

དཔལ་ལྷན་འབྲུག་གཞུང་། སོ་ནམ་དང་ནགས་ཚལ་ལྷན་ཁག།  
ནགས་ཚལ་དང་གླིང་ཀ་ཞབས་ཏྲུག་ལས་ཁུངས།



Royal Government of Bhutan  
Ministry of Agriculture and Forests  
Department of Forests and Park Services  
Thimphu: Bhutan

# Forest Facts & Figures 2016



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## Foreword

The Department of Forests and Park Services, Ministry of Agriculture and Forests is pleased to publish the Annual Forestry Facts and Figures for the year 2016. The most recent and reliable information and data are crucial for critical decision making. Best decisions are those made based on valid facts and figures. Recognizing such immense importance of the facts and figures, the Department publishes Forestry Facts and Figures as an annual publication. Through the publication, the Department aims to disseminate the information related to the services provided by the Department to the general public and also accounts for the programs implemented by the Department to achieve its goals and objectives in the 11<sup>th</sup> Five Year Plan.



The Department recently published the report on National Forest Inventory (NFI) which has provided true picture of the latest forest cover, tree count, basal area and the growing stock in Bhutan. This is in backdrop of the constitutional mandate of maintaining 60% forest cover in perpetuity. The Forestry Facts and Figures, 2016 capture and present various information and data on the services delivered in terms of supply of forest produce and revenues generated by the Department in the 2016.

In addition the booklet contains vital information on Protected Areas of Bhutan, Forest Management Units, Community Forestry, Plantations, Timber supplied for various purposes, Non-Wood Forest Products, Royalties realized, Wood-based Industries, Forest fire, State Reserve Forest land allotted for various purposes, Forestry offences and Imports and Exports of forestry produce.

Besides decision makers, these information can be useful to the researchers, academicians, conservationist, planners and many other stakeholders such as Non-governmental Organizations and Donors.

I take this opportunity to express my deep appreciation to all the field colleagues for continuously striving to fulfill important goals and mandates of the Department. In addition, I must also congratulate Forest Information Management Section (FIMS), Forest Resources Management Division (FRMD) for their tireless effort in making this important publication possible for the benefits of the whole Department.

**Phento Tshering**  
Director

## INTRODUCTION

Forests is most critical component of all living beings. As enshrined in the Constitution of Kingdom of Bhutan, it is the noble vision of His Majesty the King that our Country shall strive to maintain major portion of the land under forest cover for all time to come. Conservation of nature is also one of the pillars of our unique development philosophy of Gross National Happiness, in addition of being also the critical dimension of Bhutan's vision 2020.

Therefore it is crucial that the natural resources are utilized in a sustainable manner ensuring to meet people's need while not compromising the noble vision. It must be ensured that any trade-offs between economic utilization and conservation are effectively managed to avoid any deterioration of ecosystem and biodiversity health.

To do so, different forest management regimes are practiced such as maintaining network of protected areas, scientific management of FMUs, encouraging community's participation in forestry management through Community Forestry programme.

Forest Plantations are carried out annually in order to replenish timber supplied for various purposes, areas damaged by forest fire, watershed management and harvesting of Non-Wood Forest Products.

While strenuous effort are put to minimize forestry offence cases through aggressive patrolling and advocacy.

Hence, the compilation of annual forestry Facts and Figures provides critical overview of the protection, conservation, scientific management, resource utilization, community participation and several other aspects of forests in Bhutan.

## KEY FORESTRY FACTS, 2016

*Table 1: Key facts*

Major Forest Type (National Forest Inventory Report Vol. I, 2016)		Protected Areas	
Subtropical Forest	6%	Protected Area Network	19750.57 Km <sup>2</sup> /51.44%
Fir Forest	9%		
Warm Broadleaved Forest	18%	Protected Area	42.70%
Blue Pine Forest	4%	Biological Corridors	8.60%
Chir Pine Forest	3%	Royal Botanical Park	0.10%
Cool Broadleaved Forest	26%	National Parks	5 Nos
Evergreen Oak Forest	1%	Wildlife Sanctuaries	4 Nos
Spruce Forest	1%	Strict Nature Reserve	1 No
Hemlock Forest	2%	Biological Corridors	7 Nos
Fir Forest	9%	<b>Biodiversity</b>	<b>Recorded species</b>
Juniper-Rhododendron Scrub	1%	Vascular Plants	< 5600

<b>Forest Cover (NFI)</b>		Ferns and their Allies	< 411
Total Growing Stock	1001 million m <sup>3</sup>	Endemic plants	144
Forest cover	71%	Mammals	200
<b>Institutions (Nos)</b>		Globally threatened Mammals	27
Functional Divisions	5 Nos	Bird	721
UWICER	1 No		
Territorial Divisions	14 Nos	Rhododendron species	46
Protected Areas	10 Nos	Orchids	469
Range Offices	70 Nos	Fungus	350
Beat Offices	81 Nos	Insect-Fungi	< 100
Forest Check Posts	41Nos	Globally threatened Birds	47
FMU office	16 Nos	Amphibians	41
<b>Social Forestry</b>		Reptiles	124
Community Forest	677 Nos	Butterfly	586
Households involved in CF	28311 Nos	Moths	16
Community Forest Area	75390.72 Ha	Fishes	119
Plantation	17965.19 ha		
Total Number of wood based Industries	128.00	Non-vascular plants	282

## ORGANIZATIONAL STRUCTURE

Established way back in 1952, The Department of Forests & Park Services (DoFPS), Ministry of Agriculture & Forests (MoAF) is one of the oldest departments in the government set up. It is also the largest department among the three line departments of the Ministry with over human resource strength of over 1600.

It is headed by a Director who is supported by five Functional Divisions at the headquarter, one conservation research and training institute, 10 Protected Area offices and 14 Territorial Divisions. The Functional Divisions provides technical backstopping to the field divisions that constitute of territorial divisions and parks. The field divisions implements plans, programmes and activities of the Department in the fields level.

## MANDATES AND FUNCTIONS OF DoFPS

1. Ensuring the maintenance of a minimum of 60% of the country's geographical area under forest cover for all times to come as mandated by the Constitution of Bhutan through development and implementation of forestry programs;
2. Conservation, protection, sustainable management and utilization of state forests, forest soil, water resources and biodiversity

through insightful application of good science and science based management prescriptions;

3. Contribute to production of food, water, energy and other commodities by effectively coordinating between forestry, farming systems and other agencies;
4. Facilitate development of forest based industries to contribute to local and national economics, and to create employment opportunities;
5. Facilitate the empowerment of rural communities for the stewardship and management of local forest resources and NWFPs for income generation and livelihood enhancement and contribute to poverty reduction through enactment of enabling policies, legislations, strategies, plans and programs;
6. Ensuring progressive forestry research to provide relevant analyses on forest resources data for formulation of effective policies, plans, strategies, rules and regulations for sustainable forest management;
7. Ensuring transparent and enhanced delivery of forestry services to the public through appropriate development of forestry administration, organization, capacity and facilities;
8. Ensuring to meet the demands of urban recreation and education needs through creation and establishment of urban parks and gardens;
9. Ensuring Bhutan's commitments to international and regional conventions, treaties and non-legally binding instruments through participation, facilitating and enactment of enabling policies, legislations, strategies, plans, and programs;
10. Maintaining effective coordination with forestry related institutions both within and outside the country for enhancing institutional capacity, recruitment of forestry personnel, knowledge base and forestry techniques;

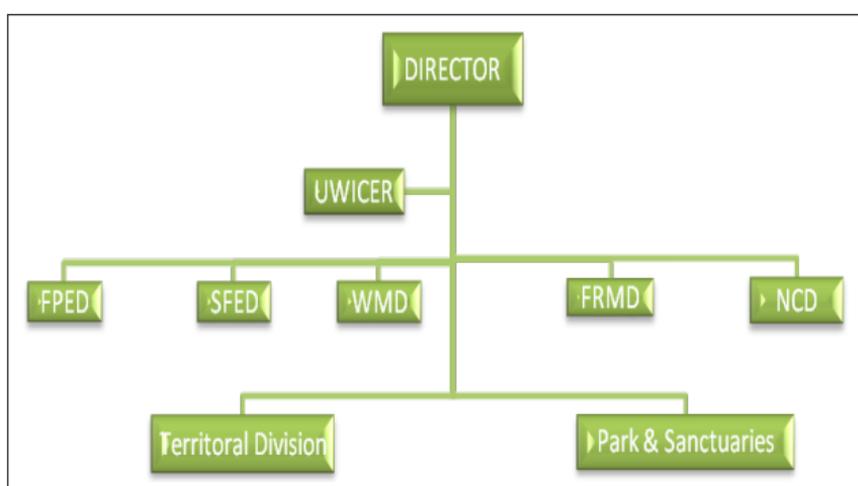


Figure 1: Organogram of the DoFPS

## FOREST COVERAGE

As per the first ever National Forest Inventory Report, Vol. I, 2016 which was carried out by Department, Bhutan has a total forest coverage of 71% (detail in key facts).

In December 2015, Bhutan completed its first ever National Forest Inventory and NFI Report, Volume I was published and formally

launched on 5th February, 2017 coinciding with the first birth anniversary of His Royal Highness Gyalsey Jigme Namgyel Wangchuck.

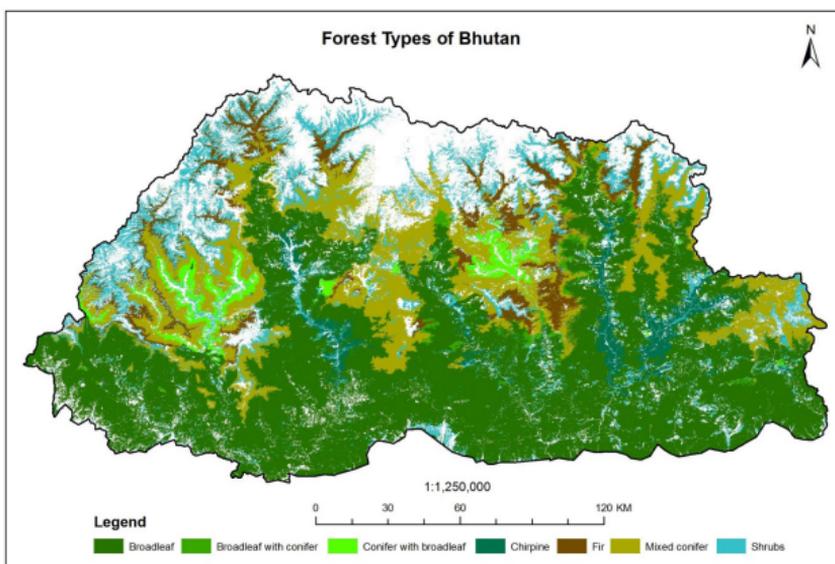


Figure 2: Forest type map of Bhutan (LCMP, 2010)

## PROTECTED AREAS

Bhutan has more than half the country's geographical land under protected area corresponding to 19,750.57 sq.km or 51.44%. This includes 42.71% under protected areas, 8.61% under biological corridors, 0.12% under conservation areas.

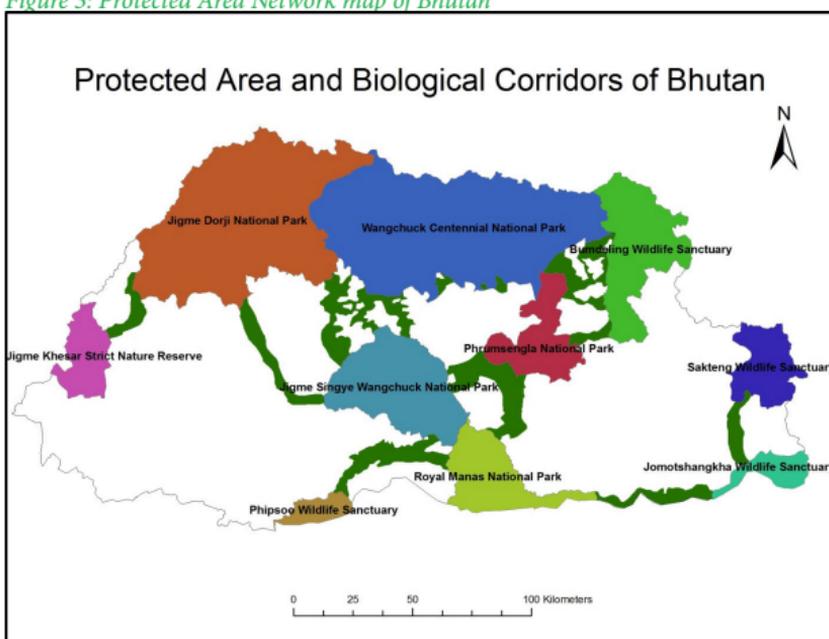
Table 2: Protected Area system

Name of Protected areas	Year of Estd	Total Area(km <sup>2</sup> )	Dzongkhags
<b>A. National Parks</b>			
1. Wangchuck Centennial National Park	2008 (gazetted)	4,914.00	Gasa, Wangdue, Bumthang, Trongsa & Lhuentse
2. Jigme Dorji National Park	1995	4,316.00	Punakha, Gasa, Thimphu & Paro
3. Jigme Singye Wangchuck National Park	1995	1,730.00	Trongsa, Wangdue, Sarpang, Tsirang & Zhemgang
4. Royal Manas National Park	1966	1,057.00	Sarpang & Zhemgang
5. Phrumsengla National Park	2000	905.05	Bumthang, Lhuentse, Mongar & Zhemgang
<b>B. Wildlife Sanctuaries</b>			
1. Bumdelling Wildlife Sanctuary	1998	1520.61	Trashiyangtse, Lhuentse & Mongar
2. Sakteng Wildlife Sanctuary	2003	740.60	Trashigang & Samdrupjongkhar
3. Phibsoo Wildlife Sanctuary		268.93	Sarpang & Dagana
4. Jomotsangkha Wildlife Sanctuary		334.73	Samdrupjongkhar

C. Strict Nature Reserve			
1. Jigme Khesar Strict Nature Reserve		609.51	Haa
1. Biological Corridors		3307.14	Haa, Paro, Thimphu, Punakha, Wangdue, Sarpang, Tsirang, Trongsa, Zhemgang, Bumthang, Mongar, Lhuentse, Trashigang & Samdrupjongkhar
D. Recreational Park			
1. Royal Botanical Park	2004	47.00	
<b>Total protected areas</b>		<b>19,750.57</b>	
		<b>sq.km</b>	

Total Area of Bhutan	38,394.00 sq. km
Total Area of PAs in Bhutan	16,396.43 sq.km
Percentage Covered by PAs	42.71%
Percentage Covered by Biological Corridors	8.61%
Percentage covered by Conservation Areas	0.12%
Total percent of PAs &BCs	51.44%

Figure 3: Protected Area Network map of Bhutan



## FOREST MANAGEMENT AREAS

### Forest Resources Potential Assessment (FRPA)

FRPA, 2013 was carried out to assess resource potential of Bhutan forest and to update the results of FRPA 2004. Potential forest area feasible for sustainable management based on slope less than or equal to 35° was found to be 892.68 thousand hectare which is equal to 23.25% of country's geographical area and 33% to total forest land. However, a total of 1071.83 thousand hectare of forest land, which is equal to 27.92% of country's geographical area and 39.62% to total forest land, was found

potential for forest management based on slope less than or equal to 45°. Potential forest area based on forest function and management objectives with slope  $\leq 35^\circ$  is illustrated in following table in detail.

**Table 3: Details of potential forest production area in different management area (slope  $\leq 35^\circ$ )**

Category	Area (Ha)	Percentage to geographical area	Percentage to total forest land
Potential Production Forest area of Bhutan (S11)	892.68	23.25%	33.00%
Potential Production Forest area outside Protected Area Network (S22)	432.52	11.27%	15.99%
Potential Production Forest area inside Protected Area Network (S33)	452.54	11.79%	16.73%
Potential Production Forest area outside Major Watersheds (S44)	679.62	17.70%	25.12%
Potential Production Forest area inside Major Watersheds (S55)	212.48	5.53%	7.85%
Potential Production Forest area outside Protected Area Network and Major Watersheds (S66)	333.04	8.67%	12.31%

Source: FRPA 2014

## FOREST MANAGEMENT UNITS AND WORKING SCHEMES

There are 20 FMUs in the Country catering to the forest produce needs of the people for both commercial and rural purposes. Management plan of two FMUs are being revised in the FY 2016-2017, (Korila and Chamgang FMU).

**Table 4: Forest Management Units in the Country**

Sl. #	Name of units	Dzongkhag	Total FMU area (ha)	Forested area (ha)	Forest area cover (%)	AAC	Gross operable area (ha)	Net Operable area (ha)
1	Dawathang	Bumthang	17,541.66	10,413.51	59.36	12,186.00	7,904.12	6,529.28
2	Rudongla		14,686.58	12,368.91	84.22	14,999.00	7,650.75	5,738.06
3	Karshong		4,715.77			5,035.00	1,940.00	1,554.00
4	Metapchhu	Chukha	10,761.85	9,710.99	90.24	4,131.00	4,995.15	3,624.00
5	Haa East	Haa	6,580.99	5,690.50	86.47	1,900.00	3,790.70	1,532.16
6	Lon Chhu		12,567.01	8,665.36	68.95	6,700.00	3,848.80	2,957.10
7	Sele La		9,157.00	8,066.76	88.72	11,886.00	5,017.50	3,828.60
8	Korila	Mongar	13,137.00	7,466.92	56.84	3,800.00	7,372.96	6,973.15
9	Lingmithang		10,571.74	4,581.60	43.34	9,000.00	4,636.30	3,854.68
10	Paro-Zonglela	Paro	16,155.81	12,880.68	79.73	9,366.00	7,919.60	5,543.72
11	Bitekha		7,260.10	6,199.32	85.39	4,500.00	4,137.50	2,915.30

12	Chamgang- Helela	Thimphu	4,692.85	4,388.62	93.52	1,800.00	2,101.80	1,576.34
13	Gidakom		13,100.00	9,105.00	69.50	7,500.00	4,296.00	3,437.00
14	Dongdechu	Trashi yangtse	4,856.00			5,215.00	2,529.00	2,403.00
15	Chendebeji	Trongsa	8,123.93	6,332.01	77.94	1,100.00	2,745.70	2,284.44
16	Khotokha	Wangdue	9,407.48	8,500.96	90.36	9,400.00	-	-
17	Gogona		8,080.60	4,490.00	55.57	7,900.00	4,490.00	3,675.60
18	Wangdigang	Zhemgang	8,759.00	7,511.25	85.75	2,100.00	1,326.06	1,248.02
19	Rongmanchu	Lhuentse	6,401.00	5,667.00	88.53	4,577.00	4,807.00	3,215.00
20	Khaling Kharungla	Trashigang	7,265.40	6,281.94	86.46	2,708.00	920.17	795.46
<b>TOTAL</b>			<b>193,821.77</b>	<b>138,321.33</b>	<b>71.37</b>	<b>123,095.00</b>	<b>82,429.11</b>	<b>63,684.91</b>

## COMMUNITY FORESTS



There are a total of 677 registered community forests (CFs) covering an area of 75390.72 ha within the country as of December 2016, involving a total of 28,311 households who are actively participating in community forest management.

As of December 2015, there were only 645 Community Forests with 27,215 households covering 71,517.987 ha of SRFL. However, in 2016, 32 additional community forests were established with 1096 additional households involved in Community Forest management covering a total area of 75,390.72 ha.

**Table 5: CFs established in the Country**

Dzongkhag	No. of CFs	No. of CFMG member (H/H)	CF Area (Ha)
Bumthang	30	876	3078.85
Chukha	46	1554	3221.02
Dagana	25	942	1843.26
Gasa	7	181	452.46
Haa	18	534	1696.8
Lhuentse	23	721	1608
Mongar	30	1808	6518.9
Paro	26	1485	4217.74
Pemagatshel	43	2112	3724.18
Punakha	39	1305	3623.44
Samdrupjongkhar	41	2115	5274.96
Samtse	50	2024	4556.03
Sarpang	31	1212	3163.65
Thimphu	21	837	2749.77
Trashigang	50	2818	9228.66
Trashiyangtse	29	1389	3371.969
Trongsa	27	870	2764.08
Tsirang	38	2303	5766.24
Wangdue Phodrang	78	2188	5859.656
Zhemgang	25	1037	2671.05
Total	677	28311	75390.715

## PLANTATION



As per the record with Social Forestry and Extension Division, the Department till now has established a total of 17965.19 hectares of plantation. The Department in 2016 alone created 620.51 hectares of plantations across the country through the Territorial Divisions, Parks and other agencies. In addition, in the same year, in celebration of the first Birth Anniversary of His Royal Highness (HRH) the Gyalsey, a total of 108,000 seedlings were also planted in all 20 Dzongkhags and 205 gewogs as Tendrel plantation. A seedling each was planted by every household in the country which was distributed by the Department of Forests and Park Services.

**Table 6: Plantation created by Other Agencies**

Sl.no	Other Agencies plantations	Area (Ha)
1	Tendrel Plantation all over 20 Dzongkhags	16.58
2	De-Suup plantation all over 20 Dzongkhags	18.52
3	Dzong Renovation Plantation all over 20 Dzongkhags	81.00
4	Mass plantation by women volunteers at Takila, Lhuentse	31.25
<b>Total</b>		<b>147.35</b>
Sl.No	NRDCL	Area (Ha)
1	Plantation creation	89.28

**Table 7: Plantation created by Territorial Divisions/Parks/Functional Divisions**

Sl.No	Divisions	Area (Ha)
1	Bumthang Division	81.00
2	Dagana Division	43.00
3	Gedu Division	2.00
4	Mongar Division	33.32
5	Paro Division	1.21
6	Trashigang Division	9.55
7	Tsirang Division	57.00
8	Thimphu Division	60.00

9	Wangdue Division	37.80
10	Samtse Division	13.00
11	Sarpang Division	13.00
12	Samdrupjongkhar Division	12.00
13	Sakteng Wildlife Sanctuary	20.00
14	Nature Recreation and Ecotourism Division	1.00
<b>Total</b>		<b>383.88</b>

## RESOURCE UTILIZATION

### Timber Supplied by Department



In the year 2016, the Department has supplied a total of 2,97,146.14 m<sup>3</sup> of timbers for different purposes. This includes 180368.35 m<sup>3</sup> for rural purposes, while another 114133.81 m<sup>3</sup> of timbers were supplied for commercial purpose. Additional 2643.98m<sup>3</sup> of timbers were supplied for construction of Dzongks, Lhakhangs and other religious structures.

The details are mentioned in the tables below.

**Table 8: Summary of Timber supplied by Department**

Type of timber allotment	Quantity in m3	Quantity in cft
Rural purposes	180368.35	6370610.00
Commercial	114133.81	4031206.19
Dzongs/Lhakhangs/Religious structures	2643.98	93385.35
<b>GRAND TOTAL</b>	<b>2,97,146.14</b>	<b>10495201.54</b>

**Table 9: Timber supplied by Divisions in m3**

Product type	Bumthang	Dagana	Gedu	Mongar	Paro	Samtse	Sarpang
Drashing	9,528.00	5,275.40	1,534.90	1,942.31	3,593.53	2,245.30	1,290.92
Shinglep	-	3.67	-	-	-	-	-
Cham	1,983.67	5,880.24	232.84	912.69	3,348.40	45.10	7.00
Tsim	85.82	698.20	113.26	4.36	70.35	11.99	0.07
Dangchung	0.34	11.64	87.29	0.80	17.35	0.40	3.54
Sawn timber	853.89	625.08	1.38	105.44	6.14	-	86.42
Logs	202.50	15.72	11,089.36	910.07	427.99	-	360.99
Bakal	112.00	178.48	-	66.12	1.28	-	9.10
Firewood	2,431.71	17,204.00	7,162.41	14,538.24	2,253.23	1,059.58	765.33
Lops and Tops	236.00	-	304.00	196.44	292.00	-	-
Offcuts	30.00	-	1.60	-	-	-	-
Poles	3,945.22	2,525.00	529.40	346.69	1,555.61	100.35	536.42
Posts	857.76	1,640.90	427.05	1,027.91	186.31	79.23	113.29
Driftwood	-	-	16.00	24.00	-	-	-

Woodchips	-	-	16.00	-	-	-	-
Mushroom Billets	-	-	287.44	23.50	-	-	-
Others	81.54	-	78.38	-	-	-	6.95
<b>Total</b>	<b>20,348.40</b>	<b>27,987.97</b>	<b>21,199.40</b>	<b>8,408.65</b>	<b>3,496.46</b>	<b>3,160.39</b>	

Product type	Thimphu	Trashigang	Tsirang	Wangdue	Zhemgang	S/jongkhar
Drashing	3,382.35	1,966.18	1,644.18	5,958.92	1,480.85	88.82
Shinglep	14,090.91	-	8.46	16.25	-	-
Cham	1,820.00	817.94	8.39	2,958.70	37.50	38.74
Tsim	142.81	53.46	-	412.88	46.00	-
Dangchung	38.03	5.51	253.79	107.71	3.26	-
Sawn timber	-	115.95	3,369.75	30.58	224.91	642.83
Logs	-	160.20	55.46	13.55	5.66	108.02
Bakal	16.45	21.99	11.96	334.40	24.20	12.00
Firewood	2,637.50	9,701.61	9,882.25	9,805.51	1,773.90	2,398.86
Lops and Tops	328.00	24.00	-	935.51	58.00	-

Offcuts	-	40.00	-	-	-	8.00
Poles	2,830.41	545.89	155.59	308.15	515.83	228.02
Posts	979.95	845.04	127.30	2,197.43	561.36	115.14
Driftwood	-	-	-	18.30	-	-
Woodchips	-	-	-	-	-	12.00
Mushroom Billets	64.75	55.50	87.50	214.62	14.00	-
Others	275.98	-	-	-	1,127.00	236.00
<b>Total</b>	<b>24,732.66</b>	<b>13,507.82</b>	<b>15,330.49</b>	<b>19,911.70</b>	<b>5,807.49</b>	<b>3,837.68</b>

Table 11: Timber supplied by Parks and Wildlife Sanctuaries in m3

Product Type	BWS	JDNP	JSWNP	PNP	PWS	RMNP	SWS	WCNP
Drashing	67.9	632.4	942.7	381.6	7.8	85.9	2112.8	101.1
Shinglep	0.0	20.0	0.0	4062.0	0.0	0.0	0.0	0.0
Cham	101.9	925.3	120.6	709.5	0.0	71.4	308.0	81.0
Tsim	1.5	0.0	114.4	22.1	0.0	0.0	8.2	8.2
Dangchung	0.0	5.4	5.4	17.8	0.0	0.0	0.0	0.0
Sawn Timber	0.5	502.5	0.0	49.3	0.0	2.8	0.0	0.0
Logs	21.9	0.0	0.0	34.1	5.7	0.0	0.0	0.0
Firewood	1935.6	1334.0	820.2	12073.0	0.4	488.0	20530.2	1044.0
Bakal	0.0	0.2	0.0	25.3	0.0	0.0	133.5	0.0
Lops and Tops	32.0	0.0	0.0	119.0	0.0	0.0	0.0	0.0
Offcuts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Poles	54.0	132.6	37.9	236.8	0.0	5.0	304.2	186.8
Posts	44.8	13.9	198.5	96.6	98.0	58.5	466.0	70.7
Driftwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mushroom Billets	0.0	0.0	0.0	0.0	0.0	0.0	39.8	0.0
Others	2.6	0.0	60.0	0.0	0.0	2.6	0.0	0.0
<b>Total</b>	<b>2262.74</b>	<b>3566.23</b>	<b>2299.64</b>	<b>17827.2</b>	<b>111.9</b>	<b>714.24</b>	<b>23902.6</b>	<b>1491.82</b>

## TIMBER SUPPLIED BY NRDCL



To supplement timber supplied by the Department and as per their mandate, NRDCL also carries out the thinning activities in collaboration with DoFPS. The timber is marketed as per marketing & pricing policy of government at the price fixed by the NRPC. NRDCL also carries out the extraction of NWFP such as sand/stone/boulder. The details are mentioned in the given below in tabular form:-

**Table 12: Timber Supplied by NRDCL (m3)**

Sl.No	Product type	Quantity (m <sup>3</sup> )	Quantity (cft)
1	Sawn timber	3864.20	136483.54
2	Poles	1589.71	56148.55
3	Post	166.19	5869.83
4	Logs	41842.66	147882.75
5	Logs for rural consumption	1150.46	40634.25
6	Hakaries	29.98	1058.89
<b>Total</b>		<b>48643.20</b>	<b>1718977.82</b>

**Table 13: NWFPs Supplied by NRDCL**

Sl.No	Product Type	Quantity
1	Sand (M3)	433,799.95
2	Stone (cft)	5,447,635.11
3	Stonechips - Others (Cft)	1,423,920.95
4	Stone chips -Phubana (Cft)	144,821.88
5	Firewood in (M3)	38,184.81
6	Woodchips in (MT)	2,250.68
7	Briquettes (Kg)	266,580.00

**Table 14: Timber Supplied by NRDCL for Dzongs/Lhakhangs construction**

Sl.No	Product Type	Quantity (m <sup>3</sup> )	Quantity (cft)
1	Logs	4680.81	165326.21

## ROYALTY REALIZED

Royalty are levied on service delivered by the Department of Forests and Park Services. There are mainly two types of royalty, commercial royalty which is levied on the produce supplied for commercial purpose and also for supply of produce in urban areas while a rural rate of royalty is levied on supply of forest produce for rural purposes in rural areas.

Table 15: Division wise; Commercial &amp; Concessional Royalty realized (Nu.)

Product type	Bumthang	Dagana	Gedu	Mongar	Paro	Samtse	Sarpang
Drashing	112,200.00	24,720.00	68,080.00	49,119.72	178,139.20	423,793.00	211,116.18
Shinglep	-	2,484.00	-	-	-	-	-
Cham	60,522.04	10,920.00	12,690.00	27,090.00	92,060.00	1,270.00	2,053.40
Tsim	9,780.00	1,557.60	4,200.00	780.00	12,850.00	2,814.00	-
Dangchung	30.00	60.00	1,820.00	120.00	2,700.00	680.00	107.75
Sawn Timber	789,067.40	345,673.10	585.00	7,723.36	92,143.04	-	53,615.94
Logs	107,321.60	15,768.00	528,822.20	24,210.43	10,998.61	-	14,639.82
Firewood	390,010.00	16,848.00	153,768.00	256,727.98	34,886.00	14,422.50	19,807.50
Bakal	224.00	980.00	-	3,160.00	480.00	-	364.00
Lops and Tops	2,480.00	-	7,150.00	4,419.90	3,980.00	-	-
Offcuts	200.00	-	100.00	-	-	-	-
Poles	239,472.00	26,106.00	51,301.38	41,040.00	25,352.00	18,918.00	10,538.95
Posts	61,230.00	27,742.00	23,628.00	113,156.00	25,768.00	15,878.00	18,866.70
Driftwood	-	-	380.00	3,060.00	-	-	-
Woodchips	-	-	1,000.00	-	-	-	-
Mushroom billet	-	-	1,000.00	7,019.90	500.00	-	-
Others	12,220.00	-	1,960.00	3,404.00	-	-	1,773.58
<b>Total</b>	<b>1,784,757.04</b>	<b>472,858.70</b>	<b>856,484.58</b>	<b>541,031.29</b>	<b>479,856.85</b>	<b>477,775.50</b>	<b>332,883.83</b>

Drashing	43,899.72	87,740.00	13,440.00	61,450.00	78,220.71	15,132.56
Shinglep	13,740.00	-	5,400.00	80.00	-	-
Cham	47,340.00	26,757.36	350.00	62,570.00	300.00	3,882.00
Tsim	6,240.00	9,696.00	-	11,161.00	3,648.00	-
Dangchung	1,120.00	600.00	5,040.00	480.00	1,280.00	-
Sawn Timber	-	61,963.21	133,499.98	34,068.40	2,364.48	322,168.00
Logs	-	27,627.43	18,827.04	4,337.66	3,000.00	60,237.38
Firewood	72,491.25	215,633.50	121,620.00	167,017.50	35,121.50	41,530.50
Bakal	9,067.14	2,960.00	260.00	2,750.00	690.00	480.00
Lops and Tops	3,280.00	400.00	-	63,333.40	1,620.00	-
Offcuts	-	900.00	-	-	-	180.00
Poles	56,974.00	49,361.92	7,422.00	172,890.00	41,194.00	50,739.88
Posts	27,380.51	150,062.50	5,720.00	207,946.00	31,632.00	8,925.00
Driftwood	-	-	-	560.00	-	-
Woodchips	-	-	-	-	-	62.50
Mushroom billets	1,850.00	1,900.00	2,500.00	6,132.00	400.00	-
Others	3,151.00	-	-	-	20,730.00	12,180.00
<b>Total</b>	<b>286533.616</b>	<b>635601.916</b>	<b>314079.02</b>	<b>794775.964</b>	<b>220200.69</b>	<b>515517.82</b>

Table 16: Park Wise, Concessional &amp; Commercial Royalty realized (Nu.)

Product type	BWS	IDNP	JSWNP	PNP	PWS	RMNP	SWS	WCNP
Drashing	16839.1	208182.1	26260.0	32839.4	4986.0	30340.0	138880.0	1080.0
Shinglep	0.0	0.0	0.0	3340.0	0.0	0.0	0.0	0.0
Cham	15423.5	14766.7	4410.0	21080.0	0.0	2760.0	1980.0	2430.0
Tsim	264.0	0.0	2280.0	3960.0	0.0	0.0	660.0	1464.0
Dangchung	0.0	0.0	440.0	1760.0	0.0	0.0	0.0	0.0
Sawn Timber	228.1	43118.0	0.0	102962.3	0.0	1800.0	0.0	0.0
Logs	12461.8	0.0	0.0	21671.3	3600.0	0.0	0.0	0.0
Firewood	41900.0	47265.0	18340.0	115004.3	800.0	10980.0	45207.5	31386.0
Bakal	0.0	200.0	0.0	1580.0	0.0	0.0	9054.0	0.0
Lops and Tops	720.0	0.0	0.0	2577.5	0.0	0.0	0.0	0.0
Offcuts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Poles	6166.0	21744.0	4372.0	49987.0	0.0	400.0	17638.0	3680.0
Posts	7764.0	6878.0	16515.0	14928.0	630.0	8720.0	11670.0	8076.0
Driftwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mushroom Billets	0.0	0.0	0.0	0.0	0.0	0.0	750.0	0.0
Others	2800.0	0.0	3060.0	0.0	0.0	80.0	0.0	0.0
<b>Total (Nu.)</b>	<b>104,566.56</b>	<b>342,153.82</b>	<b>75,677.00</b>	<b>371,689.78</b>	<b>10,016.00</b>	<b>55,080.00</b>	<b>225,839.50</b>	<b>48,116.00</b>

## NON-WOOD FOREST PRODUCE



The collection and trade of Non-Wood Forest Products contributes immensely to the income generation of the rural households. For instance, for highlanders, more than 50% of their annual earnings comes from collection and trade of Cordyceps (*Ophiocordyceps sinensis*) and similarly, for people in the east, Chirata (*Swertia chirata*) collection and its trade also help generate their income.

The collection and management of NWFP are either done in a group formed with the technical support from the Department or on individual basis. They are required to pay minimal royalty to the government as per provisions of Forest and Nature Conservation Rules and Regulations, 2017,.

NWFPs collected and traded are listed below:

**Table 17: Quantity of NWFPs supplied and revenue generated through royalty (Nu.)**

Sl.No	Product types	Qty supplied	Units	Royalty realized (Nu.)
1	Aggregate	56492	M3	6400
2	Stone Boulders	2718.04	M3	640
3	Sand	138887.4	M3	1093996.8
4	Clay soil/Top soil	34000	Kg	12500
		120	Back Load	60
		13264	M3	122540
		35592	Nos	556.9
5	Flat stone	232	M3	1200
6	Cane/Cane shoot	72	Bundle	36
		7552	Back Load	12616
		28840	Nos	510
		310	M3	1784
7	Charcoal	134800	Kg	7290
8	Daphne bholua (Bark)	48480	Kg	3756
		8	Nos	1020

9	Incense (Leaves/wood)	160	Back Load	400
		75308	Kg	33702.785
		48	M3	300
10	Large/Small Bamboo	448	Bundle	768
		40	Back Load	104
		1227472	Nos	118943.88
		8464	M3	2404
11	Leaf mould	6392	M3	73332
12	Lemon grass oil	2360	Ltr	1475
13	Mushrooms	4800	Kg	136646
14	Ophiocordyceps sinensis (Whole part)	22243.46	Kg	883144.08
15	Orozyllum (Fruit)	80	Kg	40
16	Picorrhiza	28680	Kg	36340
17	Piper longum ( Fruits)	22264	Kg	78660
18	Rubia cordifolia (plant)	111696	Kg	236752
19	Paris polyphylla	656	Kg	61680
20	Shilajit	1200	Kg	1200
21	Swertia chirayita (Plant)	21040	Kg	43680
22	Terminalia spp (Fruit)	16	M3	80
23	Thysanolaena latifolia (Inflorescence)	5976	Head Load	2421
24	Viscum nepalense (whole)	800	Kg	500
25	Wildlings (seeds/Seedlings)	3024	Kg	6488
		30416	Nos	5984
		96	M3	552
26	Zanthoxylum (Fruit)	465	Kg	1860
27	Wood burrs	1835	Nos	20660
28	Thatch grass	2800	Bundle	1230
29	Resin	205076.8	Kg	101931.2
30	Pine needles	56	Bundle	21
		416	M3	1974

## WOOD BASED INDUSTRIES

There are total of 128 wood based industries consisting of 105 sawmills and 23 Manufacturer units registered in a country.

**Table 18: Number of sawmills and furniture unit**

Dzongkhag	Sawmills	Wood Based Industries
Bumthang	16	1
Chukha	2	10
Haa	22	
Lhuentse	1	
Mongar	4	1
Paro	21	
Pemagatshel	1	
Samtse	3	
Sarpang	5	1

Samdrupjongkhar	3	1
Tsirang	1	1
Thimphu	10	7
Trongsa	1	
Trashigang	4	
Trashiyangtse	1	
Wangdue	8	1
Zhemgang	2	
<b>Total</b>	<b>105</b>	<b>23</b>

## REVENUE GENERATED THROUGH THE VISITOR CENTERS

Three visitor centers, namely, Takin Preserve at Motithang, Thimphu, Royal Botanical Park at Lamperi and Gharial Farm at Phuentsholing had collected a sum of Nu. 5,579,105.00 as fees from the visitors in 2016. A total of 1,09,625 visitors which includes both local and foreigners visited the centers with Takin Preserve at Motithang receiving the highest number of 3,819,700 visitors and subsequently generating highest amount of revenue.

*Table 19: Revenue generated by visitor centers*

Name of the Park	Foreigners (Nos)	Local (Nos)	Total	Total Revenue generated (Nu.)
Royal Botanical Park, Lampelri	4830	8745	13575	590,960.00
Gharial Farm ,Phuntsholing	13	24001	24014	1,168,445.00
Takin Preserve, Motithang	59931	12105	72036	3,819,700.00
<b>Total</b>	<b>64774</b>	<b>44851</b>	<b>109625</b>	<b>5,579,105.00</b>

## CHALLENGES

### FOREST FIRE



The total of 72 fire incidences damaged 21057.5 acres of forest areas in the year 2016. Thimphu Dzongkhag recorded the highest number of fire incidences of 21 Nos while Wangdue recorded maximum area of 9750.94 acres damaged by 11 fire incidences.

**Table 20: Fire incidences in Bhutan**

Sl. No	Dzongkhag	No of cases	Area (Acres)	Forest type
1	Bumthang	1	4	Blue pine
2	Chukha	1	1.5	Mixed Conifer
3	Haa	3	86	Blue pine & Mixed conifer
6	Lhuentse	6	1169	Chir Pine
12	Mongar	6	3804.6	Chir Pine, Blue pine & Oak Forest
18	Paro	5	1069.56	Blue pine
23	Punakha	7	911.1	Plantation & Chir Pine
30	Samdrupjongkhar	1	45	Bamboo and broadleaved
31	Sarpang	1	11	Broadleaved
32	Thimphu	21	1902.6	Blue pine, Mixed conifer Grassland, Others
53	Trashigang	3	1644.2	Chir pine
56	Tsirang	3	58.00	Mixed Broad leaf
59	Wangdue	11	9750.94	Chir pine
70	Zhemgang	3	600	Broadleaved & Chir pine
<b>Total area Burnt</b>		<b>72</b>	<b>21057.5</b>	

## STATE RESERVE FOREST (SRF) LAND ALLOTMENT/ CLEARANCE FOR DEVELOPMENTAL ACTIVITIES



Every year, huge SRF land is lost to developmental activities. In 2016 alone, about 1895.49 acres of SRF land has been allotted for the purpose of Land substitute, land lease, Kidu and land exchange. In addition, forest clearance for 1147.47 acres of SRF land has been issued for constructions of road and power transmission lines.

**Table 21 : SRF land clearance accorded for different purposes in acres**

Dzongkhag	Land substitute	Land lease	Kidu Land	Land Exchange	Transmission Line	Roads
Bumthang	3.31					16.27
Dagana	44.36					39.79
Chukha	7.56	1,128.80		5.55		0.04
Lhuentse		2.71				60.86
Mongar		2.48			17.79	393.95
Paro	43.84	22.55	2.32		3.21	24.3
Pemagatshel	35.44					0.55
Punakha					1.73	35.02
Samdrupjongkhar	61.43					5.83
Samtse	8.88	351.48				205.48
Sarpang	13.01		0.5			15.76
Thimphu	0.2	64.46			2.72	0.14
Trongsa	3.06		0.15			9.99
Trashigang	1.94	0.48			140.49	58.52
Tsirang		31.28	0.15		9.9	1.06
Wangdue	1.57	18.98	2.8	6.94	20.55	68.48
Zhemgang	5.23	24.03			0.94	14.1
<b>Total</b>	<b>229.83</b>	<b>1,647.25</b>	<b>5.92</b>	<b>12.49</b>	<b>197.33</b>	<b>950.14</b>

## FOREST OFFENCE



The Department in the year 2016, apprehended and detected forestry offence worth fine of Nu. 36,477,215.60. The crimes were mainly committed on hunting and poaching of wild animals and its parts, smuggling and illegal sale & misuse of Timber products, collection of Non-wood Forest Products without permit and other illegal activities (given in table 23).

As per the rule in force, the detectors were rewarded a total of Nu. 11,562,974.10 for helping the Department detect and curb forestry related illegal activities.

**Table 22: Offence type detected and Fine imposed (Nu.)**

Offence Type	Fine imposed (Nu.)	Detectors reward (Nu.)
<b>1) Wild animals</b>		
Smuggling/Poaching of wild Animals	2,797,500.0	1,797,500.0
Illegal fishing	277,000.0	279,315.5
<b>2) Timber and NWFP</b>		
Illegal collection of Cordyceps	127,030.0	127,030.0
Illegal collection of firewood	45,933.5	9,679.2
Illegal collection of Stone/Boulder/Sand	22,427,945.8	6,499,463.3
Illegal collection of Timber for making Handicraft	29,120.0	7,100.0
Illegal felling/sawing of Timber	3,005,222.5	686,469.4
Illegal Trade of Red Sanderwood	1,398,750.0	349,690.5
Illegal Transportation of NWFP/Timber	3,672,016.0	1,050,338.6
Misuse of RHBT/Firewood	399,872.3	80,488.6
Lopping/Debarking	13,000.0	3,250.0
<b>3) Others</b>		
Encroachment into GRF	16,273.7	3,284.2
Construction without Forestry clearance	201,093.0	50,273.3
Muck dumping	45,000.0	11,250.0
Other illegal activities	2,021,458.7	607,841.6
<b>Total</b>	<b>36,477,215.6</b>	<b>11,562,974.1</b>

## EXPORT AND IMPORT OF NON-WOOD FOREST PRODUCT AND TIMBER



The details reports on import and export of finished forestry product and Non-wood forest products from the broader check post are given below:

**Table 23: Import of finished forest products and Non-wood forest products**

Border Check Post, Phuntsholing		
Product Type	Units	Qty
Bamboo	Pcs	299,924.00
Bamboo charcoal	MT	24.98
Bamboo chips	MT	80,415.26
Bamboo chips	m3	216.00
Bamboo Mats	Rolls	2,930.00
Black Clay	Truckload	1.00
Black Mixture	Truckload	1.00
Block board	Pcs	250.00
Boulders/Stones	m3	8.00
Charcoal	MT	58,522.33
Charcoal	Bags	2,599.00
Empty Wooden Box	Boxes	217,955.00
Furniture	Pcs	754.00
Incense Powder	Bags	4.00
Limestone	MT	15.79
Marble slab	MT	1,714,096.46
Marble Block	Pcs	1,049.20
Marble chips	Bags	600.00
Oak planks	Pcs	882.00
Ply Board	Pcs	87,185.00
Quartzite	MT	114,961.48

Timber	cft	178.35
Sand	Truckload	18.00
<b>Border Check Post, Gelephu</b>		
<b>Product Type</b>	<b>Units</b>	<b>Qty</b>
Bamboo	Nos	29475
Empty wooden box	Nos	140100
Bamboo mats	Rolls	264
<b>Border Check Post ,Samdrupjongkhar</b>		
<b>Product type</b>	<b>Unit</b>	<b>Qty</b>
Boulder	Truckload	34
Stone	Truckload	3
Sand	Truckload	462
Gravel	Truckload	12
Timber	Cft	2336.74
Large Bamboo	Pcs	10966
Stone chips	Truckload	49
Charcoal	Truckload	520
<b>Table 24: Export</b>		
<b>Border check post, Phuentsholing</b>		
<b>Product type</b>	<b>Unit</b>	<b>Qty</b>
Block Board	Pcs	40
Furniture	Pcs	397
Timber	cft	857.57
Used Timber	Truckloads	1
Incense Powder	Kg	2750
Limestone	MT	188.18
Logs/Poles	Cft	370
Ply Board	Pcs	360
Picrorhiza	Bags	50
Quartzite	Kg	4030
<i>Rubia cordifolia</i>	Kg	3880
Saw dust	Bags	15
Teak bits	Bundles	236
Skirting, bits	cft	350
Stone chips	MT	12
<b>Border check post, Gelephu</b>		
<b>Product Type</b>	<b>Units</b>	<b>Qty</b>
Wooden Bits	Nos	40430
Brooms	Nos	1785
Ply wood	Nos	8861
Simi wood finished products	Cft	544.7
Stone aggregates	Truckload	1115
Window/Door	Nos	14
<b>Border check post, Samdrupjongkhar</b>		
<b>Product type</b>	<b>Unit</b>	<b>Qty</b>
Poulzozia	Kg	6450
<i>Rubia cordifolia</i>	Kg	19560
Stone chips	Mt	11652.883



