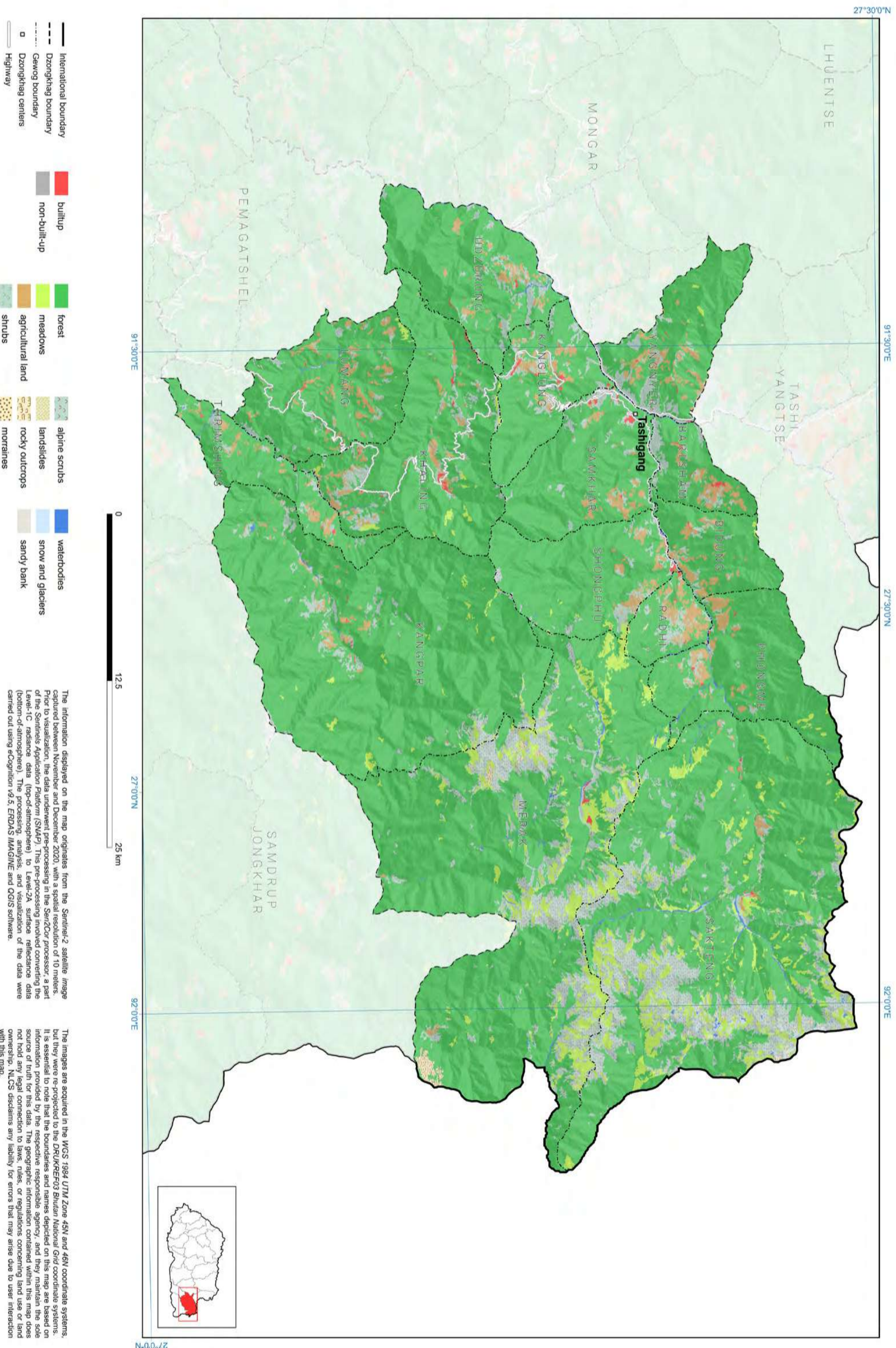
Trashigang is the largest and most populous Dzongkhag in Bhutan. Geographically, it is subdivided into three Drungkhag administrations: Sateng, Wamrong, and Thrimshing Drungkhag. The Dzongkhag comprises fifteen gewogs, covering an area of approximately 2202.617 square kilometers. The elevation in Trashigang ranges from 600 meters to 4500 meters above sea level.

Forest cover dominates the landscape of Trashigang Dzongkhag, accounting for approximately 80.27% of the total area. Agriculture land covers about 3.14% of the Dzongkhag area.

Land cover class	Area(km²)	Area (%)
Shrubs	112.35	5.10
Meadows	99.57	4.52
Non Built up	0.16	0.01
Forests	1768.01	80.27
Built up	7.32	0.33
Water Bodies	9.68	0.44
Agriculture Land	69.16	3.14
Landslides	1.14	0.05
Rocky Outcrops	5.62	0.26
Moraines	0.21	0.01
Snow and Glacier	2.51	0.11
Alpine Scrubs	126.54	5.75
Sandy Bank	0.34	0.02



Land Use Land Cover 2020

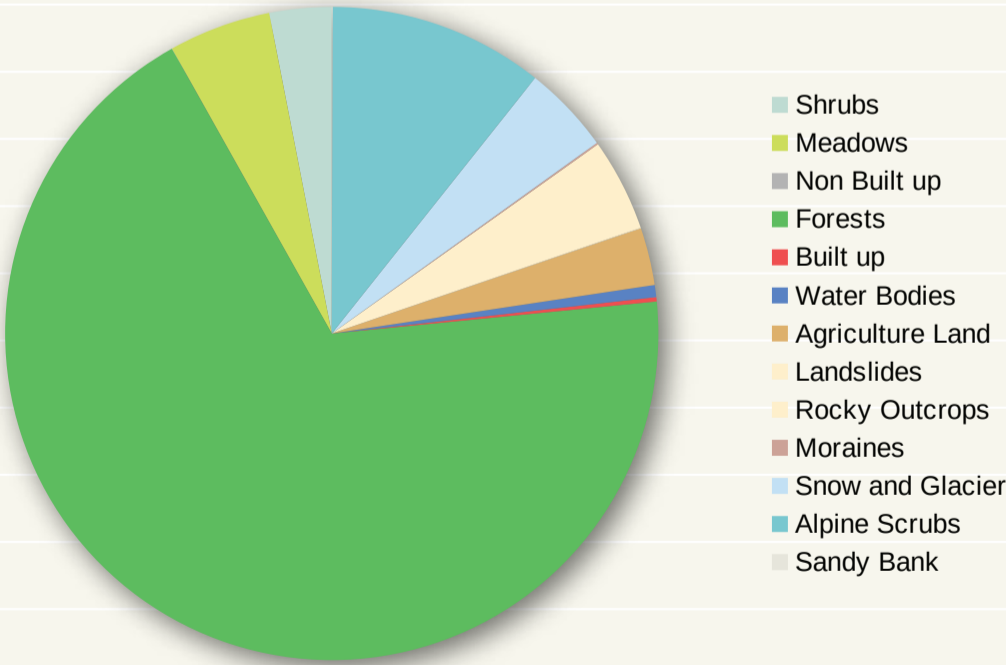




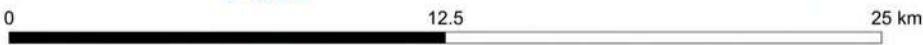
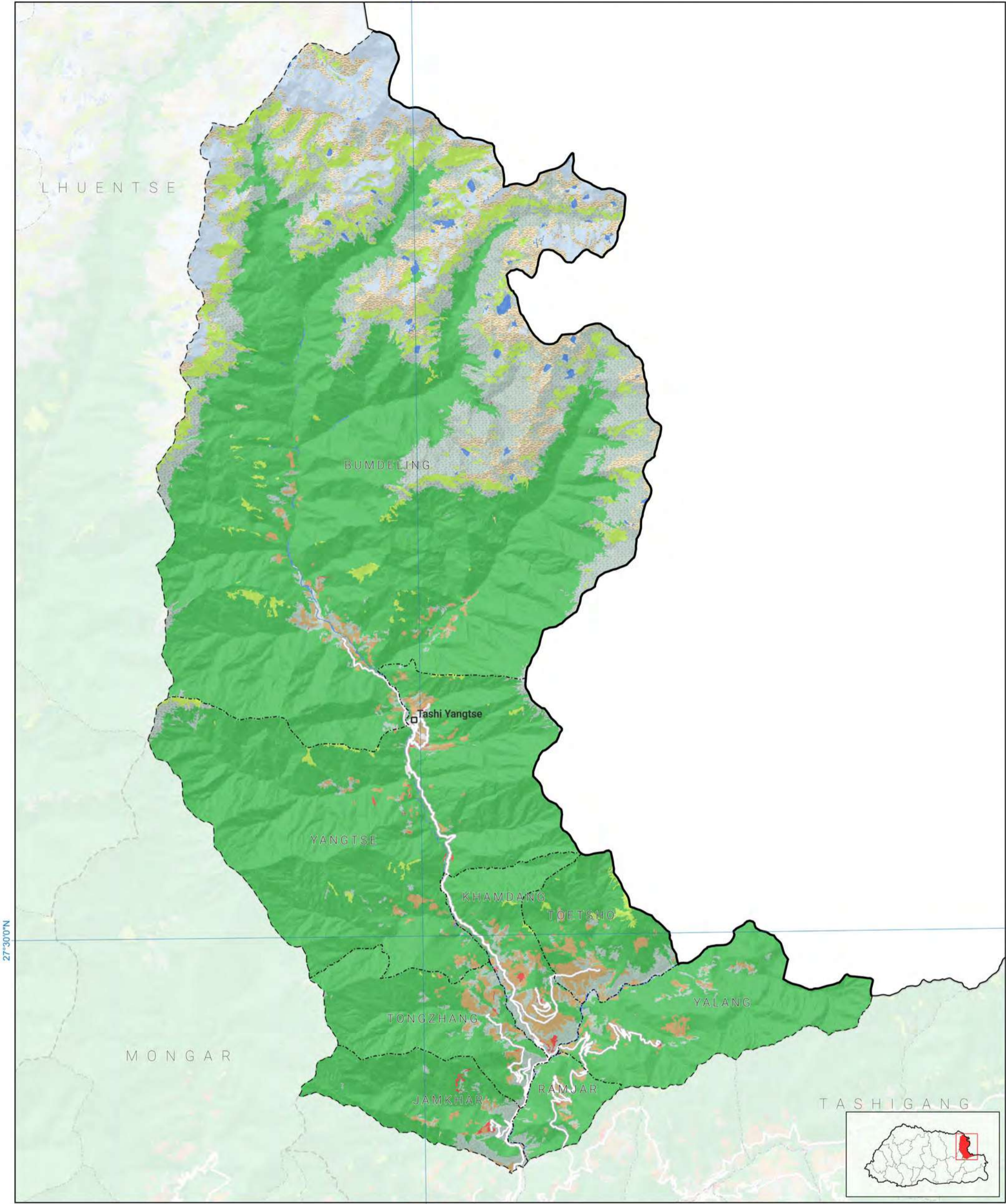
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Transhiyangtse Dzongkhag is located in the northeastern part of Bhutan, sharing its borders with China to the north and the Indian state of Arunachal Pradesh to the east. Additionally, it is bordered by three other Dzongkhags, namely Trashigang, Mongar, and Lhuentse. The entire Dzongkhag spans an area of about 1449.275 square kilometers, comprising eight gewogs. The elevation in Transhiyangtse ranges from 800 meters to 6000 meters above sea level. The Dzongkhag is characterized by a significant forest cover, occupying approximately 68.42% of the total area.

Land cover class	Area(km ²)	Area (%)
Shrubs	44.55	3.07
Meadows	73.42	5.07
Non Built up	0.03	0.00
Forests	991.65	68.42
Built up	3.11	0.21
Water Bodies	8.63	0.60
Agriculture Land	41.19	2.84
Landslides	0.42	0.03
Rocky Outcrops	66.51	4.59
Moraines	1.20	0.08
Snow and Glacier	63.51	4.38
Alpine Scrubs	154.51	10.66
Sandy Bank	0.55	0.04



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- | | | | |
|--|---|--|---|
|  builtup |  forest |  alpine scrubs |  waterbodies |
|  non-built-up |  meadows |  landslides |  snow and glaciers |
| |  agricultural land |  rocky outcrops |  sandy bank |
| |  shrubs |  moraines | |
-
- | | |
|--|---|
|  International boundary |  Dzongkhag centers |
|  Dzongkhag boundary |  Highway |
|  Gewog boundary | |

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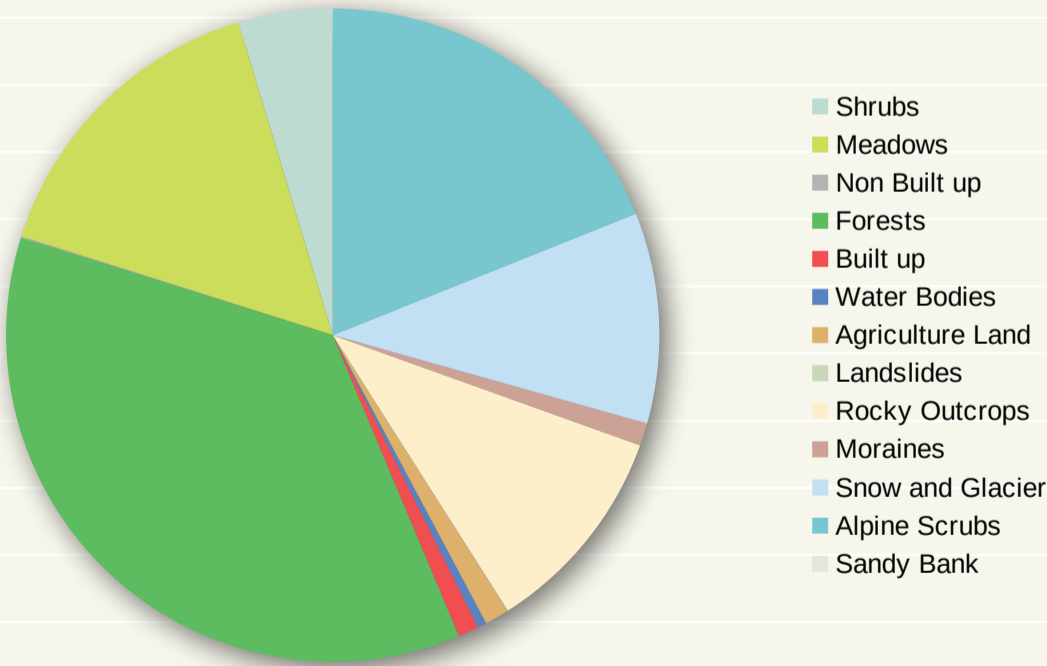
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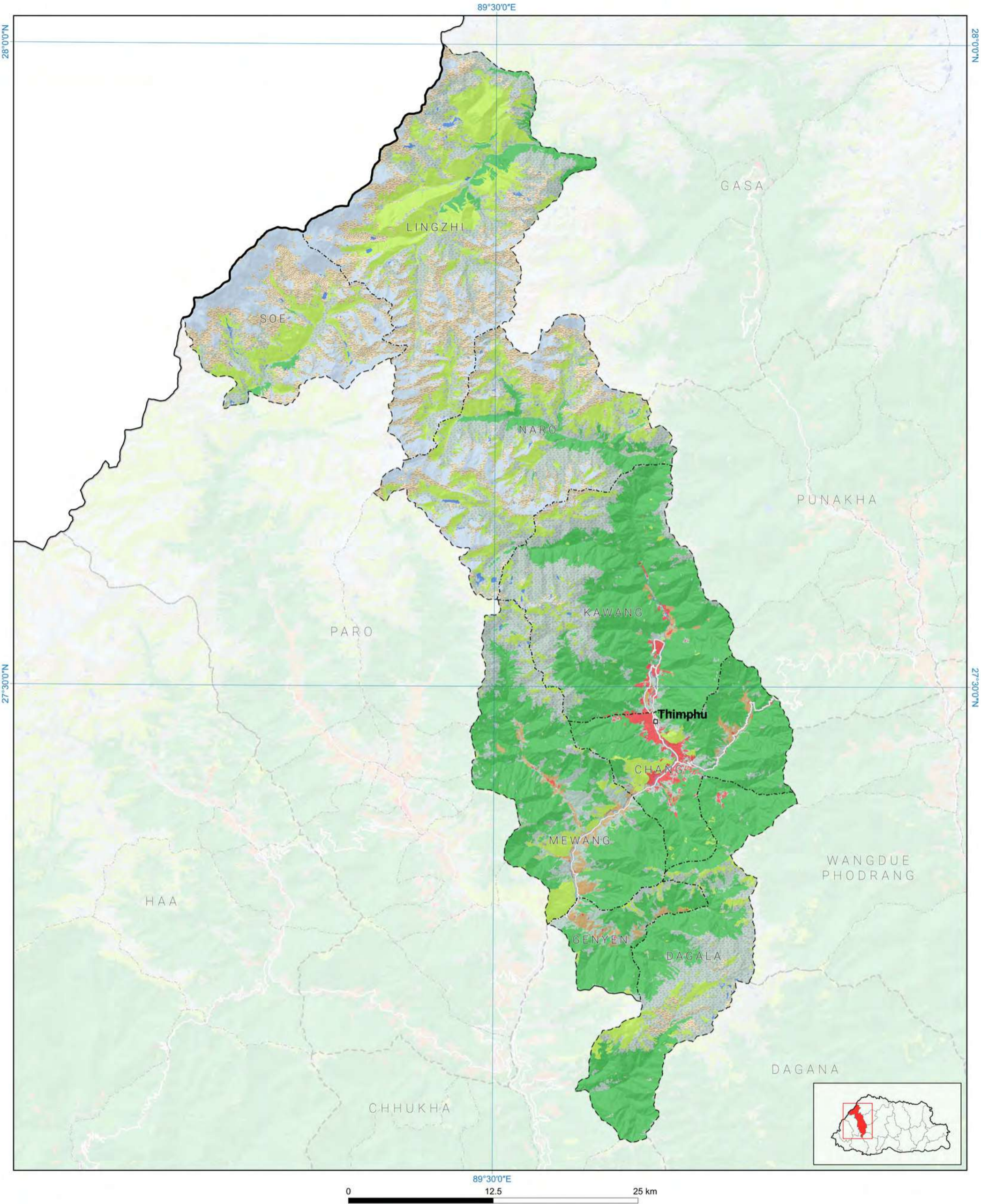


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Thimphu, the capital of Bhutan, is located in the western part of the country and shares its border with China to the north, Paro Dzongkhag to the west, and Chhukha and Punakha Dzongkhags to the south and east, respectively. Thimphu covers a geographical area of about 1796.228 square kilometers and is divided into eight gewogs. The Dzongkhag is situated at elevations ranging from 2000 meters to 6800 meters above sea level. It has a forest cover of approximately 36.15% of the total area.

Land cover class	Area(km ²)	Area (%)
Shrubs	83.79	4.66
Meadows	277.52	15.45
Non Built up	1.11	0.06
Forests	649.26	36.15
Built up	18.56	1.03
Water Bodies	7.92	0.44
Agriculture Land	21.46	1.19
Landslides	0.43	0.02
Rocky Outcrops	188.64	10.50
Moraines	20.03	1.12
Snow and Glacier	187.36	10.43
Alpine Scrubs	340.15	18.94
Sandy Bank	0.01	0.00





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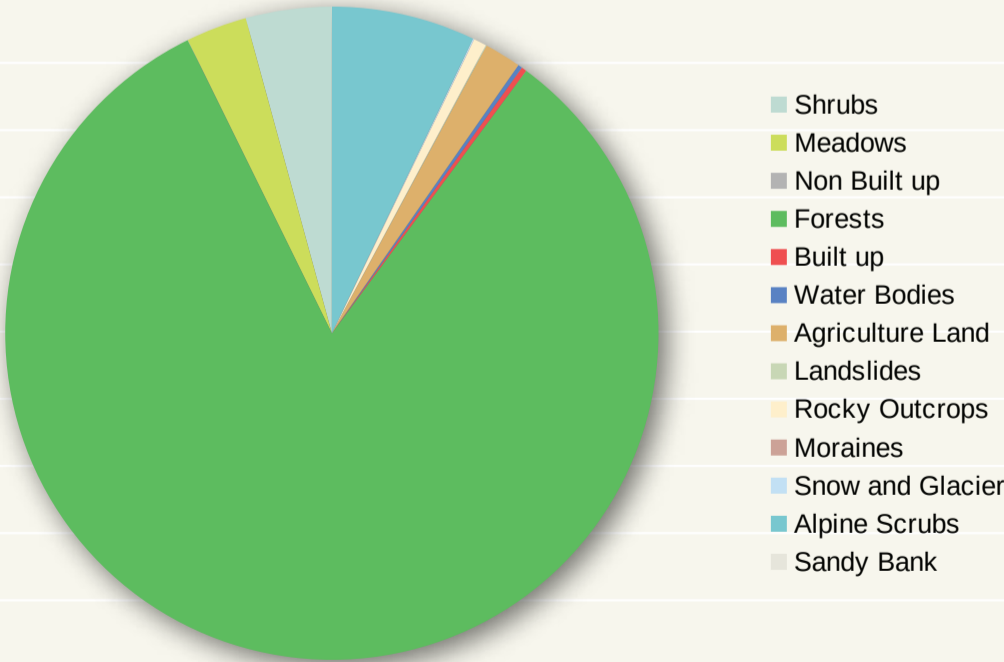
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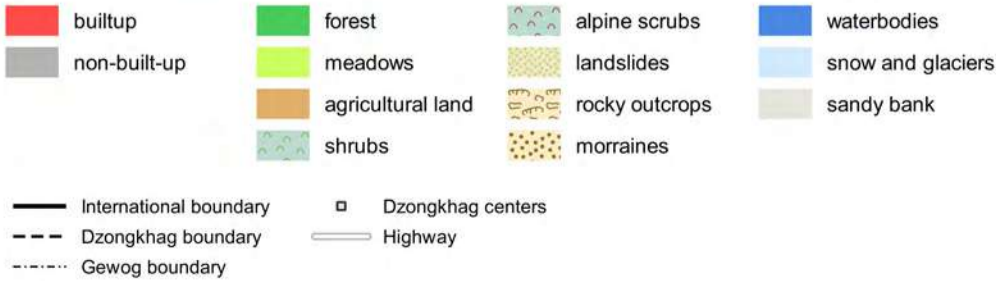
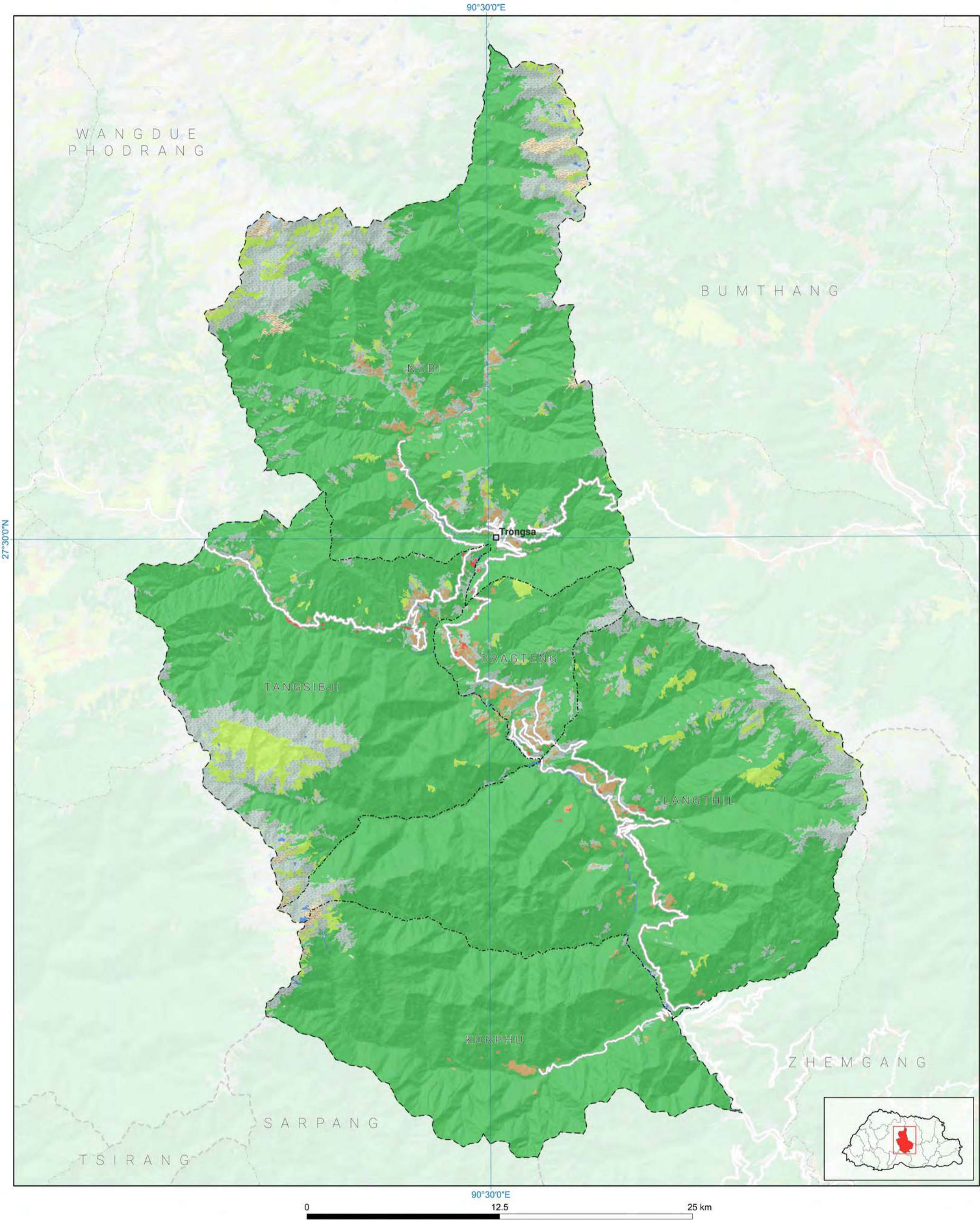


FACTSHEET

Trongsa Dzongkhag is situated in central Bhutan, bordered by Wangdiphodrang to the west, Bumthang to the east, and Zhemgang and Sarpang to the south. A significant portion of the Dzongkhag falls under the protected areas of Wangchuchk Centennial Park in the north and Jigme Singye Wangchuck National Park in the rest. Covering an area of approximately 1809.98 square kilometers, Trongsa Dzongkhag comprises five gewogs. The Dzongkhag is characterized by a substantial forest cover, with approximately 82.58% of the total area under forests. Due to the presence of narrow valleys and high mountains, agricultural land accounts for only 1.82% of the Dzongkhag area. The elevation in Trongsa ranges approximately from 600 meters to 5000 meters above sea level.

Land cover class	Area(km²)	Area (%)
Shrubs	76.97	4.25
Meadows	54.69	3.02
Non Built up	0.11	0.01
Forests	1494.61	82.58
Built up	4.65	0.26
Water Bodies	3.83	0.21
Agriculture Land	32.93	1.82
Landslides	0.73	0.04
Rocky Outcrops	11.59	0.64
Moraines	0.03	0.00
Snow and Glacier	1.03	0.06
Alpine Scrubs	128.68	7.11
Sandy Bank	0.14	0.01





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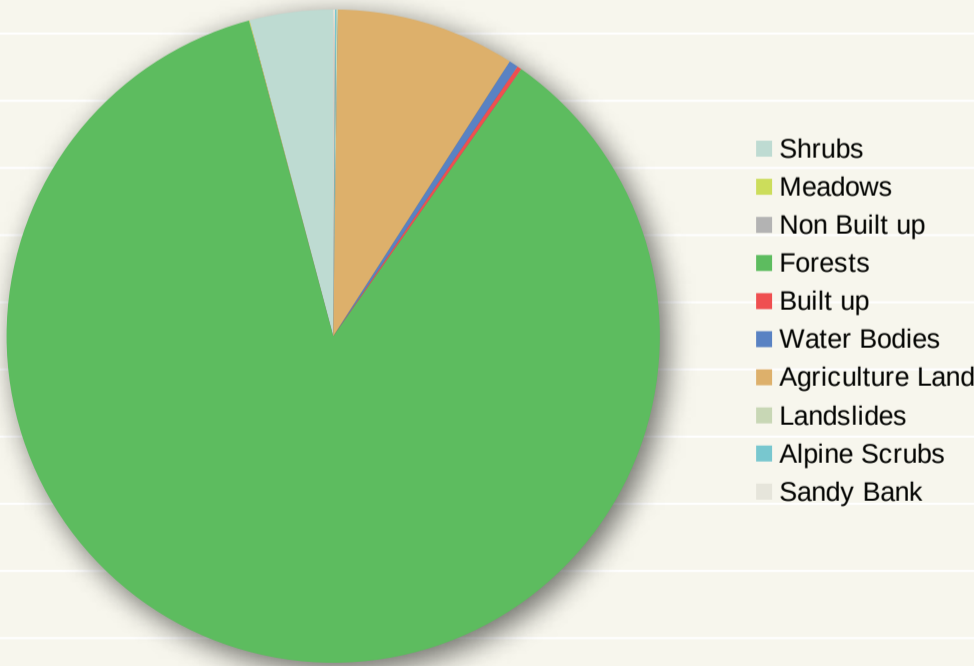
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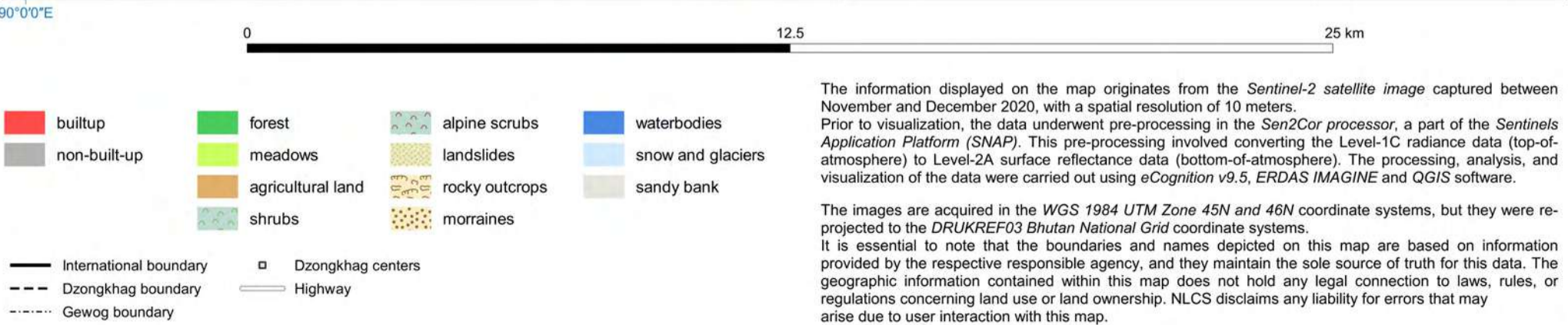
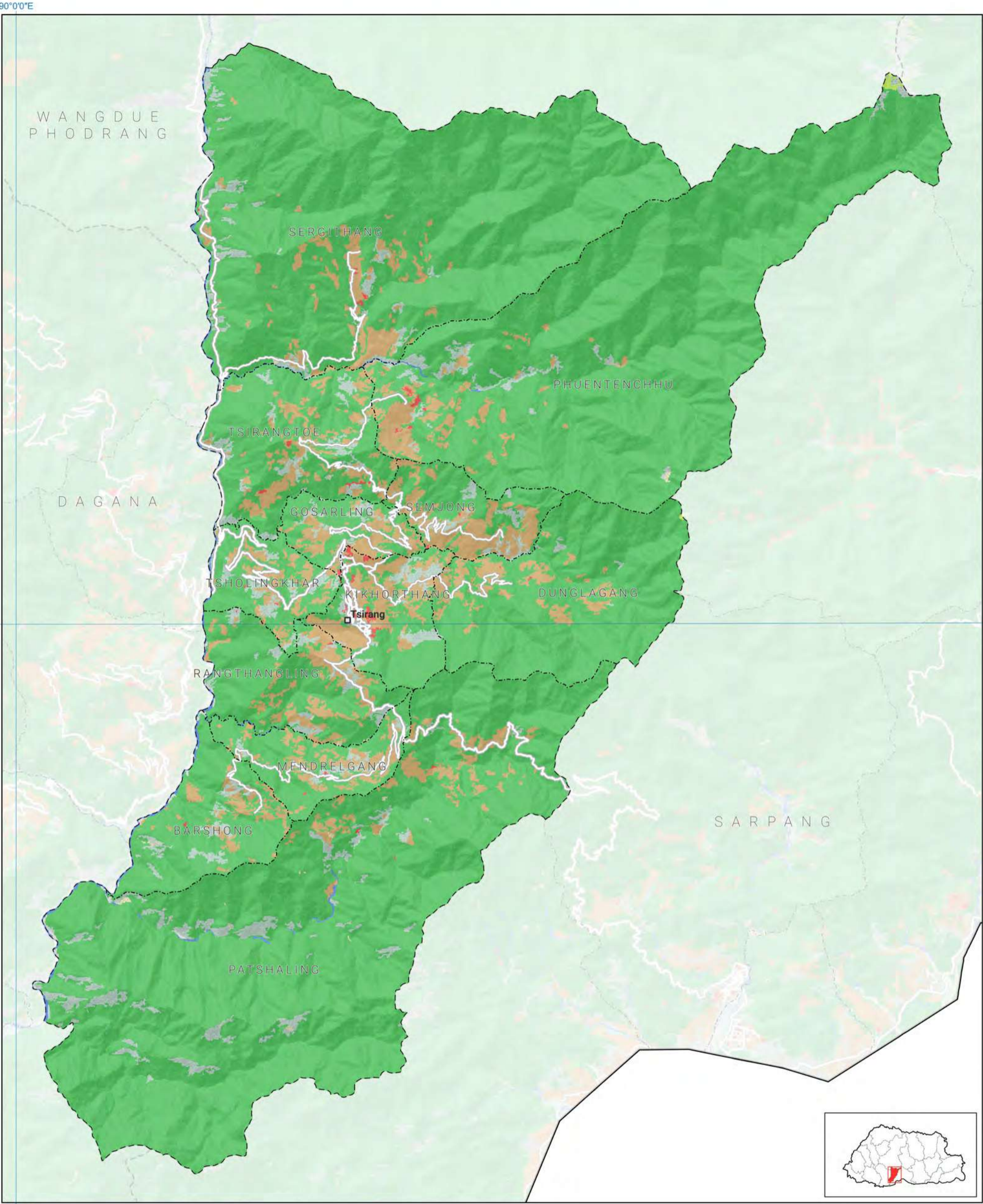


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Tsiang Dzongkhag is recognized for its gentle slopes and mild climates, making it a popular region for agricultural products. The area is also known for its rich biodiversity. However, unlike some other Dzongkhags, Tsiang does not have a protected area within its jurisdiction. It shares borders with Wangduephodrang, Dagana, and Sarpang Dzongkhags. Covering an area of approximately 637.485 square kilometers, the Dzongkhag is divided into twelve gewogs. Forests cover a significant portion of Tsiang Dzongkhag, approximately 86.08% of the total area. Surprisingly, the Dzongkhag ranks second highest in terms of agriculture land coverage, with approximately 8.86% of the total area being used for agricultural purposes. The elevation in Tsiang ranges from 300 meters to 4200 meters above sea level.

Land cover class	Area(km ²)	Area (%)
Shrubs	26.27	4.12
Meadows	0.23	0.04
Non Built up	0.01	0.00
Forests	548.73	86.08
Built up	1.40	0.22
Water Bodies	2.90	0.46
Agriculture Land	56.50	8.86
Landslides	0.47	0.07
Alpine Scrubs	0.41	0.07
Sandy Bank	0.55	0.09







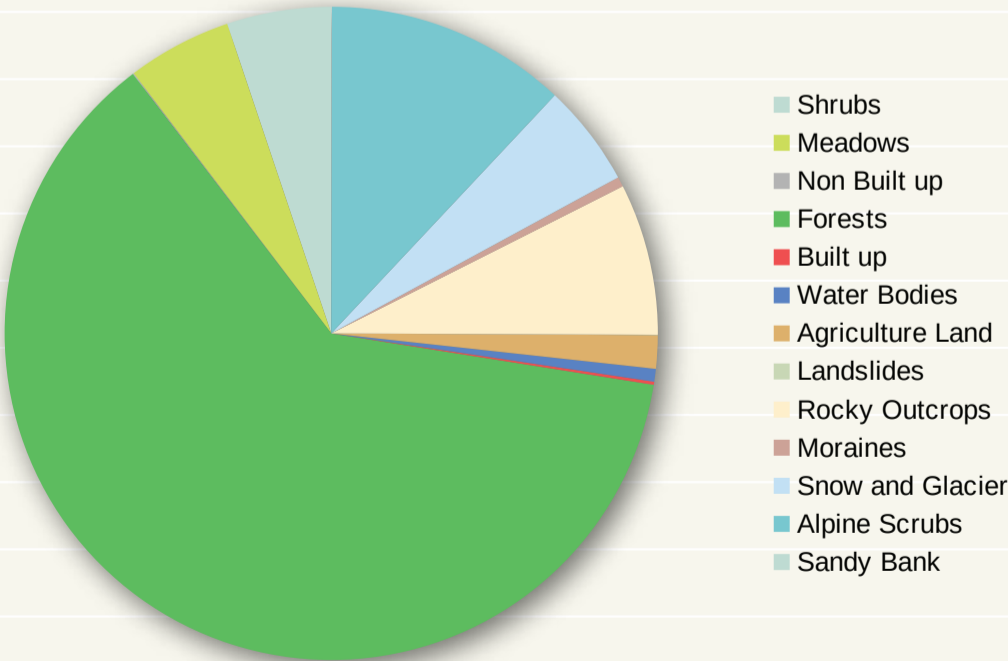
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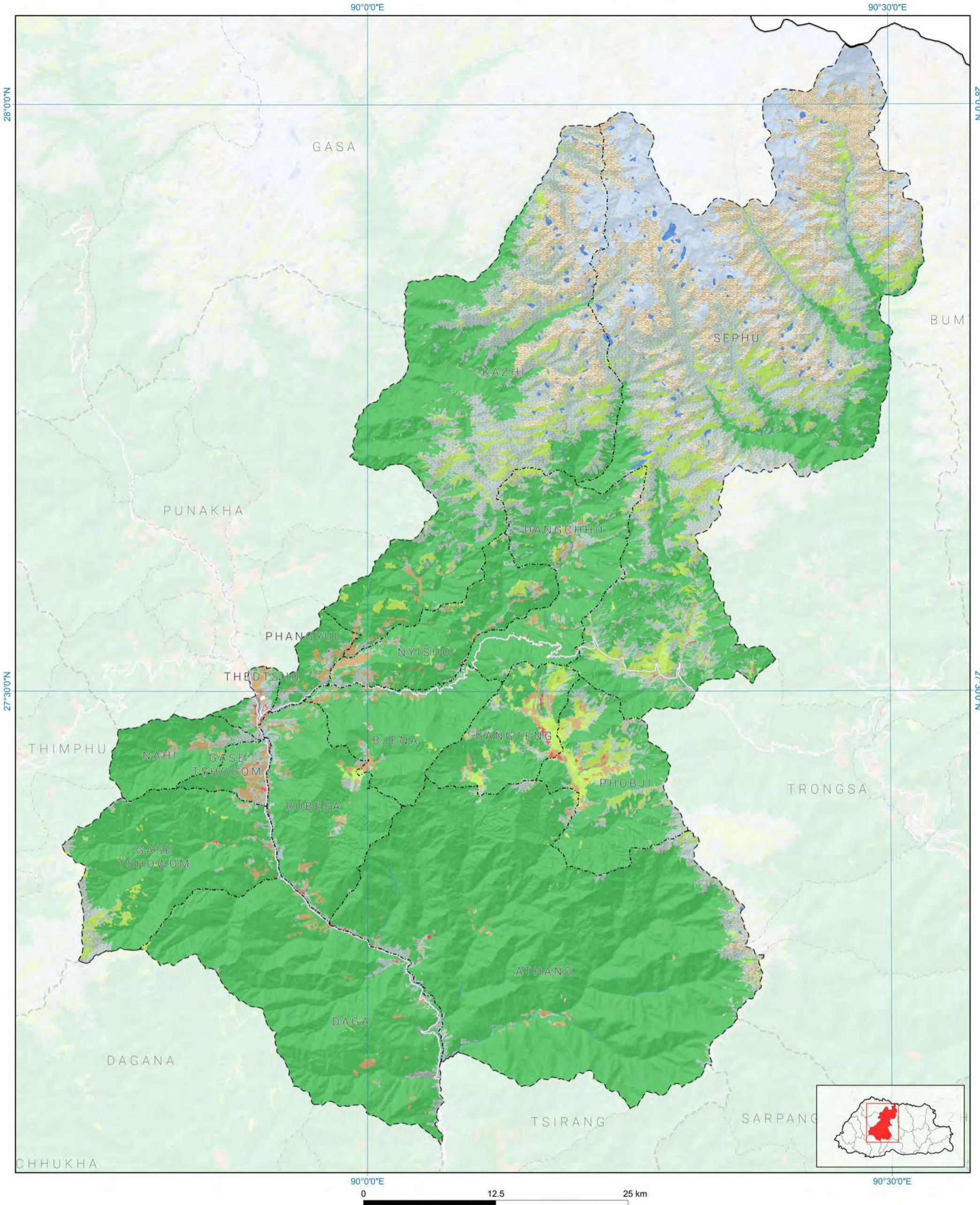
Wangduephodrang is the largest Dzongkhag in Bhutan in terms of area and shares borders with Dagana and Tsirang Dzongkhags to the south, Trongsa Dzongkhag to the east, Thimphu and Punakha to the west, and Gasa, with a small portion of the border with China to the northern part of the country. It comprises a total of fifteen gewogs, covering approximately 4033.68 square kilometers.

Wangduephodrang Dzongkhag is renowned for its rich biodiversity, providing a natural habitat for numerous species, some of which are globally endangered. The Dzongkhag falls under the protection of Jigme Dorji National Park, Jigme Singye Wangchuck National Park, and Wangchuck Centennial National Park in the country. The elevation in Wangduephodrang ranges from 300 meters to 6900 meters above sea level.

Forests cover about 62.09% of the total area, while the rest is predominantly comprised of other land cover types such as rocky outcrops, meadows, and shrubs. Agriculture land covers approximately 1.64% of the total area.

Land cover class	Area(km ²)	Area (%)
Shrubs	208.33	5.16
Meadows	208.86	5.18
Non Built up	1.90	0.05
Forests	2504.59	62.09
Built up	6.16	0.15
Water Bodies	25.51	0.63
Agriculture Land	66.33	1.64
Landslides	0.79	0.02
Rocky Outcrops	302.81	7.51
Moraines	19.68	0.49
Snow and Glacier	204.66	5.07
Alpine Scrubs	483.35	11.98
Sandy Bank	0.72	0.02





The information displayed on the map originates from the *Sentinel-2 satellite image* captured between November and December 2020, with a spatial resolution of 10 meters. Prior to visualization, the data underwent pre-processing in the *Sen2Cor processor*, a part of the *Sentinels Application Platform (SNAP)*. This pre-processing involved converting the Level-1C radiance data (top-of-atmosphere) to Level-2A surface reflectance data (bottom-of-atmosphere). The processing, analysis, and visualization of the data were carried out using *eCognition v9.5*, *ERDAS IMAGINE* and *QGIS* software.

The images are acquired in the *WGS 1984 UTM Zone 45N and 46N* coordinate systems, but they were re-projected to the *DRUKREF03 Bhutan National Grid* coordinate systems. It is essential to note that the boundaries and names depicted on this map are based on information provided by the respective responsible agency, and they maintain the sole source of truth for this data. The geographic information contained within this map does not hold any legal connection to laws, rules, or regulations concerning land use or land ownership. NLCS disclaims any liability for errors that may arise due to user interaction with this map.



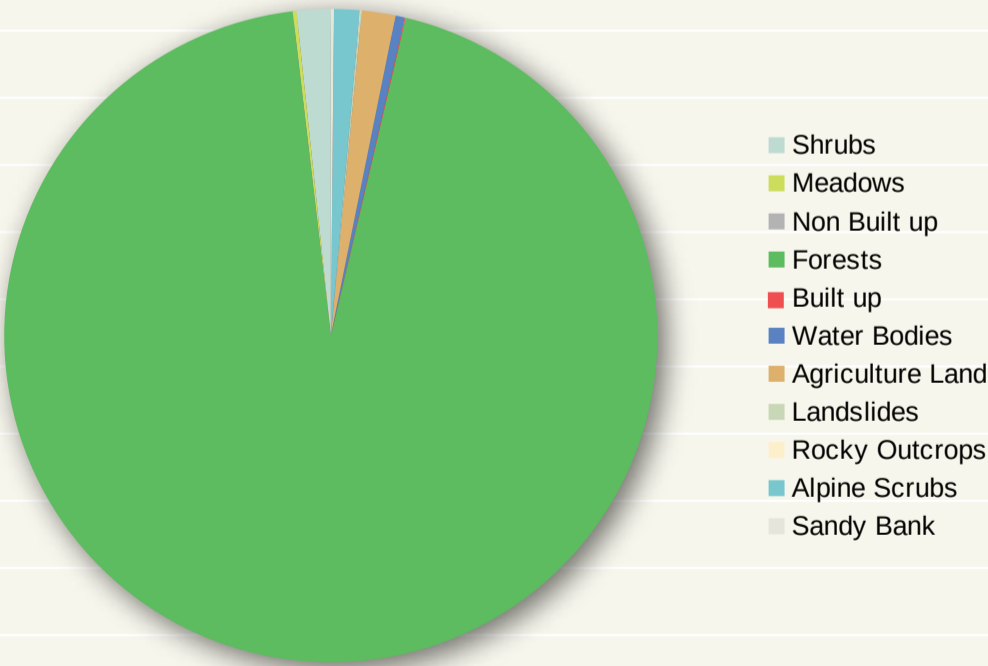
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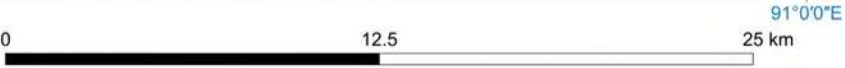
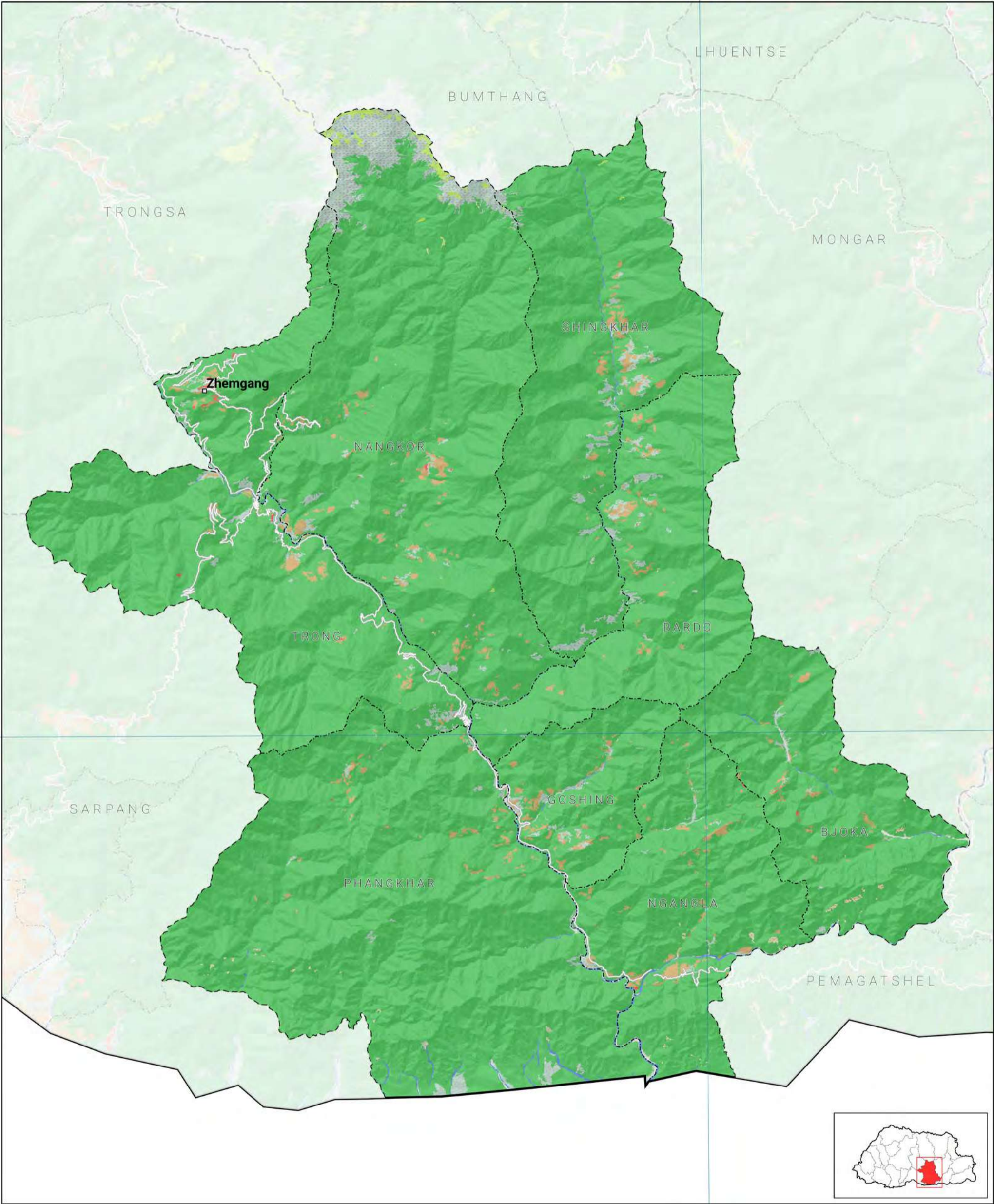
Zhemgang is considered one of the remote Dzongkhags in Bhutan. It is located in the South-central region and shares its borders with Bumthang to the north, Trongsa and Sarpang to the west, and Mongar and Pemagatshel to the east. Additionally, it shares its southern border with the Indian state of Assam.

The Dzongkhag is administratively divided into one Drungkhag administration and eight gewogs, covering an area of approximately 2413.315 square kilometers. The elevation in Zhemgang ranges from 100 meters to 4500 meters above sea level.

Zhemgang is known for its abundant forest cover, accounting for approximately 94.45% of the total area, which is the highest forest cover among all the Dzongkhags in the country.

Land cover class	Area(km ²)	Area (%)
Shrubs	40.57	1.68
Meadows	4.51	0.19
Non Built up	0.02	0.00
Forests	2279.27	94.45
Built up	1.25	0.05
Water Bodies	11.04	0.46
Agriculture Land	40.09	1.66
Landslides	1.71	0.07
Rocky Outcrops	0.79	0.03
Alpine Scrubs	30.38	1.26
Sandy Bank	3.69	0.15





- | | | | |
|--------------|-------------------|----------------|-------------------|
| builtup | forest | alpine scrubs | waterbodies |
| non-built-up | meadows | landslides | snow and glaciers |
| | agricultural land | rocky outcrops | sandy bank |
| | shrubs | moraines | |
-
- | | |
|------------------------|-------------------|
| International boundary | Dzongkhag centers |
| Dzongkhag boundary | Highway |
| Gewog boundary | |

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