

**ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF AGRICULTURE AND FORESTS**



BHUTAN RNR STATISTICS

2019

**Renewable Natural Resources Statistics Division
Directorate Services**

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Renewable Natural Resources Statistics Division (RSD)

Directorate Services

Ministry of Agriculture and Forests

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FOREWORD

The Ministry of Agriculture and Forests is pleased to bring out the Bhutan RNR Statistics 2019. The publication is a compendium of the relevant statistics in the domain of Renewable Natural Resources (RNR). The statistics presented are thoroughly harmonised and validated by the RSD and also by the RNR Statistics Technical Working Group (RS-TWG). As statistics are compiled from various sources, each statistical table mentions the source so that data contributors are duly acknowledged and secondary users may contact the source for any further information.

The statistical tables are organized under various chapters in line with the recommendations of FAO. I would like to extend my appreciation to RSD, RS-TWG and all others for their contribution. This publication will be the official source for information on RNR sector and the electronic version of the publication will be made available at <http://www.moaf.gov.bt/category/rsd/>.



Rinzin Dorji
SECRETARY

Ministry of Agriculture and Forests

ACKNOWLEDGEMENT

The 2019 Bhutan RNR Statistics report published by RNR Statistics Division (RSD) provides a five-year data series for key RNR related indicators. Through this report, the RSD consolidates statistics and indicators that can respond to the needs of our data users.

As the RSD strives to improve its statistical publications and services, we would like to welcome comments and feedbacks on the contents and format of this publication. I on behalf of the RSD, I would like to convey our appreciation and gratitude to all the departments and agencies for their continued support and cooperation in sharing with us their data. Further, I would like to thank technical guidance and support of RS-TWG for their unwavering support and facilitation for the annual agriculture survey.



DIRECTOR

Ministry of Agriculture and Forests

ACRONYMS

AED	Agriculture Engineering Division
AEZ	Agro Ecological Zones
AFS	Annual Financial Statement
BAFRA	Bhutan Agriculture and Food Regulatory Authority
BAIL	Bhutan Agro Industries Limited
BTS	Bhutan Trade Statistics
CF	Community Forests
CFM	Centenary Farmers Market
CFMG	Community Forest Management Groups
DAMC	Department of Agricultural Marketing and Cooperatives
DoA	Department of Agriculture
DoFPS	Department of Forests and Park Services
DoL	Department of Livestock
DPA	Department of Public Accounts
DRC	Department of Revenue and Customs
FCBL	Food Corporation of Bhutan Limited
FMCL	Farm Machinery Corporation Limited
FMU	Forest Management Unit
GDP	Gross Domestic Product
LUPP	Land Use Planning Project
LCMP	Land Cover Mapping Project 2010
LULC	Land Use and Land Cover 2016
LFS	Labour Force Survey
MoAF	Ministry of Agriculture and Forests
MoF	Ministry of Finance
MoLHR	Ministry of Labour and Human Resources
NCHM	National Centre for Hydrology and Meteorology
NLCS	National Land Commission Secretariat

NPPC	National Plant Protection Centre
NRDCAN	National Research and Development Centre for Animal Nutrition
NRDCL	Natural Resources Development Corporation Limited
NSB	National Statistics Bureau
NSC	National Seed Centre
NWFP	Non Wood Forest Products
PHCB	Population Housing and Census of Bhutan 2017
RNR	Renewable Natural Resources
RSD	Renewable Natural Resources Statistics Division
SYB	Statistical Yearbook of Bhutan

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Chapter 1: Production

Table 1.1 HARVESTED AREA UNDER CEREALS (2015-2019)

(Value in Acres)

Crops	2015*	2016*	2017*	2018**	2019*
Amaranthus	NA	NA	40	61	64
Barley	2,520	2,451	3,421	1,715	1,957
Buckwheat	5,147	6,897	5,817	4,647	5,116
Millet	3,360	3,245	3,623	2,760	2,686
Maize	56,805	56,609	66,042	36,836	32,485
Paddy	49,325	53,055	52,368	37,268	30,314
Quinoa	NA	NA	73	114	308
Wheat	4,845	3,717	5,259	2,819	2,481

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF. Paddy area for 2018 includes upland paddy

Table 1.2 HARVESTED AREA UNDER OILSEEDS (2015-2019)

(Value in Acres)

Crops	2015*	2016*	2017*	2018**	2019*
Groundnut	177	208	436	267	378
Mustard	2,422	2,395	2,697	1,103	1,664
Pyrilla	68	41	249	NA	NA
Sesame	NA	NA	NA	NA	4
Soya bean	527	544	867	377	621
Sunflower	11	15	23	8	32

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.3 HARVESTED AREA UNDER ROOTS AND TUBERS (2015-2019)

(Value in Acres)

Crops	2015*	2016*	2017*	2018**	2019*
Collocacia /Taro	104	NA	NA	140	127
Ground apple	NA	NA	NA	NA	61
Potato	12,008	14,638	12,824	11,131	10,342
Sweet potato	70	31	203	63	62
Tapioca/Cassava	293	278	320	389	329

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.4 HARVESTED AREA UNDER PULSES (2015-2019)

(Value in Acres)

Crops	2015*	2016*	2017*	2018**	2019*
Cow pea	NA	NA	NA	NA	66
Chick pea	NA	NA	NA	NA	31
Beans dry	NA	NA	NA	NA	929
Lentil	353	NA	NA	617	297
Mung bean	921	952	922	NA	1,307
Rajma bean	1,357	1,565	2,236	NA	1,590

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.5 HARVESTED AREA UNDER SPICES AND CONDIMENTS

(2015-2019)

(Value in Acres)

Crops	2015*	2016*	2017*	2018**	2019*
Cardamom	10,610	11,086	13,880	21,395	15,615
Garlic	1,263	1,409	1,411	874	770
Ginger	3,674	4,773	3,809	2,156	2,386
Tumeric	NA	NA	NA	NA	70

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.6 HARVESTED AREA UNDER VEGETABLES (2015-2019)

(Value in Acres)

Crops	2015*	2016*	2017*	2018**	2019*
Asparagus	420	417	201	154	264
Beans	3,011	3,385	3,739	3,423	2,058
Bunching onion	NA	NA	NA	NA	243
Broccoli	623	725	1056	781	751
Cabbage	2,256	2,738	3,551	1,792	1,737
Cauliflower	1,029	1,512	1,604	1,001	851
Carrot	559	607	530	415	540
Chilli	4,183	5,538	7,571	4,031	3,524
Corriander	NA	NA	NA	NA	255
Cucumber	NA	NA	NA	NA	247
Dally chilli	NA	NA	NA	NA	194
Egg-plant	459	725	751	242	197
Lady Finger	63	43	45	79	15
Green leaves	2,577	1,458	3,429	1,780	1,262
Onion bulb	542	442	594	394	141
Peas	982	795	1,003	642	451
Pumpkin/squash/gourd	NA	NA	NA	NA	569

Crops	2015*	2016*	2017*	2018**	2019*
Radish	2,812	2,871	3,533	1,644	1,238
Tomato	441	347	320	329	148
Turnip	1,841	1,603	1,804	1,433	1,465

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.7 CEREAL CROPS PRODUCTION (2015-2019)
(Value in MT)

Crops	2015*	2016*	2017*	2018**	2019**
Amaranthus	NA	NA	3	20	19
Barley	1,800	1,702	2,005	929	1,026
Buckwheat	3,234	3,705	3,480	1,991	2,350
Maize	83,714	82,035	94,052	55,259	46,235
Millet	1,811	1,714	1,739	1,071	1,241
Paddy	80,261	83,332	86,385	63,890	49,948
Quinoa	NA	NA	9	21	83
Wheat	3,730	2,521	3,883	1,445	1,319

Source: *Annual Agriculture Statistics & **RNR Census 2019. Paddy production for 2018 & 2019 includes upland paddy.

Table 1.8 OILSEEDS PRODUCTION (2015-2019)
(Value in MT)

Crops	2015*	2016*	2017*	2018**	2019*
Groundnut	126	149	246	197	230
Mustard	925	887	969	244	394
Pyrilla	18	12	108	NA	NA
Sesame	NA	NA	NA	NA	0.57
Soya bean	220	254	204	107	171
Sunflower	3	7	3	2	8

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.9 ROOTS AND TUBERS PRODUCTION (2015-2019)
(Value in MT)

Crops	2015*	2016*	2017*	2018**	2019*
Ground apple	NA	NA	NA	NA	211
Collocacia /Taro	112	NA	NA	91	210
Potato	49,359	58,820	57,223	44,278	43,560
Sweet potato	49	29	80	32	48
Tapioca/Cassava	437	415	306	448	484

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.10 PULSES PRODUCTION (2015-2019)

(Value in MT)

Crops	2015*	2016*	2017*	2018**	2019*
Beans dry	NA	NA	NA	NA	407
Chick pea	NA	NA	NA	NA	22
Cow pea	NA	NA	NA	NA	64
Lentil	82	NA	NA	138	55
Mung bean	466	482	298	NA	464
Rajma bean	847	994	932	NA	666

Source: *Annual Agriculture Statistics&**RNR Census 2019, MoAF

Table 1.11 SPICES PRODUCTION (2015-2019)

(Value in MT)

Crops	2015*	2016*	2017*	2018**	2019*
Ginger	7,434	10,871	7,859	4,260	6,209
Cardamom	2,091	2,736	2,245	1,542	1,413
Tumeric	NA	NA	NA	NA	92
Garlic	899	1,176	708	550	761

Source: *Annual Agriculture Statistics&**RNR Census 2019, MoAF

Table 1.12 VEGETABLES PRODUCTION (2015-2019)

(Value in MT)

Crops	2015*	2016*	2017*	2018**	2019*
Asparagus	200	239	79	160	79
Beans	3,612	4,409	5,273	2,274	2,923
Bunching onion	NA	NA	NA	NA	179
Broccoli	831	1,004	1,371	846	864
Cabbage	5,209	6,685	10,562	4,036	6,069
Cauliflower	1,586	2,082	3,575	1,191	1,446
Carrot	1,094	1,276	787	782	1,374
Chilli	7,073	9,907	13,606	7,133	7,673
Corriander	NA	NA	NA	NA	120
Cucumber	1,697	1,194	1,948	1,541	2,691
Cultivated Mushroom	19	82	122	34	44
Dally Chili	100	112	NA	NA	169
Egg-plant	694	585	643	245	300
Green leaves	2,871	1,937	4,153	2,049	2,040
Lady Finger	53	42	26	9	23
Onion bulb	608	414	489	305	155
Peas	1,218	1,014	859	567	685
Pumpkin/squash/gourds	3,746	3,671	3,171	3,870	6,043

Crops	2015*	2016*	2017*	2018**	2019*
Radish	5,840	6,490	6,307	3,649	4,721
Tomato	627	455	383	261	233
Tree tomato	341	275	404	NA	359
Turnip	10,423	10,499	13,051	9,097	9,293

Source: *Annual Agriculture Statistics & **RNR Census 2019. Production figure on Pumpkin/Squash/gourds are clubbed together for 2018.

Table 1.13 FRUIT CROPS PRODUCTION (2015-2019)
(Value in MT)

Fruits	2015*	2016*	2017*	2018**	2019*
Apple	5,308	6,587	8,039	3,684	4,321
Apricot	NA	NA	NA	NA	1,5212
Areca nut	9,406	9,467	9,342	11,681	16,107
Avacado	NA	NA	NA	NA	61,191
Banana	2,636	3,076	3,113	2,762	3,754
Coffee	NA	NA	NA	NA	8,153
Date plum	NA	NA	NA	NA	19,141
Dragon fruits	NA	NA	NA	NA	235
Guava	588	665	1,084	895	1,369
Hazelnut	NA	NA	NA	NA	3,054
Jackfruit	1,227	775	528	566	469
Kiwi	NA	NA	NA	NA	19,597
Lemon & Lime	NA	NA	NA	NA	126
Litchi	160	134	313	303	385
Mandarin	15,977	42,700	28,017	26,527	27,529
Mango	651	644	530	850	666
Papaya	214	282	278	161	216
Passion fruit	66	120	94	NA	68
Peach	783	972	1,124	1,135	1,246
Pear	867	852	1,510	1,372	1,584
Persimmon	137	49	152	207	235
Pine apple	64	67	72	279	149
Plum	385	376	482	532	585
Pomegranate	63	83	74	59	79
Sugarcane	508	345	NA	101	396
Walnut	211	152	239	223	256
Watermelon	NA	NA	NA	NA	66

Source: *Annual Agriculture Statistics & **RNR Census 2019, MoAF

Table 1.14 LIVE ANIMAL POPULATION (2015-2019)

(Value in Head count)

Animal Types	2015	2016	2017	2018	2019
Buffallo	586	532	550	531	477
Cattle	302,744	303,297	303,250	298,916	302,589
Equine	20,253	18,890	18,211	16,820	16,792
Goats	41,983	39,513	42,689	43,839	47,735
Mithun	742	577	502	418	453
Pigs	15,727	15,324	18,815	21,200	20,070
Poultry	638,501	1,038,553	1,118,178	1,099,493	1,299,810
Sheep	11,410	11,277	10,444	10,786	11,466
Yaks	38,222	40,438	41,528	41,463	41,918
Zo-zoms	8,269	9,179	8,806	9,581	9,904

Source: Annual Livestock Statistics, DoL

Table 1.15 MILCHING ANIMAL POPULATION (2015-2019)

(Value in Head count)

Animal breed	2015	2016	2017	2018	2019
Brown Swiss pure breed	90	37	36	2	5
Brown Swiss cross breed	1,048	1,257	1,230	1,030	1,240
Buffallo	127	124	135	111	126
Doeb-Doebum	2,077	2,110	2,176	2,235	1,781
Doethra-Doethram	2,116	2,316	2,582	2,624	2,508
Holsten-Friesian breed	127	214	273	392	456
Jaba	426	343	327	380	446
Jatsha-Jatsam	9,491	9,430	10,020	10,058	9,729
Jersey Pure breed	1,167	1,269	1,491	1,377	1,562
Jersey Cross breed	23,819	25,894	28,877	31,744	34,525
Mithun	108	23	38	8	17
Nublang-Thrabum	21,618	20,397	20,002	19,314	19,338
Yaks	9,541	10,158	10,521	10,401	11,000
Yangku-Yangkum	6,683	6,517	6,922	6,911	6,960
Zo-zoms	3,034	3,338	3,386	3,818	3,658

Source: Annual Livestock Statistics, DoL

Table 1.16 PRODUCTION OF MILK AND DAIRY PRODUCTS (2015-2019)

(Value in MT)

Dairy Products	2015	2016	2017	2018	2019
Butter	1,629	1,711	2,053	1,948	2,126
Cheese	3,471	3,667	4,298	3,953	4,091
Chugo	206	121	147	175	182
Milk	39,844	47,270	50,251	52,816	57,547

Source: *Annual Livestock Statistics, DoL

Table 1.17 MEAT PRODUCTION (2015-2019)

(Value in MT)

Meat	2015	2016	2017	2018	2019
Beef	637	537	501	410	488
Chevon	166	192	195	257	281
Chicken	1,063	1,209	1,349	1,687	1,926
Fish	149	188	223	200	209
Pork	462	740	928	972	1,113
Yak Meat	87	83	134	191	119

Source: Livestock Statistics, DoL

Table 1.18 POPULATION OF LAYERS ANIMALS AND EGG PRODUCTION
(2015-2019)

(Value in '000)

Years	2015	2016	2017	2018	2019
Layers (heads)	499	660	614	739	673
Eggs (no.)	68,695	105,346	116,707	125,180	135,678

Source: Livestock Statistics, DoL

Table 1.19 HONEY AND WOOL PRODUCTION (2015-2019)

(Value in MT)

Years	2015	2016	2017	2018	2019
Honey	33.1	41.9	48.3	62	65.89
Wool	42.4	12.4	7.8	8.6	25.29

Source: Livestock Statistics, DoL

Chapter 2: Trade

Table 2.1 EXPORT OF RNR PRODUCTS TO INDIA (2015-2019)

(Volume in MT, unless specified and value in Million Nu)

Commodity Category	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Rice in the husk	1.20	0.01	4.28	0.05	NA	NA	2.40	0.04	0.80	0.02
Red Rice	NA	NA	0.74	0.07	NA	NA	NA	NA	NA	NA
Semi-milled rice	NA	NA	NA	NA	NA	NA	NA	NA	20.56	0.70
Wheat & Meslin flour	4,320.42	80.49	NA	NA	510.72	10.25	858.48	19.51	1,519.06	35.86
Soya bean	4.80	0.22	1.75	0.10	40.84	1.23	7.40	0.31	9.00	0.28
Mustard	10.10	0.23	2.00	0.04	3.07	0.10	3.00	0.09	3.20	0.09
Oranges	1,078.20	21.07	874.55	13.48	401.16	7.62	347.93	5.12	376.17	8.58
Apples	2,057.16	40.43	2,613.79	88.39	2,046.43	47.25	1,077.04	25.55	2,517.29	64.17
Cauliflower & broccoli	1,012.82	22.10	1,381.93	12.12	34.05	0.76	2.15	0.16	8.37	0.25
Cabbage lettuce	1,193.73	23.98	1,545.29	26.11	2,096.07	34.54	1,247.36	22.74	2,608.39	41.81
Potato	19,888.68	370.90	24,443.18	542.11	24,045.32	458.70	24,889.13	492.85	26,050.65	520.58
Carrots and turnips	551.17	17.47	696.10	22.94	695.99	18.85	386.44	11.24	957.19	28.34
Peas	114.93	3.08	69.43	2.31	93.75	2.64	46.69	1.80	55.21	1.69
Beans	6.70	0.23	20.40	0.67	15.04	0.41	17.37	0.53	40.34	1.36
Asparagus	0.03	0.01	NA	NA	NA	NA	NA	NA	NA	NA
Chillies	15.85	0.70	17.05	0.63	18.39	0.55	20.52	0.66	10.96	2.78
Lentils	118.28	8.12	81.94	6.15	94.79	6.29	112.11	6.81	133.50	7.65
Betel nuts, in shell	1,457.75	84.80	7,719.92	82.88	5,714.40	105.89	6,510.54	120.86	5,194.28	115.42
Betel nuts, shelled	63.92	1.13	30.95	0.54	77.46	1.48	45.39	1.35	9.90	0.26
Betel leaves	NA	NA	NA	NA	NA	NA	3.35	0.19	3.75	0.11

Commodity Category	Commodity	2015		2016		2017		2018		2019	
		Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Spices	Cardamom	314.24	375.45	713.01	633.85	1,273.10	777.60	635.01	316.41	1,322.15	621.64
	Chirata	1.63	0.09	NA	NA	NA	NA	0.03	0.001	2.26	0.06
	Cordyceps (kg)	NA	NA	2.00	0.71	0.23	3.89	0.40	0.23	2.20	1.43
NWFP	Poe	7.59	0.75	16.10	3.06	5.94	2.00	108.78	4.10	27.26	1.95
	Matsutake	0.07	0.22	0.13	0.14	0.09	0.17	0.14	0.15	0.08	0.08
	Rubia (Tsoe)	48.18	0.97	76.57	1.55	135.91	3.37	88.98	1.78	96.01	2.42

Source: Bhutan Trade Statistics

Table 2.2 EXPORT OF RNR PRODUCTS TO OTHER COUNTRIES (2015-2019)

(Volume in MT, unless specified and Value in Million Nu.)

Category	Commodity	Importing Country	2015		2016		2017		2018		2019	
			Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Cereals	Red Rice	Austria	0.50	0.08	NA	NA	NA	NA	NA	NA	NA	NA
		Thailand	NA	NA	NA	NA	0.25	0.01	NA	NA	NA	NA
		Singapore	NA	NA	NA	NA	3.15	0.42	NA	NA	5.18	0.75
Cereals	Buckwheat	Japan	2.10	0.07	5.90	0.20	NA	NA	NA	NA	20.63	0.76
		Bangladesh	3.38	0.07	NA	NA	NA	NA	NA	NA	NA	NA
		Nepal	NA	NA	17.00	0.39	NA	NA	NA	NA	3.60	0.07
Fruits	Oranges	Bangladesh	16,741.60	446.55	14,671.10	425.60	15,740.00	470.75	10,738.92	349.72	14,734.41	521.46
		Apples	1,430.68	61.43	1,176.10	39.72	612.78	21.93	216.00	8.28	404.81	17.64
		Asparagus (Kg)	276.00	0.01	NA	NA	NA	NA	NA	NA	NA	NA
Vegetables	Asparagus (Kg)	Thailand	NA	NA	NA	NA	45.00	0.02	2.00	0.04	NA	NA
		Potatoes	19.00	0.07	NA	NA	NA	NA	94.27	18.21	20.10	0.40
Spices	Cardamom	Bangladesh	531.50	565.41	576.00	708.53	758.00	552.61	1,063.02	613.00	1,128.93	605.98
		Thailand	NA	NA	NA	NA	0.21	0.01	NA	NA	NA	NA

Category	Commodity	Importing Country	2015		2016		2017		2018		2019	
			Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
	Masutake (kg)	Bangladesh	5.00	0.02	NA	NA	5.00	0.02	NA	NA	NA	NA
	Masutake (kg)	China	NA	NA	11.00	0.002	11.00	0.01	NA	NA	NA	NA
	Masutake (kg)	Hongkong	10.00	0.35	50.00	0.01	50.00	0.14	25.00	0.13	10.00	0.07
	Masutake (kg)	Japan	3,832.00	11.24	3,780.00	17.94	3,780.00	17.84	5,049.00	26.59	5,027.00	26.87
	Masutake (kg)	Malaysia	NA	NA	NA	NA	5.00	0.03	5.00	0.03	5.00	0.03
	Masutake (kg)	Philippines	NA	NA	NA	NA	NA	NA	NA	NA	1.00	0.002
	Masutake (kg)	Singapore	119.00	0.42	62.00	0.57	62.00	0.34	90.00	0.58	118.00	0.74
	Masutake (kg)	S.korea	2.00	0.02	NA	NA	NA	NA	NA	NA	1.00	0.002
	Masutake (kg)	Taiwan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Masutake (kg)	Thailand	16.00	0.04	NA	NA	8.00	0.04	10.00	0.06	1.00	0.001
NWFP	Masutake (kg)	USA	NA	NA	NA	NA	NA	NA	NA	NA	21.00	0.08
	Masutake (kg)	Viet Nam	4.00	0.02	NA	NA	NA	NA	2.00	0.004	NA	NA
	Cordyceps (kg)	Australia	0.08	0.03	NA	NA	0.47	0.49	0.47	0.32	NA	NA
	Cordyceps (kg)	Belgium	NA	NA	NA	NA	NA	NA	0.35	0.31	NA	NA
	Cordyceps (kg)	Brazil	NA	NA	NA	NA	2.00	0.10	NA	NA	NA	NA
	Cordyceps (kg)	China	2.35	0.99	8.00	7.50	1.20	0.12	0.40	0.45	4.93	3.54
	Cordyceps (kg)	Canada	NA	NA	1.00	0.91	0.58	0.05	NA	NA	NA	NA
	Cordyceps (kg)	Cambodia	NA	NA	NA	NA	NA	NA	NA	NA	2.68	2.57
	Cordyceps (kg)	Germany	0.06	0.02	1.00	0.03	NA	NA	2.69	0.51	NA	NA
	Cordyceps (kg)	France	0.02	0.05	1.00	0.11	0.17	0.05	0.14	0.04	0.52	0.46
	Cordyceps (kg)	Japan	0.17	0.23	1.00	0.25	NA	NA	NA	NA	31.75	16.92

Category	Commodity	Importing Country	2015		2016		2017		2018		2019	
			Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
	Cordyceps (kg)	Hongkong	205.90	107.15	123.00	60.21	172.30	83.53	233.80	103.85	58.67	35.43
	Cordyceps (kg)	Indonesia	NA	NA	1.70	0.46	0.01	0.02	0.05	0.02	0.03	0.01
	Cordyceps (kg)	Macau	NA	NA	1.00	0.31	NA	NA	NA	NA	NA	NA
	Cordyceps (kg)	Monaco	NA	NA	NA	NA	NA	NA	NA	NA	1.00	0.08
	Cordyceps (kg)	Mexico	NA	NA	0.70	0.66	NA	NA	NA	NA	NA	NA
	Cordyceps (kg)	Malaysia	33.59	10.54	22.00	8.34	26.60	7.68	31.80	9.12	22.98	9.81
	Cordyceps (kg)	Nepal	NA	NA	0.20	0.00	NA	NA	NA	NA	0.60	0.23
	Cordyceps (kg)	Philippines	NA	NA	0.70	0.69	NA	NA	0.08	0.01	166.00	0.13
	Cordyceps (kg)	Russia	NA	NA	0.40	0.01	0.68	0.01	0.05	0.01	NA	NA
	Cordyceps (kg)	Switzerland	3.30	1.83	NA	NA	NA	NA	NA	NA	0.03	0.06
	Cordyceps (kg)	Singapore	67.25	45.77	16.00	5.96	24.86	7.69	1.15	0.22	NA	NA
	Cordyceps (kg)	Sri Lanka	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.02
	Cordyceps (kg)	S. Korea	0.10	0.02	1.00	0.29	NA	NA	2.22	0.74	NA	NA
	Cordyceps (kg)	Taiwan	1.20	0.13	2.00	0.75	4.01	1.07	1.53	0.64	2.30	0.65
	Cordyceps (kg)	Thailand	55.94	22.90	95.00	39.86	103.69	32.96	94.24	51.00	56.04	26.74
	Cordyceps (kg)	Turkey	NA	NA	0.30	0.05	NA	NA	NA	NA	NA	NA
	Cordyceps (kg)	USA	0.99	0.70	2.00	1.33	1.27	0.57	NA	NA	13.08	1.98
	Cordyceps (kg)	UK	NA	NA	0.70	0.07	NA	NA	NA	NA	NA	NA
	Cordyceps (kg)	UAE	0.25	0.11	0.10	0.001	0.12	0.07	1.02	0.86	0.24	0.26
	Cordyceps (kg)	Viet Nam	17.06	3.93	620.00	13.39	70.23	50.02	105.64	43.10	121.46	73.58
	Poe (kg)	Australia	NA	NA	NA	NA	NA	NA	NA	0.04	29.00	0.03
	Poe (kg)	Brazil	NA	NA	19.00	0.10	NA	NA	18.00	0.003	NA	NA
	Poe (kg)	Canada	3.00	0.002	NA	NA	NA	NA	3.00	0.001	54.00	0.06
	Poe (kg)	China	833.00	0.49	376.00	0.40	1,224.00	0.48	777.00	0.41	1.69	0.73
	Poe (kg)	France	132.00	0.35	35.00	0.02	50.00	0.18	7.00	0.03	100.00	0.34
	Poe (kg)	Germany	17.00	0.004	1.00	0.002	1.00	0.06	43.00	0.09	1.00	0.001

NWFP

Category	Commodity	Importing Country	2015		2016		2017		2018		2019	
			Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
	Poe (Kg)	Hongkong	247.00	0.17	53.00	0.40	NA	NA	NA	NA	40.00	0.08
	Poe (Kg)	Indonesia	NA	NA	80.00	0.04	NA	NA	38.00	0.04	15.00	0.02
	Poe (Kg)	Italy	NA	NA	NA	NA	NA	NA	NA	NA	66.00	0.03
	Poe (Kg)	Japan	122.00	0.28	54.00	0.08	104.00	0.18	11.00	0.02	89.00	0.33
	Poe (Kg)	Malaysia	300.00	0.15	NA	NA	662.00	0.22	39.00	0.02	16.00	0.07
	Poe (Kg)	Nepal	336.00	0.08	579.00	0.12	337.00	0.14	NA	NA	605.00	0.33
	Poe (Kg)	Poland	NA	NA	35.00	0.04	NA	NA	1.00	0.001	NA	NA
NWFP	Poe (Kg)	Singapore	342.00	0.16	169.00	0.20	45.00	0.09	20.00	0.05	340.00	0.97
	Poe (Kg)	S. Korea	NA	NA	2.00	0.002	230.00	0.19	NA	NA	NA	NA
	Poe (Kg)	Spain	NA	NA	32.00	0.21	18.00	0.01	NA	NA	NA	NA
	Poe (Kg)	Taiwan	3,749.00	1.50	3,458.00	1.34	2,279.00	1.14	1,844.00	0.88	1,522.00	1.25
	Poe (Kg)	Thailand	NA	NA	NA	NA	70.00	0.03	24.00	0.01	10.00	0.02
	Poe (Kg)	UK	26.00	0.04	66.00	0.05	47.00	1.96	63.00	0.27	66.00	0.25
	Poe (Kg)	USA	NA	NA	82.00	0.10	122.00	0.09	43.00	0.10	200.00	0.46
	Poe (Kg)	Viet Nam	NA	NA	NA	NA	38.00	0.01	8.00	0.003	NA	NA

Source: Bhutan Trade Statistics

Table 2.3 IMPORT OF MAJOR FOOD ITEMS FROM INDIA (2015-2019)
(Volume in MT and Value in Million Nu.)

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Bovine meat	4,108.66	564.10	3,467.16	490.48	3,117.49	441.70	3,190.43	479.85	3,783.12	616.49
Swine meat	2,240.09	326.57	1,877.57	290.42	1,867.67	275.18	1,753.01	272.84	1,681.88	284.11
Chevon	25.82	7.70	28.83	8.21	32.79	8.79	29.21	10.40	27.90	9.64
Chicken	1,368.99	173.38	1,474.28	184.98	1,583.97	204.61	1,574.30	199.29	1,631.55	210.64
Offal of bovine/swine/ chevon/ chicken	239.25	17.49	130.11	12.51	89.91	9.32	88.67	9.37	115.08	13.49
Total Meat	7,982.81	1,089.24	6,977.96	986.59	6,691.83	939.60	6,635.62	971.74	7,239.53	1,134.35
Fish fresh or frozen	1,324.04	176.28	1,265.43	168.97	1,311.33	176.23	823.55	114.43	707.19	100.99
Fish fillets, fresh, chilled	21.77	2.91	0.67	0.31	0.57	0.11	1.19	0.28	0.75	0.29
Dry fish	1,127.65	132.32	809.47	110.03	183.40	24.80	327.95	53.69	371.97	59.73
Total Fish	2,473.46	311.51	2,075.57	279.31	1,495.30	201.14	1,152.69	168.40	1,079.91	161.01
Crustaceans	7.28	2.51	3.35	1.77	17.18	1.32	0.47	0.36	3.56	2.04
Molluscs	NA	NA	NA	NA	0.04	0.02	NA	NA	NA	NA
Total Seafood	7.28	2.51	3.35	1.77	17.22	1.34	0.47	0.36	3.56	2.04
Fresh milk	140.88	5.49	130.77	5.07	125.63	4.11	62.35	3.04	16.33	1.06
Tetra pack	624.93	30.89	1,796.50	100.91	1,523.31	85.29	1,226.78	69.52	3,042.19	157.18
Condensed milk	317.20	15.26	30.05	1.53	16.23	0.83	7.40	0.56	1.36	0.13
Milk powder	1,692.36	532.68	1,899.32	547.75	1,180.02	371.64	397.48	93.70	523.48	131.64
Yogurt	0.09	0.05	0.03	0.02	2.59	0.16	16.19	1.00	7.38	0.59
Butter, fresh	1.19	0.40	0.96	0.37	0.79	0.28	0.25	0.10	2.10	0.79
Butter, processed	213.75	61.49	200.51	62.95	206.50	67.88	661.57	61.91	170.06	58.18
Cheese, fresh	8.80	1.58	9.17	1.82	4.87	1.03	1.60	0.28	0.45	0.16
Cheese, processed	1,005.64	355.49	1,265.81	448.20	1,298.23	509.54	1,158.82	477.25	1,138.64	448.51
Natural honey	34.40	7.01	42.77	8.32	38.84	7.99	64.68	11.24	42.23	9.66

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Total Dairy products	4,039.23	1,010.33	5,375.88	1,176.94	4,397.01	1,048.76	3,597.12	718.60	4,944.22	807.90
Potatoes seed	15.61	0.15	0.89	0.01	44.23	0.43	7.38	0.57	17.44	0.21
Potatoes others	5,994.07	60.32	5,468.20	81.44	5,237.70	50.69	4,690.27	62.76	4,892.58	59.56
Tomatoes	2,538.71	58.32	2,831.98	56.23	2,978.46	70.14	2,636.85	46.73	2,590.77	62.27
Onion & shallots	3,380.64	99.09	3,478.04	60.93	3,748.34	83.78	3,558.75	74.20	3,308.13	83.14
Garlic	36.92	3.73	37.24	3.92	61.34	4.29	49.06	2.57	47.88	3.32
Leeks & others	13.75	0.27	6.37	0.40	3.42	0.06	4.40	0.09	3.19	0.08
Cauliflower & broccoli	1,219.23	17.02	767.46	10.19	13.54	0.23	19.26	0.32	36.58	0.68
Cabbage lettuce	1,517.93	11.84	1,381.93	13.60	1,662.90	15.07	1,328.81	10.78	1,367.92	13.10
Carrots and turnips	166.33	1.97	171.52	2.76	266.41	3.84	255.89	3.07	313.42	4.69
Cucumber & gherkins	391.46	5.95	435.47	8.21	492.05	8.26	385.70	6.47	409.97	8.36
Peas	77.81	2.33	107.19	3.51	139.34	4.88	86.64	25.81	120.42	4.07
Beans	331.07	9.39	335.81	9.51	0.68	0.01	1.30	0.02	NA	NA
Other leguminous	2,007.65	43.75	1,729.25	43.53	1,595.24	37.46	1,091.15	24.56	1,341.45	30.92
Egg-plants)	571.00	9.63	572.00	10.21	713.19	11.75	491.43	8.89	586.88	11.93
Mushroom	10.72	0.05	25.47	1.73	126.25	8.38	178.51	12.65	79.69	6.11
Capsicum	0.58	0.10	2.16	0.12	NA	NA	0.04	0.004	0.11	0.01
Chilli	2,290.76	70.87	1,846.06	59.00	333.90	9.28	28.94	0.64	7.57	0.19
Spinach	1.39	0.02	7.27	0.14	4.76	0.11	1.68	0.04	2.52	0.04
Pumpkin/squash/gourd	124.03	1.37	111.72	1.43	147.04	1.62	213.20	3.17	217.26	3.52
Others	1,032.64	21.58	1,682.59	38.68	1,837.08	35.50	2,035.21	36.82	749.90	16.55
Total Fresh vegetable	21,722.31	417.74	20,998.61	405.56	19,405.86	345.77	17,064.45	320.16	16,093.68	308.75
Onion	31.44	0.92	24.18	0.39	28.44	0.72	29.23	0.52	46.07	1.17
Dry mushroom	0.80	0.11	0.15	0.01	0.14	0.02	0.01	0.002	0.07	0.02
Mixture of vegetable	0.51	0.04	0.09	0.01	1.01	118.47	0.78	0.08	1.29	0.15
Pea	44.58	1.85	292.41	10.85	120.23	6.72	29.76	1.50	38.71	1.86

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Chickpea	71.24	2.45	180.52	12.59	120.01	8.12	194.12	6.70	170.06	9.38
Beans	NA	NA	2.66	0.17	NA	NA	0.03	0.001	0.09	0.01
Cow pea	NA	NA	0.02	0.02	0.81	0.02	0.19	0.001	NA	NA
Lentils	2,647.75	175.56	2,103.19	146.22	2,141.25	119.65	2,116.81	113.65	2,141.26	127.93
Total Dried vegetable	2,796.31	180.93	2,603.23	170.26	2,411.88	253.71	2,370.91	122.45	2,397.55	140.52
Plantains	187.93	3.36	32.29	0.77	123.78	2.56	70.58	1.56	182.79	4.10
Bananas	494.14	9.12	504.84	9.93	472.46	10.15	578.42	12.11	673.20	12.55
Dates	0.35	0.04	0.54	0.06	0.54	0.09	0.40	0.09	1.53	0.14
Pineapple	706.06	7.43	959.63	10.90	519.11	7.20	276.88	4.96	276.87	5.18
Avacado	NA	NA	NA	NA	1.00	0.14	NA	NA	NA	NA
Guavas	2.10	0.08	1.58	0.05	2.26	0.07	2.10	0.08	2.25	0.07
Mangoes	734.28	25.53	582.63	25.06	619.07	24.65	434.74	15.10	442.07	19.94
Orange	93.57	5.43	100.58	6.43	86.81	5.34	86.06	5.26	112.07	6.37
Lemon	77.38	2.36	42.01	2.31	88.95	3.64	114.38	15.10	156.77	5.37
Grapes	18.36	1.95	16.00	1.79	26.91	2.21	13.53	1.20	20.07	1.42
Watermelons	776.17	16.13	756.55	16.59	813.92	17.90	742.33	15.71	706.03	15.17
Papayas	85.65	2.23	73.51	2.16	79.66	2.30	78.22	2.39	83.85	2.59
Apples	73.21	7.93	123.13	12.76	185.57	19.27	73.56	7.01	165.72	14.11
Pears	17.95	1.70	23.58	2.25	41.14	3.26	5.86	0.45	9.43	0.77
Apricot	1.10	0.001	0.002	0.001	0.03	0.001	NA	NA	8.83	0.45
Kiwi	7.51	0.58	2.51	0.15	1.10	0.04	0.01	0.001	0.07	0.01
Others	77.63	6.57	418.99	19.60	524.76	21.47	484.97	21.26	159.27	8.92
Total Fresh fruits	3,353.37	90.45	3,638.36	110.82	3,587.07	120.29	2,962.02	102.29	3,000.82	97.16
Grapes	0.57	0.13	0.73	0.15	1.00	0.17	0.57	0.13	0.67	0.18
Apricot	0.12	0.01	NA	NA	0.01	0.01	0.14	0.14	NA	NA
Prunes	NA	NA	0.09	0.01	0.01	0.01	0.31	0.05	NA	NA

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Apples	0.03	0.002	NA	NA	NA	NA	NA	NA	0.06	0.01
Other fruits	9.59	2.44	8.36	2.07	5.20	0.01	2.89	1.00	2.77	1.10
Mix nuts & fruits	15.35	6.01	13.95	4.44	10.54	3.13	8.24	1.92	6.58	1.76
Total Dried fruits	25.66	8.59	23.13	6.67	16.76	3.34	12.15	3.24	10.08	3.05
Green tea (not fermented)	5.61	1.43	5.63	1.61	2.65	1.33	9.78	2.53	15.09	4.35
Other green tea	111.61	2.65	22.57	4.54	38.38	9.18	43.82	9.78	44.18	10.55
Black tea (fermented)	292.32	70.26	332.51	78.21	345.41	71.37	346.68	78.01	294.64	61.34
Other	54.81	9.66	4.66	0.92	12.39	3.06	4.32	2.35	24.12	0.66
Total Green tea	464.34	84.00	365.37	85.29	398.82	84.94	404.61	92.67	378.03	76.90
Chilli dry	358.71	37.88	365.15	43.92	542.98	38.25	323.36	29.62	250.43	27.22
Chilli crush	40.46	6.30	41.72	7.47	33.46	5.18	49.19	6.21	0.03	0.01
Cinnamon	0.65	0.09	0.62	0.11	0.78	0.07	0.11	0.05	0.23	0.07
Clove not crush or ground	0.17	0.13	0.45	0.26	1.57	1.02	0.25	0.05	0.25	0.16
Clove crush	NA	NA	0.04	0.02	0.01	0.01	0.82	0.59	1.70	0.89
Cardamoms	3.40	2.07	0.98	0.84	0.49	0.39	0.49	0.38	0.42	0.62
Turmeric	32.02	4.69	14.43	2.35	16.26	2.94	11.81	1.87	11.15	1.94
Mixtures	1.61	0.39	1.17	0.15	1.03	0.29	7.98	1.06	2.93	2.39
Other spices	166.02	34.14	135.95	29.05	112.06	23.37	74.00	14.67	78.88	13.74
Total Spices	603.03	85.70	560.51	84.18	708.63	71.50	468.01	54.51	346.02	47.04
Wheat seed	NA	NA	NA	NA	NA	NA	NA	NA	24.93	0.54
Wheat other	11,074.72	186.69	5,024.99	95.52	3,365.68	62.99	3,042.13	56.68	4,808.54	99.59
Meslin seed	0.20	0.00	20.00	0.90	18.52	0.33	4.00	0.08	4.14	84.00
Meslin other	273.02	4.41	34.11	2.01	45.39	2.86	24.43	0.48	55.51	1.55
Rye	4.81	0.20	10.66	0.37	1.77	0.06	2.47	0.13	4.31	0.20
Barley	61.39	0.98	1.50	0.11	NA	NA	NA	NA	NA	NA
Oats other	0.17	0.03	0.15	0.03	0.05	0.01	NA	NA	NA	NA

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Maize (corn) seed	14.44	0.22	53.35	4.44	12.80	0.32	41.05	2.55	70.62	4.55
Maize others	9,215.59	129.13	19,061.10	301.81	24,072.89	343.72	21,718.26	302.82	15,853.97	327.05
Buckwheat	34.01	0.58	2.10	0.04	10.40	0.25	1.17	0.04	12.10	0.29
Buckwheat seed	5.75	0.11	1.20	0.03	0.76	0.01	6.96	0.10	2.03	0.04
Buckwheat other	360.05	5.75	307.54	5.60	114.94	2.84	112.43	2.32	107.96	2.41
Other cereals	48.67	0.80	1.96	1.96	1.96	1.96	39.57	0.77	17.11	0.43
Total Cereals seed	21,092.82	328.91	24,518.66	412.82	27,645.15	415.34	24,992.47	365.96	20,961.22	520.65
Rice in the husk	199.02	2.79	74.16	0.88	532.67	8.48	75.64	0.88	114.67	0.96
Husked (brown) rice	11,786.97	249.92	12.48	0.27	34.76	0.74	13.57	0.34	0.56	0.01
Red rice (yeochum)	NA	NA	0.25	0.01	2.25	0.03	8.04	0.27	0.15	0.00
Semi-milled rice	52,848.76	1,126.30	64,307.32	1,536.70	62,066.85	1,677.31	60,267.40	1,689.00	61,026.05	1,664.33
Broken Rice	18,807.30	288.96	23,270.12	385.22	15,499.35	274.94	11,138.66	191.88	23,443.02	490.61
Total Rice	83,642.04	1,667.96	87,664.33	1,923.07	78,135.88	1,961.51	71,503.32	1,882.38	84,584.45	2,155.91
Wheat & Meslin flour	6,622.71	151.25	6,886.41	170.60	7,398.55	184.46	7,103.23	185.85	6,993.26	201.29
Maize (corn) flour	114.98	3.09	364.12	6.95	640.89	10.16	343.67	5.26	127.39	3.31
Maize (other)	270.60	4.94	317.72	6.61	124.22	3.82	158.58	4.01	225.06	6.23
Total Flour	7,008.29	159.28	7,568.25	184.16	8,163.65	198.44	7,605.47	195.12	7,345.71	210.83
Soya bean seed	NA	NA	0.75	0.04	0.59	0.06	NA	NA	NA	NA
Soya bean other	1.59	0.10	0.99	0.07	NA	NA	0.36	0.09	0.30	0.03
Ground nut seed	NA	NA	0.15	0.02	0.51	0.08	0.22	0.03	0.15	0.03
Ground nut, in shell	20.90	2.50	11.19	1.47	9.01	1.02	6.57	0.69	4.41	0.55
Ground nut, shelled	14.48	1.73	15.38	1.62	17.84	1.97	19.73	2.50	18.21	2.48
Linseed	NA	NA	NA	NA	0.00	0.00	NA	NA	NA	NA
Sunflower seed	1.00	0.05	NA	NA	NA	NA	NA	NA	NA	NA
Sesamum seed	NA	NA	0.00	0.00	0.01	0.00	0.07	0.00	0.07	0.01
Mustard seed	9.88	0.64	11.85	0.63	8.66	0.58	2.00	0.12	4.68	0.27

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Total oil seed	47.85	5.02	40.32	3.85	36.60	3.72	28.95	3.44	28.00	3.37
Betel leaves	861.38	61.77	670.98	56.01	667.21	58.76	615.16	48.36	675.47	49.98
Betel nuts, in shell	32.32	0.84	31.77	0.73	12.48	0.64	14.45	1.47	2.15	0.22
Betel nuts, shelled	8.97	1.60	7.15	1.15	15.24	2.28	11.49	1.73	6.90	1.02
Total Betel nuts	41.29	2.44	38.92	1.87	27.72	2.92	25.93	3.20	9.05	1.24
Soya bean oil	12,647.75	660.31	10,291.98	729.48	10,684.46	778.00	9,778.25	811.82	10,078.76	852.86
Ground nut oil	0.03	0.03	0.56	0.05	NA	NA	1.48	0.16	4.14	0.07
Olive oil	21.26	2.03	25.60	4.70	11.02	2.39	30.67	5.36	24.59	4.03
Sunflower oil	231.61	17.89	255.26	20.82	146.36	12.97	168.95	12.42	85.90	8.60
Palm oil	0.15	0.01	0.15	0.01	0.36	0.04	20.09	1.31	1.43	0.10
Refined bleached deodorised palm oil	8.52	0.50	3.51	0.24	NA	NA	3.23	0.26	6.78	0.53
Refined bleached deodorised palmolein	1.93	0.33	0.08	0.15	1.12	0.23	0.29	0.50	85.02	5.33
Other palm oil	19.09	0.98	3.47	0.24	1.55	0.11	1.47	0.12	28.57	1.60
Sunflower oil	231.61	17.89	255.26	20.82	146.36	12.97	168.95	12.42	85.90	8.60
Colza/mustard oil	147.16	13.07	41.83	3.68	50.37	3.80	68.41	6.89	47.89	4.75
Safflower/cotton-seed oil	NA	NA	3.49	0.25	1.21	73.77	0.13	0.01	0.10	0.01
Coconut oil	0.10	0.01	0.43	0.03	1.52	0.27	2.68	0.51	1.77	0.35
Babassu oil	NA	NA	0.97	0.10	0.00	0.00	0.26	0.14	0.95	0.17
Rape oil	1,098.79	93.76	841.07	72.98	0.72	60.72	636.26	55.71	631.26	57.14
Total Oil	14,407.99	806.82	11,723.66	853.54	11,045.04	945.28	10,881.09	907.61	11,083.06	944.14
Olive (crude)	0.12	0.04	NA	NA	0.55	0.13	2.53	0.22	0.78	0.33
Sunflower (Crude)	4.41	0.76	NA	NA	NA	NA	NA	NA	0.59	0.13
Soya bean (crude)	11.55	0.82	0.03	0.002	1.46	0.12	2.57	0.17	0.84	0.07
Rape crude	0.48	0.04	0.02	0.002	1.28	0.10	0.38	0.04	NA	NA

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Colza/mustrad crude	1.66	0.18	NA	NA	4.29	0.37	33.81	3.37	17.93	1.73
Oil crude	18.21	1.83	0.05	0.004	7.58	0.72	39.29	3.79	20.14	2.26
Beet sugar	2.68	0.09	28.01	1.03	0.95	0.05	67.25	2.29	101.42	3.42
Other sugar cane	9,355.24	278.02	9,523.72	373.88	10,829.06	448.93	9,837.77	353.06	9,737.04	363.48
Total Sugar	9,357.92	278.11	9,551.73	374.91	10,830.01	448.98	9,905.02	355.34	9,838.46	366.90
Common salt (iodised)	6,818.50	38.30	4,688.44	28.25	5,621.27	32.35	6,978.36	39.91	6,944.26	41.74
Common salt (non-iodised)	505.35	2.36	2,195.37	9.20	905.37	3.91	191.98	1.18	73.48	0.37
Total Salt	7,323.85	40.66	6,883.80	37.46	6,526.63	36.26	7,170.34	41.09	7,017.74	42.11

Source: *Bhutan Trade Statistics*

Table 2.4 IMPORT OF RNR PRODUCTS FROM OTHER COUNTRIES (2015-2019)
(Volume in MT and Value in Million Nu.)

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Bovine meat	3.13	5.61	3.31	6.91	2.82	5.86	3.64	8.71	5.03	10.76
Swine meat	2.25	1.39	2.40	2.08	2.17	1.58	1.99	1.81	2.13	1.84
Chevon	1.99	2.67	1.32	2.14	1.38	2.19	1.72	3.29	1.92	3.16
Chicken	0.37	0.31	0.22	0.23	0.50	0.48	0.81	0.82	0.4	0.62
Offal of bovine/swine/ chevon/ chicken	0.20	0.22	0.06	0.08	NA	NA	0.06	0.08	0.07	0.04
Total Meat	7.94	10.20	7.32	11.44	6.87	10.11	8.22	14.71	9.56	16.43
Fish fresh or frozen	4.46	3.66	33.16	4.82	4.82	4.08	4.27	4.59	3.48	5.95
Fish fillets, fresh, chilled	1.29	1.72	1.09	0.97	9.38	0.92	2.74	1.85	1.56	1.49
Dry fish	1.53	0.49	1.54	0.68	6.22	0.88	8.30	1.33	11.61	2.03
Total Fish	7.28	5.87	35.79	6.47	20.42	5.88	15.31	7.77	16.64	9.48

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Crustaceans	1.14	1.58	0.72	1.05	0.91	1.38	0.56	1.11	0.62	1.38
Molluscs	0.32	0.43	0.23	0.3	0.22	0.27	0.23	0.4	0.23	0.32
Total Seafood	1.46	2.01	0.95	1.35	1.13	1.65	0.79	1.51	0.85	1.70
Fresh milk	0.02	0.01	0.25	0.03	1.86	0.06	0.02	0.01	0.02	0.01
Tetra pack	0.10	0.001	NA	NA	0.1	0.01	0.03	0.05	0.05	0.001
Condensed milk	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Milk powder	317.48	46.32	322.57	50.50	394.72	73.80	386.31	82.45	173.40	36.00
Yogurt	6.36	0.89	4.91	0.26	3.00	0.23	3.89	0.23	4.17	0.25
Butter, fresh	NA	NA	NA	NA	NA	NA	NA	NA	0.02	0.05
Butter, processed	0.06	0.18	NA	NA	NA	NA	NA	NA	0.08	0.23
Cheese, fresh	NA	NA	NA	NA	NA	NA	NA	NA	0.02	0.02
Cheese, processed	0.89	1.36	0.52	0.97	0.57	0.56	0.37	0.54	0.64	0.91
Natural honey	0.14	0.01	0.03	0.04	0.20	0.08	0.05	0.06	0.06	0.06
Total Dairy product	325.05	48.76	328.27	51.80	400.45	74.74	390.66	83.33	178.46	37.53
Potatoes others	NA	NA	0.02	0.01	NA	NA	NA	NA	NA	NA
Tomatoes	NA	NA	NA	NA	NA	NA	NA	NA	0.02	0.01
Garlic	NA	NA	0.01	0.01	0.01	0.0002	NA	NA	NA	NA
Cauliflower & broccoli	NA	NA	0.08	1.29	NA	NA	NA	NA	NA	NA
Cabbage lettuce	NA	NA	0.01	0.003	NA	NA	NA	NA	0.01	0.01
Carrots and turnips	NA	NA	0.04	0.03	0.01	0.001	NA	NA	NA	NA
Peas	NA	NA	NA	NA	0.05	0.03	NA	NA	NA	NA
Beans	NA	NA	0.03	0.08	0.001	0.001	NA	NA	NA	NA
Other leguminous	NA	NA	0.01	0.03	0.01	0.01	NA	NA	NA	NA
Mushroom	0.38	0.04	1.00	0.11	2.75	0.42	0.42	0.06	NA	NA
Capsicum	NA	NA	NA	NA	0.08	0.03	0.08	0.03	0.01	0.004
Spinach	NA	NA	0.02	0.002	NA	NA	NA	NA	NA	NA

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Others	0.45	0.36	0.10	0.05	1.45	0.41	0.25	0.14	0.07	0.05
Total Fresh vegetable	0.83	0.41	1.31	1.61	4.35	0.90	0.75	0.23	0.11	0.07
Onion	NA	NA	NA	NA	0.03	0.01	0.01	0.01	0.04	0.01
Dry mushroom	7.91	1.34	11.90	2.23	12.11	1.46	10.91	1.68	21.15	2.43
Mixture of vegetable	0.29	0.02	0.06	0.04	0.09	0.02	0.02	0.01	1.53	1.28
Pea	132.05	5.54	0.01	0.001	88.14	3.92	22.05	0.91	0.07	0.01
Chickpea	66.00	4.32	NA	NA	66.00	6.15	40.00	3.71	NA	NA
Beans	0.21	0.02	0.06	0.02	0.22	0.08	0.05	0.02	0.16	0.03
Lentils	NA	NA	0.01	0.01	0.03	0.03	0.01	0.02	0.03	0.04
Total Dried vegetable	206.45	11.24	12.04	2.29	166.62	11.67	73.05	6.37	22.98	3.80
Bananas	NA	NA	NA	NA	NA	NA	NA	NA	0.04	0.02
Dates	0.03	0.02	0.10	0.05	0.03	0.04	6.02	0.23	5.39	0.28
Pineapple	0.07	0.003	NA	NA	NA	NA	0.02	0.02	NA	NA
Avacado	NA	NA	0.11	0.13	0.13	0.18	0.10	0.20	0.08	0.13
Guavas	NA	NA	0.002	0.002	0.004	0.01	0.07	0.05	0.02	0.01
Mangoes	0.19	0.05	0.05	0.03	0.12	0.03	0.07	0.03	0.23	0.12
Orange	0.04	0.00	NA	NA	0.023	0.003	NA	NA	NA	NA
Lemon	0.25	0.16	0.09	0.04	0.26	0.13	0.13	0.05	0.12	0.03
Grapes	0.02	0.00	NA	NA	NA	NA	NA	NA	NA	NA
Papayas	0.02	0.05	NA	NA	0.02	0.002	0.05	0.004	0.32	0.05
Apples	0.05	0.01	NA	NA	0.01	0.01	0.02	0.01	0.01	0.01
Apricot	0.07	0.01	0.02	0.01	NA	NA	0.07	0.02	0.001	0.01
Others	0.84	0.37	0.22	0.09	0.28	0.13	0.26	0.09	0.51	0.21
Total Fresh fruits	1.54	0.683	0.57	0.36	0.88	0.54	6.80	0.72	6.721	0.866
Grapes	0.08	0.02	NA	NA	NA	NA	0.37	0.05	3.33	0.14
Apricot	0.06	0.06	0.01	0.01	NA	NA	0.02	0.02	0.15	0.03

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Prunes	0.12	0.01	0.01	0.001	NA	NA	0.01	0.003	NA	NA
Apples	0.11	0.01	0.01	0.006	0.04	0.01	NA	NA	1.21	0.07
Other fruits	10.99	0.60	NA	NA	12.46	0.65	8.29	0.44	30.71	1.20
Mix nuts & fruits	91.91	0.81	5.38	0.89	8.64	1.29	7.00	0.46	8.00	0.42
Total Dried fruits	103.26	1.50	5.40	0.91	21.13	1.95	15.68	0.98	43.40	1.86
Green tea (not fermented)	0.65	0.15	0.28	0.08	0.42	0.60	0.24	0.03	0.39	0.07
Other green tea	0.32	0.05	0.59	0.30	1.88	1.69	0.49	0.09	6.38	0.29
Black tea (fermented)	0.27	0.62	1.00	1.02	0.59	5.44	0.40	0.40	1.42	0.13
Other	4.24	1.50	2.22	0.92	14.29	26.44	7.21	3.32	1.57	0.87
Total Green tea	5.49	2.32	4.08	2.32	17.18	34.17	8.35	3.83	9.76	1.36
Chilli dry	NA	NA	NA	NA	0.01	0.001	NA	NA	NA	NA
Chilli crush	NA	NA	0.01	0.01	0.01	0.01	0.004	0.01	0.01	0.004
Cinnamon	NA	NA	0.01	0.003	0.05	0.01	0.004	0.003	0.02	0.01
Turmeric	NA	NA	NA	NA	NA	NA	0.14	0.02	0.01	0.01
Mixtures	0.13	0.04	0.02	0.0002	0.05	0.01	0.02	0.01	0.02	0.002
Other spices	0.73	0.13	0.26	0.14	0.08	0.03	0.28	0.16	0.2	0.05
Total Spices	0.858	0.168	0.29	0.15	0.20	0.06	0.44	0.20	0.26	0.07
Wheat seed	NA	NA	NA	NA	NA	NA	NA	NA	0.05	0.003
Wheat other	NA	NA	0.003	0.001	0.02	0.001	0.03	0.01	NA	NA
Meslin other	NA	NA	0.02	0.002	NA	NA	0.01	0.003	NA	NA
Barley	NA	NA	NA	NA	0.02	0.003	0.01	0.002	0.06	0.01
Oats seed	NA	NA	0.11	0.01	0.04	0.004	0.05	0.003	NA	NA
Oats other	0.30	0.03	0.77	0.09	0.55	0.05	0.13	0.03	0.13	0.01
Maize (corn) seed	1.83	0.05	3.81	0.17	1.65	0.13	4.12	0.19	4.36	0.19
Maize others	2.35	0.06	2.08	0.10	3.41	0.18	0.52	0.02	1.71	0.06
Buckwheat	NA	NA	0.15	0.01	NA	NA	NA	NA	NA	NA

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Buckwheat other	NA	NA	0.01	0.001	NA	NA	NA	NA	NA	NA
Other cereals	1.96	0.20	1.96	1.96	1.96	1.96	NA	NA	NA	NA
Total Cereals seed	6.43	0.33	8.90	2.33	7.64	2.33	4.86	0.25	6.31	0.272
Rice in the husk	NA	NA	3.36	0.10	6.30	0.36	1.11	0.07	0.37	0.04
Husked (brown) rice	0.92	0.05	0.16	0.02	0.08	0.04	0.17	0.06	0.46	0.04
Red rice (yeechum)	NA	NA	0.08	0.002	NA	NA	0.24	0.03	0.15	0.004
Semi-milled rice	3.02	0.12	1.96	0.13	2.60	0.09	0.40	0.09	4.53	0.28
Broken Rice	0.09	0.01	1.35	0.07	304.73	17.75	5.67	1.38	0.04	0.02
Total Rice	4.02	0.18	6.90	0.32	313.71	18.24	7.58	1.63	5.55	0.384
Wheat & Meslin flour	10.52	0.84	16.71	0.97	21.60	1.25	36.49	1.27	26.31	1.48
Maize(corn)flour	2.41	0.13	2.58	0.10	1.93	0.15	0.23	0.07	0.23	0.02
Maize (others)	7.02	0.34	4.73	0.31	1.51	0.15	0.14	0.10	1.37	0.22
Total Flour	19.95	1.31	24.02	1.38	25.04	1.55	36.87	1.44	27.91	1.72
Soya bean seed	NA	NA	NA	NA	0.13	0.02	NA	NA	0.01	0.001
Soya bean other	NA	NA	0.03	0.01	NA	NA	0.02	0.004	0.03	0.02
Ground nut seed	NA	NA	0.10	0.01	0.06	0.01	0.06	0.01	0.09	0.01
Ground nut, in shell	NA	NA	NA	NA	0.05	0.06	NA	NA	NA	NA
Ground nut, shellled	0.04	0.05	NA	NA	0.13	0.14	0.02	0.01	0.02	0.003
Linseed	NA	NA	0.01	0.005	NA	NA	0.02	0.01	0.01	0.01
Sunflower seed	0.08	0.01	0.24	0.02	0.32	0.05	0.06	0.06	0.42	0.06
Sesamum seed	0.02	0.01	0.01	0.001	0.01	0.02	0.06	0.02	0.01	0.01
Mustard seed	NA	NA	8.03	0.64	0.07	0.02	0.06	0.01	8.07	0.64
Total Oil seeds	0.13	0.07	8.41	0.684	0.78	0.30	0.28	0.12	8.66	0.742
Betel nuts, shellled	126.00	6.46	180.00	9.04	NA	NA	180.36	16.65	179.65	13.27
Total Betel nut	126.00	6.46	180.00	9.04	0.00	0.00	180.36	16.65	179.65	13.27
Soya bean oil	0.34	0.01	NA	NA	0.07	0.01	0.02	0.002	NA	NA

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Ground nut oil	NA	NA	NA	NA	NA	NA	0.01	0.01	NA	NA
Olive oil	1.30	0.30	1.62	0.40	1.22	0.29	5.23	0.57	1.99	0.31
Palm oil	72.89	11.90	109.20	7.19	0.02	0.001	36.40	2.81	NA	NA
Refined bleached deodorised palm oil	NA	NA	0.02	0.002	NA	NA	NA	NA	NA	NA
Refined bleached deodorised palmolein	NA	NA	NA	NA	NA	NA	2899.83	143.68	1999.82	88.86
Other palm oil	NA	NA	NA	NA	NA	NA	0.02	0.02	NA	NA
Sunflower oil	NA	NA	0.65	0.01	NA	NA	0.03	0.005	NA	NA
Safflower/cotton-seed oil	NA	NA	NA	NA	0.25	0.02	0.05	0.003	0.12	0.11
Coconut oil	NA	NA	0.05	0.02	0.11	0.02	0.04	0.01	0.46	0.02
Babassu oil	NA	NA	0	0	0.002	0.0004	0.05	0.01	0.002	0.002
Colza/mustard oil	NA	NA	0.05	0.01	NA	NA	NA	NA	NA	NA
Rape oil	0.13	0.11	0.10	0.06	NA	NA	0.01	0.02	NA	NA
Total Oil	74.67	12.32	111.70	7.68	1.67	0.33	2941.68	147.13	2002.39	89.30
Colza/mustrad crude	NA	NA	NA	NA	0.01	0.001	0.01	0.01	NA	NA
Palm (crude)	NA	NA	NA	NA	NA	NA	NA	NA	2134.94	100.93
Olive (crude)	NA	NA	0.24	0.06	0.80	0.85	0.55	0.34	4.56	1.31
Total oil crude	0.00	0.00	0.24	0.06	0.81	0.852	0.55	0.34	2139.50	102.24
Beet sugar	91.38	0.20	0.06	0.03	0.55	0.01	0.33	0.01	0.35	0.03
Other sugar cane	0.87	0.04	0.63	0.08	3.86	0.19	3.60	0.31	1.88	0.24
Total Sugar	92.25	0.24	0.68	0.11	4.41	0.20	3.93	0.32	2.23	0.27
Common salt (iodised)	6.53	0.37	0.20	0.10	0.41	0.14	0.83	0.09	1.01	0.29
Common salt (non-iodised)	NA	NA	NA	NA	0.01	0.0004	NA	NA	NA	NA
Total Salt	6.53	0.37	0.20	0.10	0.42	0.14	0.83	0.09	1.01	0.29

Source: Bhutan Trade Statistics

Table 2.5 AGRICULTURE COMMODITIES AUCTIONED THROUGH FCBL (2015-2019)
(Volume in MT and Value in Million Nu.)

Commodities	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Potatoes	22,597.24	373.99	25,810.62	584.51	25,687.38	356.54	31,537.30	649.30	30,277.08	709.81
Apple	NA	NA	28.84	0.68	28.26	0.66	12.38	0.28	32.03	8.62
Vegetables	3,841.41	96.66	3,603.58	87.72	4,104.04	115.86	3,463.10	93.76	5,091.66	162.87
Pulses	16.93	0.77	13.31	0.54	7.67	0.44	8.54	0.44	5.67	0.30
Spices	348.12	11.58	502.28	11.03	587.41	9.35	250.29	8.10	167.85	9.86
Mandarin	1,870.88	38.07	791.29	14.30	667.38	15.28	391.28	7.28	201.45	6.25
Areca nut	437.95	5.66	378.86	6.37	485.13	9.96	131.06	2.47	483.46	9.17
Pear	0.50	0.01	0.09	0.01	0.59	0.01	NA	NA	NA	NA
Plum	1.21	0.03	0.63	0.01	0.61	0.02	0.95	0.02	0.63	0.02
Peach	2.09	0.04	1.24	0.03	1.35	0.03	0.31	0.01	0.65	0.01
Apricot	NA	NA	0.02	0.01	NA	NA	NA	NA	NA	NA
Total	29,145.18	527.49	31,115.81	704.89	31,569.82	508.14	35,795.21	761.66	36,228.45	898.29

Source: FCBL

Chapter 3: Population and Labour

Table 3.1 POPULATION OF BHUTAN (2015-2019)

Description	2015*	2016*	2017**	2018***	2019***
Total population	764,667	774,367	727,145	734,374	741,672
Male	367,419	376,342	380,453	383,909	387,402
Female	397,248	398,025	346,692	350,465	354,270
Rural population	530,679	536,636	452,178	NA	NA
Urban population	233,988	237,731	274,967	NA	NA

Source: *LFS, MoLHR** PHCB, &***PPB 2017-2047, NSB

Table 3.2 LABOUR FORCE EMPLOYED IN AGRICULTURE (2015-2019)

Description	2014*	2015*	2016*	2017**	2018***	2019***
Working age population	557,047	558,959	570,231	537,728	496,550	481,821
Economically active population	348,742	352,953	354,652	340,236	310,856	319,758
Economically inactive population	208,305	206,006	215,579	197,492	185,694	162,063
Economically active male population	189,818	188,047	194,667	208,053	169,328	235,466
Economically active female population	158,925	164,906	159,985	132,183	141,528	246,354
Economically active population employed in agriculture	192,369	199,640	198,429	145,691	162,239	159,032
Economically active male population employed in agriculture	90,944	94,689	93,296	49,826	76,502	67,680
Economically active female population employed in agriculture	101,425	104,951	105,394	86,395	85,737	87,808

Source: *LFS, MoLHR & ** PHCB, *** LFS, NSB

Table 3.3 LABOUR FORCE EMPLOYED IN AGRICULTURE FARMING BY AGE GROUP AND SEX (2015-2019)

Years Age group	2015*			2016*			2017**			2018***			2019***		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
15-19	2,678	3,282	5,960	794	1,528	2,322	6,838	7,485	14,323	1,337	1,011	2,349	1,337	1,011	2,348
20-24	8,483	9,330	17,813	5,797	10,189	15,986				4,835	5,145	9,981	4,835	5,147	9,982
25-29	9,191	11,037	20,228	9,907	10,544	20,451	13,635	16,321	29,956	7,476	8,549	16,025	7,476	8,549	16,025
30-34	7,958	12,371	20,329	9,793	13,447	23,240				7,385	9,384	16,768	7,385	9,384	16,769
35-39	9,173	12,286	21,458	10,980	15,676	26,655	13,587	17,167	30,754	7,341	10,823	18,164	7,341	10,823	18,164
40-44	9,354	12,763	22,117	9,339	13,341	22,681				7,286	9,784	17,069	7,286	9,784	17,070
45-49	10,003	13,533	23,537	11,554	12,685	24,239	12,951	15,559	28,510	7,733	10,097	17,830	7,733	10,097	17,830
50-54	10,220	13,127	23,347	9,867	11,820	21,688				7,588	9,770	17,358	7,588	9,770	17,358
55-59	9,242	7,097	16,339	8,542	7,188	15,730	13,221	12,431	25,652	7,798	7,612	15,410	7,798	7,612	15,410
60-64	8,443	4,839	13,282	8,917	5,858	14,774				7,648	7,262	14,910	7,648	7,262	14,910
65+	9,945	5,285	15,230	7,805	3,118	10,924	9,382	7,114	16,496	9,778	6,297	16,075	9,778	6,297	16,075
Total	94,689	104,951	199,640	93,296	105,394	198,689	69,614	76,077	145,691	76,502	85,737	162,239	76,205	85,736	161,941

Source: * LFS, MoLHR&** PHCB 2017 ***LFS 2018 NSB

Table 3.4 DZONGKHAG-WISE POPULATION AND DENSITY FOR 2018

Dzongkhag	Area (Sq. Km)	Population	Density (Population per km ²)
Bumthang	2,717	17,820	7
Chhukha	1,880	68,966	37
Dagana	1,723	24,965	14
Gasa	3,118	3,952	1
Haa	1,905	13,655	7
Lhuentse	1,944	14,437	7
Monggar	2,859	37,150	13
Paro	1,293	46,316	36
Pema Gatshel	1,030	23,632	23
Punakha	1,110	28,740	26
Samdrup Jongkhar	1,878	35,079	19
Samtse	1,305	62,590	48
Sarpang	1,946	46,004	24
Thimphu	2,067	138,736	67
Trashigang	3,066	45,518	15
Trashigang Yangtse	1,438	17,300	12
Trongsa	1,807	19,960	11
Tsirang	639	22,376	35
Wangdue Phodrang	4,308	42,186	10
Zhemgang	2,421	17,763	7
Total	38,394	727,145	19

Source: National Statistics Bureau

Chapter 4: Land Use

Table 4.1 LAND COVER BY MAJOR CATEGORIES IN 2010 AND 2016

Land Cover class	Sub-Class	LCMP 2010			IULC 2016		
		Total Area (Ha)	Area (%)	Total Area (%)	Total Area (Ha)	Area (%)	Total Area (%)
	Fir Forest	183,208.26	4.77	70.46	230,983.99	6.02	70.77
	Mixed Conifer forest	613,963.92	15.99		519,585.68	13.53	
	Blue Pine Forest	80,023.99	2.08		101,155.06	2.64	
Forests	Chir Pine Forest	107,666.51	2.80		101,537.45	2.64	
	Broadleaf Forest	1,688,956.50	43.99		1,763,899.50	45.94	
	Broadleaf & Conifer Forest	31,472.06	0.82				
Alpine Scrub	Alpine Scrubs				130,097.72	3.39	3.39
Shrubs	Shrubs	400,526.40	10.43	10.43	374,032.56	9.74	9.74
Meadows	Meadows	157,568.51	4.10	4.1	96,273.61	2.51	2.51
	Chhuzhing	31,361.23	0.82	2.93	31,891.87	0.83	2.76
	Kamzhing	69,670.79	1.81		68,260.64	1.78	
	Apple Orchard	2,041.47	0.05		5,529.92	0.14	
	Citrus Orchard	5,086.42	0.13				
Cultivated Agricultural	Area nut Plantation	984.92	0.03				
	Cardamom Plantation	3,397.95	0.09				
	Others	13.43	NA				
Built up areas	Built up Areas	6,150.87	0.16	0.16	7,457.03	0.19	0.19
Non-Built up areas	Non-Built up Areas	330.10	0.01	0.01	595.89	0.02	0.02
Snow Cover	Snow Cover	285,479.22	7.44	7.44	205,343.63	5.35	5.35

Land Cover class	Sub-Class	LCMP 2010		LULC 2016		
		Total Area (Ha)	Area (%)	Total Area (Ha)	Area (%)	Total Area (%)
	Rock Outcrops	99,659.29	2.60	119,754.16	3.12	3.12
Bare Areas	Scree	23,287.71	0.61	39,701.39	1.03	1.03
	Bare Soils	26.87	NA	NA	NA	NA
	Lakes	4,753.42	0.12	6,252.58	0.16	0.65
Water Bodies	Reservoirs	130.70	NA			
	Rivers	22,684.66	0.59	18,923.20	0.49	
Marshy Areas	Marshy Areas	319.47	0.01			
	Landslides	7,032.54	0.18	3,730.22	0.10	0.10
Degraded Areas	Gullies	6.66	NA			
	Ravines	NA	NA			
	Moraines	13,596.24	0.35	14,393.94	0.37	0.37
	Total	3,839,400.00	100.00	3,839,400.00	100.00	100

Source: LCMP & LULC, MoAF

Table 4.2 DZONGKHAG-WISE GEOGRAPHICAL AREA BY LAND COVER TYPES (2016)
(Value in Hectares)

Dzongkhag	Forests	Cultivated Agriculture	Shrubs	Meadows	Land Cover Types				Rocky Outcrops	Land-slides	Snow & Glacier	Water Bodies
					Built up	Non-Built up	Moraines					
Bumthang	139,411	3,399	58,927	10,096	481	NA	2,033	23,779	4	29,118	1,844	
Chhukha	166,099	7,892	6,414	2,625	894	45	NA	462	343	NA	1,375	
Dagana	152,086	7,397	6,038	2,252	108	7	NA	850	291	NA	1,581	
Gasa	60,842	458	94,883	10,985	44	NA	9,402	62,701	64	68,734	2,284	
Haa	125,768	1,718	34,424	9,481	275	3	NA	15,883	19	391	673	
Lhuentse	183,360	3,769	37,947	3,246	170	9	966	4,935	104	47,426	1,161	
Monggar	175,879	6,530	7,810	736	316	8	NA	2	364	NA	893	
Paro	66,238	5,462	34,347	12,704	655	37	NA	5,599	NA	1,897	523	
Pema Gatsel	91,925	3,665	4,221	8	210	48	NA	219	275	NA	647	
Punakha	91,887	4,704	9,250	483	298	4	NA	250	6	2,189	809	
Samdrup Jongkhar	168,645	5,497	8,798	479	191	35	NA	174	363	NA	1,698	
Samtse	105,150	14,803	5,619	245	300	160	NA	201	615	3	2,121	
Sarpang	146,852	8,030	5,094	15	456	10	NA	63	441	NA	2,967	
Thimphu	71,212	1,693	53,153	18,329	1,390	86	755	20,988	NA	9,767	469	
Trashigang	172,795	9,812	26,720	7,087	600	NA	NA	77	235	199	729	
Trashiyangtse	100,379	3,492	20,883	823	103	NA	NA	464	32	16,460	860	
Trongsa	153,780	2,556	16,300	4,463	399	8	NA	556	118	1,002	426	
Tsirang	55,265	5,705	1,390	60	70	2	NA	216	24	NA	432	
Wandru Phodrang	264,060	5,826	64,131	12,066	512	133	1,239	21,756	53	27,876	1,988	
Zhemgang	225,429	3,449	7,639	78	127	1	NA	294	357	273	1,660	
Total	2,717,061	105,855	503,987	96,262	7,598	595	14,394	159,467	3,705	205,336	25,140	

Source: LULC, DoFPS

Table 4.3 DZONGKHAG WISE AREA OF LAND UNDER DIFFERENT AGRICULTURAL LAND USE IN 2010 AND 2016
(Value in Hectares)

Dzongkhag	LCMP 2010			LULC 2016		
	Chuzhing	Kamzhing	Orchard	Chuzhing	Kamzhing	Orchards
Bumthang	24.70	2,883.90	11.50	68.60	3,330.70	NA
Chhukha	1,586.70	5,735.80	1,918.00	1,882.90	5,682.20	327.10
Dagana	1,493.70	4,588.30	1,455.30	2,028.40	4,798.90	569.20
Gasa	143.60	386.30	NA	148.40	309.90	NA
Haa	88.50	2,068.50	624.60	181.40	1,486.80	49.60
Lhuentse	1,575.60	4,328.50	1.00	1,733.50	2,032.70	2.30
Monggar	436.40	5,300.00	3.30	687.40	5,832.10	10.00
Paro	1,763.70	3,555.80	1,023.70	1,888.40	2,886.60	686.80
Pema Gatshel	82.60	4,837.10	335.10	18.30	2,787.20	859.90
Punakha	5,073.00	261.90	16.70	4,304.00	390.90	8.90
Samdrup Jonkhar	1,147.60	6,731.30	249.10	1,121.00	4,212.40	163.20
Samtse	5,680.50	8,149.70	3,533.40	4,312.30	10,079.80	410.50
Sarpang	1,942.70	3,351.60	923.60	3,062.30	3,906.40	1,061.10
Thimphu	458.20	913.80	902.10	484.90	466.40	741.70
Trashigang	1,439.50	4,982.30	NA	1,658.60	8,149.20	4.10
Trashigangtse	946.60	2,112.40	NA	1,049.60	2,442.60	NA
Trongsa	1,082.00	1,205.00	NA	1,231.80	1,321.70	2.20
Tsirang	1,527.20	2,867.50	314.40	2,080.70	3,320.40	303.50
Wandue Phodrang	4,013.70	1,930.00	0.10	3,113.10	2,713.20	NA
Zhemgang	639.60	3,251.00	211.30	789.20	2,300.20	359.30
Total	31,146.10	69,440.60	11,523.40	31,844.90	68,450.50	5,559.60

Table 4.4 AREA UNDER VARIOUS AGRO-ECOLOGICAL ZONES

Agro-ecological zones	Altitude Range	Area (Ha)	Area (%)
Wet Subtropical	(100-600)	214,918	5.60
Humid Subtropical	(600-1200)	392,700	10.23
Dry Subtropical	(1200-1800)	503,465	13.11
Warm Temperate	(1800-2600)	714,554	18.61
Cool Temperate	(2600-3600)	917,155	23.89
Alpine	(3600-7500)	1,096,618	28.56

Source: MoAF

Table 4.5 DZONGKHAG-WISE PROPORTION OF GEOGRAPHICAL AREA BY AGRO-ECOLOGICAL ZONES
(Value in %)

Dzongkhag	Wet Subtropical (100-600)	Humid Subtropical (600-1200)	Dry Subtropical (1200-1800)	Warm Temperate (1800-2600)	Cool Temperate (2600-3600)	Alpine (>3600-7500)
Bumthang	NA	NA	NA	1.27	36.12	62.6
Chhukha	7.21	17.76	21.26	27.11	23.66	3
Dagana	15.75	18.96	19.05	25.66	16.59	3.98
Gasa	NA	NA	0.1	2.21	9.83	87.86
Haa	0.04	2.37	6.9	14.96	35.14	40.58
Lhuentse	NA	1.02	6.87	20.63	30.59	40.89
Monggar	3.27	17.79	26.96	28.7	21.77	1.51
Paro	NA	NA	NA	13.59	42.16	44.25
Pema Gatshel	20.94	41.7	28.06	9.27	0.02	NA
Punakha	NA	0.18	17.57	36.74	29.36	16.16
Samdrup Jongkhar	22.87	22.99	25.64	20.83	7.29	0.38
Samtse	20.94	27.74	22.18	21.05	7.35	0.75
Sarpang	25.92	25.08	24.68	21.16	2.83	0.33

Dzongkhag	Wet Subtropical (100-600)	Humid Subtropical (600-1200)	Dry Subtropical (1200-1800)	Warm Temperate (1800-2600)	Cool Temperate (2600-3600)	Alpine (>3600-7500)
Thimphu	NA	NA	NA	6.24	30.23	63.53
Trashigang	0.16	3.22	8.9	18.98	32.36	36.37
Trashigang	0.11	4.38	14.81	29.2	32.68	18.82
Trongsa	NA	2.47	6.79	24.09	34.42	32.23
Tsirang	0.03	2.68	10.2	28.21	41.42	17.47
Wangdue Phodrang	7.43	31.64	30.69	22.67	7.02	0.56
Zhemgang	11.91	29.59	26.78	19.53	9.91	2.27
Bhutan	5.6	10.23	13.11	18.61	23.89	28.56

Source: RSD, MoAF

Table 4.6 DZONGKHAG-WISE PROPORTION OF GEOGRAPHICAL AREA BY PERCENT SLOPE

Dzongkhags	0-3%	3-8%	8-15%	15-25%	25-50%	50-100%	>100%
Bumthang	0.34	2.04	5.74	14.02	42.84	31.63	3.38
Chhukha	0.13	0.73	2.12	6.74	38.6	46.84	4.83
Dagana	0.47	1.58	3.17	8.6	42.11	40.38	3.69
Gasa	0.41	2.27	5.41	10.42	32.1	40.22	9.17
Haa	0.15	0.97	3.08	8.5	39.26	43.86	4.17
Lhuentse	0.14	0.84	2.38	6.12	31.27	49.84	9.42
Monggar	0.13	0.72	2.19	6.52	33.86	48.89	7.7
Paro	0.31	1.47	3.88	10.09	41.09	39.29	3.87
Pema Gatshel	0.34	1.93	4.38	7.84	34.39	45.81	5.32
Punakha	0.19	1.02	2.87	7.74	38.62	44.26	5.29
Samdrup Jongkhar	0.54	2.31	4.68	10.04	34.2	42.77	5.46
Santse	0.78	2.98	4.9	9.5	40.59	38.1	3.14
Sarpang	1.58	5.75	5.99	9.45	34.98	39.54	2.71

Dzongkhags	0-3%	3-8%	8-15%	15-25%	25-50%	50-100%	>100%
Thimphu	0.2	1.32	4.01	10.08	39.99	39.42	4.98
Trashigang	0.12	0.74	2.32	6.93	37.68	47.74	4.47
Trashigangtse	0.24	1.48	4.12	9.2	34.34	44.29	6.32
Trongsa	0.15	0.8	2.35	7.02	38.23	45.32	6.13
Tsirang	0.08	0.53	1.85	5.89	34.39	51.3	5.95
Wandue Phodrang	0.11	0.71	2.23	6.8	39.19	47.03	3.92
Zhemgang	0.22	1.22	2.66	6.14	33.33	50.08	6.35
Bhutan	0.32	1.56	3.62	8.55	36.49	43.77	5.68

Source: RSD, MoAF

Table 4.7 DZONGKHAG-WISE CASES UNDER LAND LEASED PROGRAM
(2018-2019)

(Value in number, unless specified)

Dzongkhag	Case received	Case approved	Case under pending	Area approved (Acre)
Bumthang	7	6	1	3.70
Chhukha	10	10	0	41.71
Dagana	4	4	0	8.20
Gasa	2	2	0	0.20
Haa	9	9	0	4.60
Lhuntse	10	9	1	11.94
Monggar	17	16	1	9.26
Punakha	15	10	5	6.72
Paro	20	14	6	18.21
Pema Gatshel	9	8	1	9.49
Samtse	72	67	5	166.23
Samdrup Jongkhar	26	23	3	851.80
Sarpang	17	13	4	30.98
Tsirang	10	8	2	3.83
Trongsa	16	14	2	21.49
Trashigang	7	6	1	2.21
Trashi Yangtse	5	4	1	4.35
Thimphu	33	31	2	70.65
Wangdue Phodrang	42	41	1	231.25
Zhemgang	15	12	3	13.82
Total	346	307	39	1510.64

Source: NLC

Table 4.8 DZONGKHAG-WISE NUMBER OF CASES AND ACREAGE UNDER
LAND EXCHANGE PROGRAM (JAN-DEC 2019)

(Value in number, unless specified)

Dzongkhag	Total cases received	Total cases approved	Total area approved (acres)
Bumthang	NA	NA	NA
Chhukha	1	NA	NA
Dagana	NA	NA	NA
Gasa	1	1	0.37
Haa	2		0.64
Lhuntse	NA	NA	NA
Monggar	NA	NA	NA
Pema Gatshel	NA	NA	NA
Paro	31	2	2.00
Punakha	10	5	4.25
Sarpang	24	15	19.54
Samtse	15	13	12.71
Samdrup Jongkhar	NA	NA	NA
Thimphu	10	1	0.33
Trashigang	NA	NA	NA
Trashigang	NA	NA	NA
Trashigang	NA	NA	NA
Tsirang	3	3	4.25
Trongsa	19	9	5.39
Wangdue Phodrang	21	17	5.50
Zhemgang	7	3	2.49
Total	144	69	57.47

Source: DoFPS, MoAF

Table 4.9 DZONGKHAG-WISE NUMBER OF CASES AND AREA RECOMMENDED BY DoA TO NLCS FOR LAND CONVERSION (2015-2019)

Dzongkhag	2015		2016		2017		2018		2019	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Chhukha	2	0.71	3	1.91	NA	NA	1	1.36	2	0.63
Dagana	3	1.32	23	23.97	12	7.64	NA	NA	7	3.91
Gasa	1	0.78	NA	NA	NA	NA	NA	NA	NA	NA
Lhuntse	NA	NA	NA	NA	NA	NA	NA	NA	1	0.40
Monggar	NA	NA	NA	NA	1	0.13	NA	NA	NA	NA
Pema Gatshel	NA	NA	NA	NA	2	2.34	NA	NA	NA	NA
Paro	NA	NA	37	12.09	2	0.48	26	6.63	51	17.09
Punakha	26	27.04	1	3.48	9	4.42	26	35.82	15	8.41
Samtse	12	12.78	1	0.8	NA	NA	3	5.59	13	12.23
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sarpang	NA	NA	NA	NA	NA	NA	NA	NA	10	4.98
Thimphu	NA	NA	3	0.77	2	0.35	14	2.95	15	5.26
Trashigang	NA	NA	NA	NA	3	1.69	0	NA	NA	NA
Trashiyangtse	NA	NA	NA	NA	5	3.39	0	NA	23	5.22
Tsirang	1	0.50	NA	NA	1	1.04	0	NA	NA	NA
Trongsa	6	3.13	NA	NA	1	0.50	0	NA	5	1.77
Wangdue Phodrang	11	6.99	NA	NA	4	1.10	3	4.86	8	6.78
Zhemgang	NA	NA	NA	NA	NA	NA	NA	NA	56	17.51
Total	62	53.26	68	43.02	42	23.07	73	57.21	206	84.18

Source: DoA, MoAF

Table 4.10 DZONGKHAG-WISE NUMBER OF CASES AND AREA NOT RECOMMENDED BY DoA TO NLCS FOR LAND CONVERSION (2015-2019)

Dzongkhag	2015		2016		2017		2018		2019	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Chhukha	NA	NA	NA	NA	NA	NA	NA	NA	4	4.92
Dagana	NA	NA	42	37.99	23	29.16	NA	NA	10	8.84
Gasa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lhuntse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monggar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pema Gatshel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	NA	NA	14	3.22	1	0.3	28	7.27	22	8.89
Punakha	20	11.01	NA	NA	10	7.9	18	12.65	20	14.16
Samtse	NA	NA	NA	NA	NA	NA	1	2.42	5	7.41
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sarpang	NA	NA	NA	NA	NA	NA	NA	NA	11	18.86
Thimphu	NA	NA	1	0.56	NA	NA	6	1.99	12	3.72
Trashigang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trashiyangtse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tsirang	NA	NA	NA	NA	8	8.75	NA	NA	NA	NA
Trongsa	NA	NA	NA	NA	1	0.64	NA	NA	NA	NA
Wangdue Phodrang	3	1.04	NA	NA	20	25.67	3	2.2	14	8.57
Zhemgang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	23	12	57	41.77	63	72.42	56	26.50	98	75.34

Source: DoA, MoAF

Chapter 5: Machinery

Table 5.1 IMPORT OF FARM MACHINERIES FROM INDIA (2015-2019)

(Volume in Nos and Value in Million Nu.)

Machinery name	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Ploughs	1213	2.98	314	0.45	958	5.48	215	3.77	1024	3.13
Power tiller	NA	NA	NA	NA	340	14.87	152	11.01	338	14.16
Seeders, planters & Transplanters	2	0.17	NA	NA	NA	NA	NA	NA	NA	NA
Straw /fodder Balers	8	0.01	NA	NA	NA	NA	NA	NA	NA	NA
Combine harvester - threshers	NA	NA	31	4.16	574	1.12	NA	NA	21	0.21
Threshing machines	191	0.86	74	0.39	NA	NA	72	0.28	70	0.28
Root or tuber harvesting machines	NA	NA	1	0.14	NA	NA	NA	NA	NA	NA
Milking machines	119	1.05	80	0.17	146	1.16	356	3.65	629	1.36
Pedestrian controlled tractors	39	23.45	19	9.98	9	6.28	5	2.61	4	2.97
Other agricultural tractors	4	2.34	27	15.05	NA	NA	NA	NA	NA	NA

Source: *Bhutan Trade Statistics*

Table 5.2 IMPORT OF FARM AMCHINERIES FROM OTHER COUNTRIES (2015-2019)

(Volume in No and Value in Million Nu.)

Machinery name	Importing country	2015		2016		2017		2018		2019	
		Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Ploughs	China	231	2.93	3254	2.46	351	6.58	450	10.01	100	3.53
	Indonesia	9	0.42	NA	NA	NA	NA	NA	NA	NA	NA
	Japan	152	6.47	239	8.97	596	22.82	144	5.18	NA	NA
	Singapore	NA	NA	NA	NA	64	0.42	191	1.17	352	1.90
	Thailand	NA	NA	NA	NA	10	0.03	NA	NA	120	0.03
Power tiller	Viet Nam	262	38.79	100	14.05	234	36.13	180	31.64	218	39.12
	Indonesia	239	58.15	151	47.56	0	0.00	20	7.16	2	0.49
	Japan	NA	NA	6	1.94	96	12.98	260	24.62	NA	NA
Manure spreaders/distributors	Taiwan	NA	NA	2	0.18	NA	NA	NA	NA	NA	NA
	China	4	0.17	1	0.07	65	8.50	NA	NA	2	0.03
	Thailand	2	0.40	4	2.04	401	80.27	NA	NA	2	0.44
	USA	1	0.01	NA	NA	NA	NA	NA	NA	NA	NA
Combine harvester - threshers	Singapore	NA	NA	110	5.59	446	11.78	169	9.48	219	9.08
	Singapore	NA	NA	NA	NA	NA	NA	NA	NA	180	4.00
Threshing machines	Japan	NA	NA	NA	NA	NA	NA	NA	NA	3	5.34
	China	4	3.94	NA	NA	NA	NA	NA	NA	NA	NA
Root or tuber harvesting machines	China	716	5.43	606	7.54	228	2.83	500	10.10	4	0.29
	China	NA	NA	3	0.14	20	0.72	NA	NA	NA	NA
Pedestrian controlled tractors	Viet Nam	NA	NA	NA	NA	270	6.20	NA	NA	NA	NA
	Switzerland	2	2.01	NA	NA	NA	NA	NA	NA	NA	NA

Source: Bhutan Trade Statistics

Chapter 6: Pesticides

Table 6.1 IMPORT OF PLANT PROTECTION CHEMICALS FROM INDIA (2015-2019)
(Volume in MT and Value in Million Nu.)

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Insecticides	77.44	12.24	553.13	37.20	53.09	18.91	78.97	23.64	69.12	24.96
Fungicides	NA	NA	1.98	0.66	1.98	0.66	NA	NA	5.94	2.97
Herbicides	314.00	8.52	45.66	2.40	0.08	0.48	NA	NA	536.50	32.09
Disinfectants	59.33	6.04	88.40	8.06	69.93	6.89	83.67	11.59	82.47	12.66
Others	185.87	8.47	132.72	5.76	438.80	16.97	179.78	6.94	23.79	7.24

Source: *Bhutan Trade Statistics*

Table 6.2 IMPORT OF PLANT PROTECTION CHEMICALS FROM OTHER COUNTRIES (2015-2019)
(Volume in MT and Value in Million Nu.)

Commodity	2015		2016		2017		2018		2019	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Insecticides	1.38	3.70	1.03	0.62	0.88	0.65	0.43	0.24	0.88	1.24
Fungicides	0.08	0.21	NA	NA	5.04	1.43	NA	NA	NA	NA
Herbicides	NA	NA	0.08	0.53	0.02	0.03	NA	NA	NA	NA
Disinfectants	0.05	0.15	NA	NA	NA	NA	0.01	0.11	0.02	0.11
Others	0.12	0.005	0.45	0.56	0.06	0.04	0.43	0.11	0.30	0.38

Source: *Bhutan Trade Statistics*

Table 6.3 INSECTICIDES DISTRIBUTED TO DZONGKHAGS (F2017-2018)

Dzongkhag	Chlorpirifos 20EC (100ml)	Cypermethrin 10EC (100ml)	Fenvelerate 0.4D (kg)	Imidachroprid 20% SL (Ltr)	Malathion 50 EC (Ltr)
Bumthang	1	39.8	0-	0	
Chhukha	36.6	22.2	0	34	-
Dagana	20	1	0	2	-
Gasa	0	0	0	0	-
Haa	35.7	5.7	0.3	161	-
Lhuentse	0	20	0	10	-
Monggar	10	90	0	70	-
Punakha	86	90.2	1	18	-
Paro	26.7	1191.7	129.8	622	2.4
Pema Gatshel	0	0	0	0	-
Samtse	0	0	0	0	-
Samdrup Jongkhar	0	0	0	0	-
Sarpang	2.5	37.5	66.5	41	-
Tsirang	0	13	0	40	5.5
Trongsa	0	0	0	50	-
Trashigang	0	30.5	0	0	-
Trashi Yangtse	16	23.5	0	2	-
Thimphu	70	774	105.3	894	6
Wangdue Phodrang	0	210.6	2.5	36	1.5
Zhemgang	0	0	0	0	-
Total	304.5	2549.7	308.2	1980	16.4

Source: NPPC, DoA, MoAF

Table 6.4 INSECTICIDES DISTRIBUTED TO DZONGKHAGS (F2018-2019)

Dzongkhag	Chlorpirifos 20EC (100ml)	Cypermethrin 10EC (100ml)	Fenvelerate 0.4D (kg)	Imidachroprid 20% SL (Ltr)	Malathion 50 EC (Ltr)
Bumthang	NA	31	NA	1	NA
Chhukha	NA	3	70	NA	NA
Dagana	67	NA	NA	6	NA
Gasa	NA	NA	NA	NA	NA
Haa	15	123	13	2	NA
Lhuntse	5	20	2	NA	NA
Monggar	47	121	140	31	NA
Punakha	NA	200	131	8	NA
Paro	31	1224	327	17	NA
Pema Gatshel	NA	NA	NA	NA	NA
Samtse	NA	NA	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA
Sarpang	9	33	20	4	11
Tsirang	10	16	NA	17	NA
Trongsa	NA	NA	NA	NA	NA
Trashigang	27	126	1163	NA	5
Trashi Yangtse	NA	20	20	NA	NA
Thimphu	86	416	980	28	NA
Wangdue Phodrang	4	372	26	8	1
Zhemgang	NA	2	NA	NA	NA
Total	300	2705	2892	121	17

Source: NPPC, DoA, MoAF

Table 6.5 FUNGICIDES DISTRIBUTED TO DZONGKHAGS (F2017-2018)

Dzongkhag	Captan (500g)	Carbendazim (250g)	Copper oxychloride (100g)	Hexaconazole (100ml)	Mancozeb (250g)	Metaxaly (100g)	Sulphur (500g)	Tricyclazole (100g)
Bumthang	NA	12.50	NA	NA	188.50	14.50	NA	2.25
Chhukha	NA	1	72.50	NA	62.50	2.50	NA	8.00
Dagana	NA	NA	0.50	NA	NA	0.75	NA	NA
Gasa	NA	NA	NA	NA	NA	-	NA	NA
Haa	19.25	3.25	NA	26.7	130.50	11.75	NA	NA
Lhuntse	2	NA	1.50	NA	NA	NA	NA	NA
Monggar	NA	NA	NA	NA	NA	NA	NA	0.75
Paro	121.50	291.25	19	2.6	539	45.50	NA	NA
Pema Gatshel	NA	NA	NA	NA	NA	NA	NA	NA
Punakha	NA	1.50	4.90	NA	NA	5.35	NA	6.75
Samtse	NA	NA	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA	NA
Sarpang	NA	10	10.20	NA	25.25	20.25	NA	0.50
Thimphu	94.75	211.75	86.90	32.2	44	40.90	48	21.50
Trashigang	NA	NA	1	NA	20	0.60	NA	NA
Trashiyangtse	NA	NA	21.70	NA	27.50	63.25	NA	NA
Trongsa	NA	NA	NA	NA	25	5	NA	10.00
Tsirang	NA	0.50	12.90	NA	0.25	NA	2	16.74
Wangdue Phodrang	NA	NA	9	NA	2007.50	66.90	NA	NA
Zhemgang	NA	NA	0.20	NA	NA	0.10	NA	NA
Total	237.50	531.75	240.30	61.50	3500	277.35	50	66.50

Source: NPPC, DoA, MoAF

Table 6.6 FUNGICIDES DISTRIBUTED TO DZONGKHAGS (F2018-2019)

Dzongkhags	Captan (500g)	Carbendazim (250g)	Copper oxychloride (100g)	Mancozeb (250g)	Metalaxly (100g)	Tricyclazole (100g)
Bumthang	1	16	NA	202	NA	NA
Chhukha	NA	NA	1	NA	NA	NA
Dagana	NA	NA	NA	NA	NA	NA
Gasa	NA	NA	NA	NA	NA	NA
Haa	10	28	NA	50	5	NA
Lhuntse	NA	NA	1	NA	NA	NA
Monggar	20	25	40	100	15	1
Punakha	1	1	1	1	2	21
Paro	28	331	14	471	36	NA
Pema Gatshel	NA	NA	NA	NA	NA	NA
Samtse	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA
Sarpang	5	NA	2	17	NA	6
Tsirang	NA	NA	NA	1	NA	NA
Trongsa	NA	NA	NA	1	2	NA
Trashigang	1	NA	10	32	NA	1
Trashiyangtse	NA	NA	37	1	66	NA
Timphu	15	191	11	466	18	3
Wangdue Phodrang	20	1	2	3650	48	22
Zhemgang	NA	NA	1	NA	NA	NA
Total	100	593	120	4992	190	54

Source: NPPC, DoA, MoAF

Table 6.7 HERBICIDES DISTRIBUTED TO DZONGKHAGS (F2017--2018)

Dzongkhag	Butachlor (Kg)	Glyphosate (500ml)	Metribuzim (100g)
Bumthang	NA	8.5	400.75
Chhukha	10,300	33.5	210
Dagana	5,000	13.5	0.75
Gasa	NA	NA	NA
Haa	5,000	52	259.5
Lhuntse	14,000	25	NA
Monggar	7,000	230	NA
Paro	161,000	433.5	553.25
Pema Gatshel	NA	NA	NA
Punakha	90,000	9.5	1
Samtse	7,300	NA	NA
Samdrup Jongkhar	NA	NA	NA
Sarpang	10,200	35	NA
Thimphu	35,000	774	324
Trashigang	27,000	10	NA
Trashi Yangtse	46,000	NA	NA
Trongsa	16,000	162	20
Tsirang	10,300	871.5	NA
Wangdue Phodrang	36,000	3,950	1,640.75
Zhemgang	NA	NA	NA
Total	480,100	6,539	3409

Source: NPPC, DoA, MoAF

Table 6.8 HERBICIDES DISTRIBUTED TO DZONGKHAGS (2018-2019)

Dzongkhag	Butachlor (Kg)	Glyphosate (500ml)	Metribuzim (100g)
Bumthang	NA	5	410
Chhukha	16,500	55	188
Dagana	5,200	88	NA
Gasa	NA	NA	NA
Haa	NA	NA	75
Lhuntse	23,000	133	NA
Monggar	11,600	341	NA
Punakha	70,000	97	1
Paro	162,000	657	474
Pema Gatshel	NA	NA	NA
Samtse	5,000	NA	NA
Samdrup Jongkhar	1,000	NA	NA
Sarpang	9,000	103	NA
Tsirang	10,000	871	NA
Trongsa	17,000	145	20
Trashigang	20,000	35	1
Trashi Yangtse	62,000	100	NA
Thimphu	30,000	301	134
Wangdue Phodrang	50,000	6,244	1,745
Zhemgang	NA	NA	NA
Total	492,300	9,173	3,047

Source: NPPC, DoA, MoAF

Table 6.9 NON-TOXIC CHEMICALS DISTRIBUTED TO DZONGKHAGS

Dzongkhag	2018			2019			
	Neem Oil (100ml)	TSO/HMO (Ltr)	Sticker (250ml)	Neem Oil (100ml)	TSO/HMO (Ltr)	Sticker (250ml)	Protein hydrolysate (Kg)
Bumthang	NA	NA	NA	9	20	NA	NA
Chhukha	0.5	5	NA	4	NA	NA	NA
Dagana	NA	NA	10	NA	NA	11	40
Gasa	NA	NA	NA	NA	NA	NA	NA
Haa	NA	23	3.25	NA	20	NA	NA
Lhuntse	NA	NA	NA	NA	NA	NA	NA
Monggar	NA	100	NA	NA	180	50	NA
Paro	18.9	4,254	24.5	5	100	NA	NA
Pema Gatshel	NA	NA	NA	33	3,843	59	NA
Punakha	NA	NA	NA	NA	NA	NA	NA
Samtse	NA	NA	2	5	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA
Sarpang	NA	NA	21	71	NA	1	NA
Thimphu	116	3,261	25.75	NA	20	NA	NA
Trashigang	NA	NA	NA	NA	NA	NA	NA
Trashigangse	NA	NA	NA	NA	NA	NA	NA
Trongsa	NA	NA	NA	NA	NA	NA	NA
Tsirang	NA	NA	NA	94	1,088	24	NA
Wangdue Phodrang	NA	210	220.75	35	10	379	NA
Zhemgang	0.1	NA	NA	1	NA	NA	NA
Total	232	7,853	307.25	256	5,281	523	40

Source: NPCC, DoA, MoA

Table 6.10 RODENCIDES DISTRIBUTED TO DZONGKHAGS (2018)
(Volume in Litre)

Dzongkhags	2018	2019
	Zinc phosphide (Kg)	Zinc phosphide (Kg)
Bumthang	0.37	0.09
Chhukha	NA	0.12
Dagana	0.1	15.3
Gasa	NA	NA
Haa	2.67	0.82
Lhuntse	2	0.53
Monggar	1	0.5
Punakha	0.5	2.67
Paro	NA	0.67
Pema Gatshel	0.28	NA
Samtse	0.1	NA
Samdrup Jongkhar	NA	NA
Sarpang	NA	1.8
Tsirang	0.61	12.37
Trongsa	0.1	0.05
Trashigang	1	11.75
Trashi Yangtse	NA	0.05
Thimphu	1.18	2.01
Wangdue Phodrang	4.53	9.02
Zhemgang	NA	NA
Total	14.44	57.75

Source: NPPC, DoA, MoA

Chapter 7: Fertilizer

Table 7.1 IMPORT OF FERTILIZERS FROM INDIA (2015- 2019)

(Volume in MT and Value in Million Nu.)

Commodity	2015		2016		2017		2018		2019	
	Vol.	Val.	Vol.	Val.	Vol.	Val.	Vol.	Val.	Vol.	Val.
Urea	2,142.00	31.38	2,935.15	44.48	1,196.06	17.69	2,110.03	35.49	1,517.93	25.19
Ammonium sulphate	0.01	0.00	0.04	0.03	3.50	0.03	0.00	0.00	0.01	0.00
Ammonium nitrate	0.01	0.02	0.01	0.00	7.51	0.29	NA	NA	0.02	0.00
Sodium nitrate	0.01	0.00	0.01	0.00	2,885.75	82.31	NA	NA	0.01	0.00
Superphosphate	2,888.95	75.27	1,771.75	47.16	0.45	0.55	NA	NA	NA	NA
Potassium chloride	0.42	0.06	0.42	0.10	0.01	0.04	0.91	0.08	0.44	0.08
Potassium sulphate	NA	NA	0.13	0.03	3.45	0.09	0.02	0.01	0.01	0.00
Mixture of nitrogen, phosphorus & potassium	2.10	0.07	1.00	0.05	2.25	0.04	NA	NA	0.57	0.06

Source: *Bhutan Trade Statistics*

Table 7.2 FERTILIZER SUPPLIED TO DZONGKHAGS (2014/15)
(Volume in MT)

Dzongkhag	Suphala	Urea	Single superphosphate (SSP)	Muriate of potash (MOP)	Bonemeal	Diammonium phosphate (DAP)	Borax	Calcium Ammonium Nitrate (CAN)
Bumthang	NA	NA	300.00	NA	NA	NA	NA	NA
Chhukha	170.00	79.00	NA	1.00	0.50	NA	NA	NA
Dagana	3.00	7.00	NA	NA	NA	NA	NA	NA
Gasa	NA	NA	NA	NA	NA	NA	NA	NA
Haa	10.00	10.00	NA	NA	0.50	NA	NA	NA
Lhuntse	7.00	40.00	NA	NA	NA	NA	NA	NA
Monggar	40.00	150.00	NA	0.80	NA	NA	NA	NA
Paro	300.00	252.00	20.00	4.00	1.50	0.10	0.20	NA
Pema Gatshel	9.00	NA	NA	NA	NA	NA	NA	NA
Punakha	170.00	170.00	NA	NA	1.00	NA	NA	NA
Sarpang	6.00	10.00	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	9.00	7.00	NA	NA	NA	NA	NA	NA
Thimphu	125.00	75.00	9.00	12.50	2.00	0.15	0.03	0.20
Trashigang	150.00	235.00	9.00	NA	NA	NA	NA	NA
Tashi Yangtse	70.00	150.00	NA	NA	NA	NA	NA	NA
Trongsa	8.00	6.00	NA	NA	NA	NA	NA	NA
Tsirang	21.00	14.00	NA	NA	0.35	NA	NA	NA
Wangdue Phodrang	330.00	260.00	250.00	NA	NA	NA	NA	NA
Zhemgang	NA	NA	NA	NA	NA	NA	NA	NA
Total	1,428.00	1,465.00	588.00	18.30	5.85	0.25	0.23	0.20

Source: NSC, DoA, MoAF

Table 7.3 FERTILIZERS SUPPLIED TO DZONGKHAGS (2015-2016)
(Volume in MT)

Dzongkhag	Suphala	Urea	Single superphosphate (SSP)	Muriate of potash (MOP)	Bonemeal	DAP Diammonium phosphate (DAP)	Borax	Calcium Ammonium Nitrate (CAN)
Bumthang	46.75	186.55	342.40	0.20	0.05	NA	NA	NA
Chhukha	146.10	14.71	2.20	0.20	NA	NA	NA	NA
Dagana	NA	NA	NA	NA	NA	NA	NA	NA
Gasa	NA	NA	NA	NA	NA	NA	NA	NA
Haa	22.90	28.50	NA	NA	NA	NA	NA	NA
Lhuentse	0.35	39.00	NA	NA	NA	NA	NA	NA
Monggar	48.60	101.30	9.15	6.25	0.05	NA	NA	NA
Paro	218.56	141.36	1.60	0.10	0.15	NA	0.05	0.08
Pema Gatshel	3.55	NA	4.00	NA	NA	NA	NA	NA
Punakha	89.00	141.50	14.75	NA	NA	NA	NA	NA
Samtse	2.00	3.00	NA	NA	NA	NA	NA	NA
Sarpang	5.05	7.80	1.05	1.10	NA	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA	NA
Thimphu	121.15	93.8	63.65	5.05	1	NA	NA	NA
Trashigang	134.65	393.75	25.75	NA	NA	NA	NA	NA
Tashi Yangtse	59.45	103.00	NA	NA	NA	NA	NA	NA
Trongsa	7.25	11.85	NA	NA	NA	NA	NA	NA
Tsirang	4.70	7.75	NA	NA	NA	NA	NA	NA
Wangdue Phodrang	512.00	117.60	125.40	0.50	NA	NA	NA	NA
Zhemgang	NA	NA	NA	NA	NA	NA	NA	NA
Total	1,422.06	1,391.47	589.95	13.40	1.25	0.00	0.05	0.08

Table 7.4 FERTILIZERS SUPPLIED TO DZONGKHAGS (2017)

Dzongkhag	Suphala	Urea	Single superphosphate (SSP)	Muriate of potash (MOP)	Bonemeal	Diammonium phosphate (DAP)	Borax	Calcium Ammonium Nitrate (CAN)
Bumthang	33.55	89.50	NA	NA	NA	NA	NA	NA
Chhukha	176.96	37.40	4.80	NA	NA	NA	NA	0.45
Dagana	1.25	0.75	NA	NA	NA	NA	NA	NA
Gasa	NA	NA	NA	NA	NA	NA	NA	NA
Haa	16.00	8.50	NA	NA	NA	NA	NA	NA
Lhuentse	5.30	6.50	NA	NA	NA	NA	NA	NA
Monggar	49.50	111.05	NA	NA	NA	NA	NA	NA
Paro	128.65	150.80	82.00	1.20	NA	NA	NA	0.10
Pema Gatshel	2.00	NA	NA	NA	NA	NA	NA	NA
Punakha	90.65	130.89	10.00	0.05	NA	NA	NA	NA
Samtse	2.90	3.60	NA	NA	NA	NA	NA	NA
Sarpang	6.65	15.50	1.60	0.10	0.15	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA	NA
Thimphu	140.65	55.20	53.95	9.75	0.75	NA	0.15	0.15
Trashigang	73.30	445.20	28.85	0.15	NA	NA	NA	NA
Tashi Yangtse	49.55	89.50	NA	NA	NA	NA	NA	NA
Trongsa	9.00	6.85	NA	NA	NA	NA	NA	NA
Tsirang	4.00	12.00	NA	2.78	NA	NA	NA	NA
Wangdue Phodrang	588.35	105	26.05	0.60	NA	NA	NA	NA
Zhemgang	NA	NA	NA	NA	NA	NA	NA	NA
Total	1,378.26	1,268.24	207.25	14.63	0.90	0.00	0.15	0.70

Source: NSC, DoA, MoAF

Table 7.5 FERTILIZERS SUPPLIED TO DZONGKHAGS (2018-2019)
(Volume in MT)

Dzongkhag	Suphala	Urea	Single superphosphate (SSP)	Muriate of potash (MOP)	Bonemeal	Diammonium phosphate (DAP)	Borax	Ammonium Nitrate (CAN)	Calcium Nitrate (CAN)
Bumthang	49.94	146.49	298.40	NA	0.25	NA	NA	NA	NA
Chhukha	66.57	106.02	NA	NA	NA	1.15	0.02	0.25	0.25
Dagana	11.19	7.85	NA	NA	NA	NA	NA	NA	NA
Gasa	NA	NA	NA	NA	NA	NA	NA	NA	NA
Haa	15.65	12.52	NA	NA	0.20	NA	NA	NA	NA
Lhuentse	0.10	110.38	0.20	NA	NA	NA	NA	NA	NA
Monggar	44.84	149.07	0.25	NA	NA	NA	NA	NA	NA
Paro	109.55	86.21	32.55	1.75	NA	NA	0.19	NA	NA
Pema Gatshel	0.04	0.08	NA	NA	NA	NA	NA	NA	NA
Punakha	106.23	123.61	9.35	NA	NA	NA	NA	NA	NA
Samtse	1.79	3.99	NA	NA	NA	0.20	NA	0.25	0.25
Sarpang	4.20	15.84	2.75	0.20	NA	NA	NA	NA	NA
Samdrup Jongkhar	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thimphu	113.67	78.78	40.35	1.80	0.15	0.20	0.19	NA	NA
Trashigang	107.15	170.44	21.60	NA	NA	NA	NA	NA	NA
Tashi Yangtse	36.15	143.17	NA	NA	NA	NA	NA	NA	NA
Trongsa	12.00	11.95	NA	NA	NA	NA	NA	NA	NA
Tsirang	9.32	17.57	NA	NA	0.85	NA	NA	NA	NA
Wangdue Phodrang	507.10	90.14	145.20	0.80	0.75	NA	NA	NA	NA
Zhemgang	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	1195.49	1274.00	550.65	4.55	2.20	1.55	0.41	0.50	0.50

Source: NSC, DoA, MoAF

Chapter 8: RNR infrastructure

Table 8.1 AGRICULTURE CENTRES UNDER DoA AS OF DEC. 2019

(Value in Number)

Centres	Value
RNR centres*	198
Agriculture Extension Centres	3
Agriculture Seed Production Farms	8
National Plant Protection Centre	1
Agriculture Machinery Centres	4
National Mushroom Centre	1
National Post Harvest Centre	5
Agriculture Research and Development Centres	3
Agriculture Research and Development Sub-Centres	5
Soil & Plant Analytical Laboratory	1
Research and Development Centre Organic Agriculture	1
Farm Machinery Cooperation Limited (FMCL) (SOE)	1

Source: DoA, MoAF

Table 8.2 FORESTRY CENTRES UNDER DoFPS AS OF DEC. 2019

(Value in Number)

Centres	Value
Functional Divisions	7
Territorial Divisions	14
Range Offices	71
Beat Office	98
Forest check Posts	36
Protected areas (Parks & sanctuaries)	10
Forest Management unit	21
Biological Corridors	8
Tiger Centre	1
Forestry Research Institute (UWICER)	1

Source: DoFPS, MoAF

Table 8.3 LIVESTOCK CENTRES UNDER DoL AS OF DEC. 2019
(Value in Number)

Centres	Nos.
RNR- Extension Centres (Gewog)	196
Livestock Extension Centres (LEC)	15
National Livestock Research and Development Centres	7
National Center for Animal Health	1
Dzongkhag Veterinary Hospitals	20
Regional Livestock Development Centres	4
National Veterinary Hospital	1
City Veterinary Hospital	1
Statellite Veterinary Hospitals	4
Government Livestock Farms (for breeding/production)	16
Vaccine Production Centre	1
Liquid Nitrogen	2
Semen Processing Centre	1
National Highland Program	1
Livestock Central Store	1

Source: DoL, MoAF

Table 8.4 IRRIGATION INFRASTRUCTURE DURING 11 FYP (2013 TO 2018)
(Value in KM)

Dzongkhags	Executed by DoA		Executed by Dzongkhags		Total	
	New Construction	Renovation	New Construction	Renovation	New Construction	Renovation
Bumthang	NA	NA	6.84	NA	6.84	NA
Chhukha	NA	NA	34.90	NA	34.90	NA
Dagana	8.00	NA	89.60	180.65	97.60	180.65
Gasa	NA	NA	NA	3.36	NA	3.36
Haa	NA	NA	17.50	11.20	17.50	11.20
Lhuentse	8.10	35.50	29.60	144.59	37.70	180.09
Monggar	9.00	NA	24.40	60.00	33.40	60.00
Paro	NA	NA	8.50	67.70	8.50	67.70
Pema Gatshel	NA	NA	1.00	10.00	1.00	10.00
Punakha	15.20	2.50	125.00	100.00	140.20	102.50
Samdrup Jongkhar	NA	NA	56.00	40.00	56.00	40.00
Samtse	25.54	4.80	64.40	54.60	89.94	59.40
Sarpang	11.00	14.60	46.00	123.00	57.00	137.60
Thimphu	NA	NA	36.82	53.50	36.82	53.50
Trashigang	NA	NA	83.82	37.50	88.82	37.50
Trashiyangtse	8.63	12.40	62.93	112.00	71.56	124.40
Trongsa	NA	NA	40.06	64.60	40.06	64.60
Tsirang	NA	NA	31.00	82.30	31.00	82.30
Wangdue Phodrang	NA	14.00	23.50	358.06	23.50	372.06
Zhemgang	NA	6.21	28.70	29.70	28.7	35.91
Total	90.47	90.01	810.57	1,625.46	901.04	1,715.47

Source: DoA, MoAF

Table 8.5 IRRIGATION INFRASTRUCTURE DURING 12 FYP (2018-2019)

Dzongkhag	No of Schemes	Functionality Status (Count)			Water Availability Perception			
		Functional	Semi-Functional	Non-functional	Abundant	Adequate	Inadequate	Critical
Bumthang	25	25	NA	NA	7	11	7	NA
Chhukha	36	34	NA	2	20	12	4	NA
Dagana	95	81	3	11	22	34	38	NA
Gasa	3	3	NA	NA	1	2	NA	NA
Haa	12	11	NA	1	1	3	7	NA
Lhuentse	46	43	NA	3	15	18	13	NA
Monggar	33	33	NA	NA	11	12	10	NA
Paro	56	54	NA	2	17	22	13	4
Pema Gatshel	9	4	NA	5	2	2	5	NA
Punakha	93	89	NA	4	10	65	13	1
Samdrup Jongkhar	42	41	NA	1	19	15	8	NA
Samtse	31	28	NA	3	11	13	9	NA
Sarpang	97	78	2	17	34	41	22	NA
Thimphu	29	28	1	NA	14	10	3	1
Trashigang	43	32	2	9	8	14	12	9
Trashiyangtse	47	39	3	4	15	22	7	1
Trongsa	45	37	1	7	6	29	9	1
Tsirang	84	73	2	8	23	45	12	2
Wangdue Phodrang	99	89	5	5	17	61	17	4
Zhemgang	42	33	NA	9	11	21	1	9
Total	967	855	19	91	264	452	210	32

Source: DoA, MoAF

Table 8.6 ELECTRIC FENCING LENGTH AND LAND AREA COVERED DURING (2014–2015)

Dzongkhag	Fence length (km)	Beneficiaries (No of HHs)	Dryland (acre)	Wetland (acre)	Total Acreage of wet & dry land (Ac)
Bumthang	1.59	10.00	11.80	NA	11.80
Chukha	69.39	559.00	1,503.78	340.62	1,844.40
Dagana	15.50	131.00	171.03	109.80	280.83
Gasa	93.53	190.00	302.26	175.10	477.36
Haa	18.00	174.00	218.60	NA	218.60
Lhuentse	5.78	70.00	75.53	33.34	108.87
Monggar	199.24	1,138.00	1,355.86	274.62	1,630.48
Paro	7.80	13.00	34.00	47.00	81.00
Pema Gatshel	22.60	217.00	279.00	NA	279.00
Punakha	279.04	839.00	375.75	737.40	1,113.16
Samdrup Jongkhar	5.60	164.00	135.00	235.00	370.00
Samtse	16.35	144.00	214.80	99.18	313.98
Sarpang	26.79	688.00	383.00	1,531.69	1,914.69
Thimphu	26.13	191.00	237.21	NA	237.21
Trashigang	15.17	86.00	307.58	8.75	316.33
Trashiyangtse	10.00	113.00	157.50	25.00	182.50
Trongsa	9.00	43.00	63.10	65.05	128.15
Tsirang	13.20	44.00	NA	NA	NA
Wangdue Phodrang	2.30	9.00	4.08	12.35	16.43
Zhemgang	7.98	98.00	NA	87.00	87.00
Total	844.99	4,921.00	5,829.88	3,781.91	9,611.78

Source: NPPC, DoA, MoAF

Table 8.7 ELECTRIC FENCING LENGTH AND LAND AREA COVERED DURING (2015–2016)

Dzongkhag	Fence length (km)	Beneficiaries (No of HHs)	Dryland (acre)	Wetland (acre)	Total Acreage of wet & dry land (Ac)
Bumthang	82.25	315.00	299.40	13.03	312.43
Chukha	12.89	126.00	725.70	237.12	962.82
Dagana	57.30	611.00	718.90	979.72	1,688.29
Gasa	9.61	18.00	46.01	NA	46.01
Haa	11.84	125.00	142.91	NA	142.91
Lhuentse	40.05	277.00	229.35	59.44	288.79
Monggar	31.14	236.00	235.25	158.85	394.10
Paro	28.60	47.00	30.00	70.00	100.00
Pema Gatshel	60.07	419.00	1,603.12	NA	1,603.12
Punakha	53.79	230.00	37.35	183.75	221.10
Samdrup Jongkhari	55.51	311.00	63.00	191.00	254.00
Samtse	13.00	250.00	204.49	141.86	346.35
Sarpang	81.27	996.00	2,280.88	1,556.55	3,837.43
Trashigang	41.95	232.00	1,121.49	286.44	1,407.93
Trashigangtse	81.15	512.00	1,104.70	83.10	1,187.80
Trongsa	89.64	398.00	625.86	601.72	1,227.58
Tsirang	45.61	208.00	NA	NA	NA
Wangdue Phodrang	52.18	203.00	57.18	458.92	516.10
Zhemgang	52.60	367.00	332.10	369.40	701.50
Total	900.44	5,881.00	9,857.69	5,390.90	15,238.26

Source: NPPC, DoA, MoAF

Table 8.8 ELECTRIC FENCING LENGTH AND LAND AREA COVERED DURING (2016-2017)

Dzongkhag	Fence length (km)	Beneficiaries (No of HHs)	Dryland (acre)	Wetland (acre)	Total Acreage of wet & dry land (Ac)
Bumthang	71.76	511.00	604.49	58.94	663.44
Chhukha	35.52	273.00	552.95	67.50	620.45
Dagana	135.10	489.00	889.12	457.13	1,346.25
Gasa	54.92	105.00	87.69	162.75	250.44
Haa	86.67	215.00	322.70	NA	322.70
Lhuentse	104.46	304.00	371.53	117.72	489.24
Monggar	70.73	439.00	768.59	92.77	861.36
Paro	55.96	184.00	553.08	268.34	821.42
Pema Gatshel	22.88	120.00	418.00	NA	418.00
Punakha	104.15	288.00	293.24	180.15	473.39
Samdrup Jongkhar	77.45	492.00	251.20	183.00	434.20
Samtse	30.05	415.00	448.02	287.84	735.86
Sarpang	52.10	453.00	945.11	755.31	1,700.42
Trashigang	60.22	294.00	764.67	256.94	1,021.61
Trashiyangtse	110.02	20.00	433.60	NA	433.60
Trongsa	19.50	78.00	10.00	NA	10.00
Tsirang	58.40	342.00	820.00	392.55	1,212.55
Wangdue Phodrang	213.67	676.00	32.00	375.51	407.51
Zhemgang	43.20	195.00	145.50	73.00	218.50
Total	4,409.02	22,023.00	30,212.43	17,594.52	496,718.70

Source: NPPC, DoA, MoAF

Table 8.9 ELECTRIC FENCING LENGTH AND LAND AREA COVERED DURING (2017-2018)

Dzongkhag	Fence length (km)	Beneficiaries (No of HHs)	Dryland (acre)	Wetland (acre)	Total Acreage of wet & dry land (Ac)
Bumthang	30.65	150.00	221.00	NA	221.00
Chhukha	12.64	98.00	146.00	36.00	182.00
Dagana	19.70	121.00	175.33	176.08	343.41
Gasa	7.30	23.00	122.00	7.00	129.00
Haa	20.26	177.00	261.98	NA	261.98
Lhuentse	73.70	113.00	234.90	13.40	248.30
Monggar	76.74	374.00	204.20	18.00	222.20
Paro	35.50	110.00	30.00	130.00	160.00
Pema Gatshel	5.00	24.00	73.00	NA	73.00
Punakha	53.45	100.00	13.26	55.24	68.50
Samdrup Jongkhar	49.00	60.00	60.00	22.00	82.00
Samtse	18.00	NA	NA	NA	NA
Sarpang	50.88	272.00	2,244.93	732.42	2,977.35
Trashigang	50.72	352.00	544.33	163.00	707.33
Trashigangtse	103.06	356.00	221.25	422.00	643.25
Trongsa	156.37	638.00	533.04	961.55	1,494.59
Tsirang	48.45	194.00	NA	440.65	422.65
Wangdue Phodrang	34.66	116.00	205.33	50.97	250.80
Zhemgang	43.88	218.00	315.00	241.00	556.00
Total	889.95	3,496.00	5,605.56	3,469.31	9,074.87

Source: NPPC, DoA, MoAF

Table 8.10 ELECTRIC FENCING LENGTH AND LAND AREA COVERED DURING (2018-2019)

Dzongkhag	Fence length (km)	Beneficiaries (No of HHs)	Dryland (acre)	Wetland (acre)	Total Acreage of wet & dry land (Ac)
Bumthang	104.11	486.00	578.59	23.90	602.49
Chhukha	8.34	62.00	79.13	NA	79.13
Dagana	21.00	5.00	8.22	NA	8.22
Gasa	18.70	38.00	33.95	5.35	39.30
Haa	33.76	158.00	282.60	NA	282.60
Lhuentse	NA	NA	NA	NA	NA
Monggar	NA	NA	NA	NA	NA
Paro	54.50	296.00	NA	NA	NA
Pema Gatshel	19.00	40.00	75.83	NA	75.83
Punakha	65.20	219.00	31.33	318.26	349.60
Samdrup Jongkhar	50.00	NA	NA	NA	NA
Samtse	9.85	85.00	NA	105.70	105.70
Sarpang	11.00	127.00	134.00	171.00	305.00
Trashigang	16.01	50.00	175.90	2.25	178.15
Trashiyangtse	39.60	NA	NA	NA	NA
Trongsa	39.90	212.00	68.12	38.45	246.06
Tsirang	38.30	156.00	271.07	169.74	440.81
Wangdue Phodrang	195.73	507.00	63.20	795.25	858.45
Zhemgang	20.91	103.00	NA	265.01	265.01
Total	745.91	2,544.00	1,801.94	1,894.91	3,836.34

Source: NPPC, DoA, MoAF

Chapter 9: Prices

Table 9.1 AVERAGE RETAIL PRICE OF CEREALS AND PULSES AT CFM, THIMPHU (2015-2019)
(Value in Nu. per KG)

Cereals	2015	2016	2017	2018	2019
White Rice (local)	71	75	80	89	95
Beaten/Flatten Maize	170	276	250	244	325
Beaten/Flatten Rice	190	231	200	199	150
Buckwheat flour (Sweet/Bitter)	102	150	150	157	175
Maize (Grinded/Kharang)	80	83	86	88	90
Red Rice (Local)	67	73	73	74	83
Wheat Flour (Roasted/Kapchi)	48	53	56	58	70
Zaw (Roasted rice)	92	105	96	105	135
Rajma Beans (Dried)	135	128	147	173	180

Source: DAMC, MoAF

Table 9.2 AVERAGE RETAIL PRICE OF LIVESTOCK PRODUCTS AT CFM, THIMPHU (2015-2019)
(Value in Nu. per Unit specified)

Products	2015	2016	2017	2018	2019
Butter (kg)	371	373	404	408	440
Cheese (kg)	345	386	368	462	510
Honey (litre)	NA	NA	NA	3,492	1,000
Eggs (dozen)	129	112	112	122	128

Source: DAMC, MoAF

Table 9.3 AVERAGE RETAIL PRICE OF VEGETABLES AT CFM, THIMPHU (2015-2019)
(Value in Nu. per KG, unless specified)

Vegetables	2015	2016	2017	2018	2019
Asparagus	144	125	146	238	384
Bamboo shoot	NA	116	100	125	130
Bean (Flat Type)	74	109	139	122	125
Bean (Long Type)	NA	76	NA	NA	125
Bitter Gourd	NA	98	98	85	140
Brinjal	NA	72	76	56	115
Broccoli	70	78	90	91	170
Cabbage	30	42	45	40	50

Vegetables	2015	2016	2017	2018	2019
Carrot	66	76	77	81	90
Cauliflower	90	122	149	138	120
Chilli dry (Big)	NA	178	159	198	725
Chilli dry (Small)	NA	205	206	252	190
Coriander	25	30	30	30	35
Cucumber	45	78	83	72	80
Garlic	213	210	225	185	215
Ginger	184	101	122	121	160
Mushroom (Oyster)	NA	NA	NA	118	305
Mushroom (shitake)	NA	711	748	674	430
Onion	80	74	67	54	83
Peas	65	86	104	100	145
Potato	NA	39	38	36	50
Pumpkin	29	37	46	43	63
Radish	26	37	40	39	45
Spinich (saag)	54	60	64	67	40
Squash	48	48	57	43	65
Tomato	60	87	90	72	90
Turnip	NA	43	49	93	40

Source: DAMC, MoAF

Table 9.4 AVERAGE RETAIL PRICE OF FRUITS AT CFM, THIMPHU
(2015-2019)

(Value in Nu. per KG, unless specified)

Fruits	2015	2016	2017	2018	2019
Apple	118	150	130	211	150
Avocado	NA	271	352	333	375
Banana(dozen)	99	75	82	77	80
Cucumber	45	78	83	72	80
Guava	NA	74	88	84	140
Lemon	NA	119	150	162	145
Mango	NA	104	138	142	205
Orange	97	106	124	171	170
Papaya	NA	75	86	97	150
Passion Fruit	NA	178	100	235	200
Pear	NA	108	137	178	175
Pineapple (pcs)	78	61	61	66	75

Source: DAMC, MoAF

Table 9.5 PRICE OF CEREAL AND OILSEED SEEDS (2015-2019)

(Value in Nu)

Cereals	Unit	2015	2016	2017	2018	2019
Maize (Y/pa, S/phangma, C/karpa)	5 kg/bag	28	30	30	NA	30
Maize (P3377)	2 kg/pkt	190	225	290	290	267
Maize (P344)	2 kg /pkt	190	190	290	290	NA
Paddy (BRK-1 & 2, BK-1 & 2)	20 kg/bag	35	35	35	35	40
Paddy (Bajo Maap-	20 kg/bag	43	50	50	NA	50
Paddy (Bajo kaap-1&2 & IR-64)	20 kg/bag	43	50	40	NA	45
Paddy (No.K/Map, YRK-1 & 2 and Yrm)	20 kg/bag	55	60	60	68	71
Wheat (Sonalika, Baj&Agreem)	20 kg/bag	31	35	35	38	38
Dhaincha	20 kg/bag	45	60	60	NA	61
Mustard (M-27)	5 kg /Bag	90	90	90	90	90
Soya bean (Lebi -1)	10 kg/bag	62	85	85	NA	86

Source: NSC, DoA, MoAF

Table 9.6 PRICE OF VEGETABLE SEEDS (2015-2019)

(Value in Nu)

Vegetable Seeds	Unit	2015	2016	2017	2018	2019
Beans (Top crop/borlotto)	50 gm/pkt	10	10	10	11	13
Beetroot (DDR)	10 gm/pkt	10	10	10	13	15
Bitter Gourd (Hybrid)	10 gm/pkt	25	25	25	NA	32
Bottle Gourd (Hybrid)	10 gm/pkt	25	25	25	NA	32
Brinjal (PP Long)	10 gm/pkt	15	15	15	NA	15
Broccoli (Centauro)	10 gm/pkt	195	310	310	NA	226
Broccoli (Dessico - OP)	10 gm/pkt	10	10	10	10	13
Bunching Onion (No-21)	10 gm/pkt	25	25	25	25	25
Cabbage (Hybrid)	10 gm/pkt	135	145	205	NA	149
Cabbage (Golden Acre)	10 gm/pkt	25	30	40	29	32
Carrot (ASC - Hybrid)	10 gm/pkt	75	80	115	86	95
Carrot (N. Kuroda)	10 gm/pkt	20	20	20	20	22
Cauliflower (Hybrid)	10 gm/pkt	155	180	255	172	177
Cauliflower (K.early/K.late)	10 gm/pkt	15	15	15	17	19
Chilli-IR-8 (Indian)	10 gm/pkt	10	10	10	10	13
Chilli (Sha ema)	10 gm/pkt	10	10	10	NA	20
Chinese Cabbage	10 gm/pkt	10	10	10	10	13
Coriander (Local)	10 gm/pkt	15	15	15	15	15
Cucumber (Frontier)	10 gm/pkt	100	100	100	100	100
Cucumber (S. Genchu)	10 gm/pkt	15	15	15	17	23
Cucumber (santon No 1)	10 gm/pkt	15	25	25	28	29
Garlic (Local)	10 gm/pkt	200	195	195	NA	195
Ginger (Local)	10 gm/pkt	100	100	100	NA	100

Vegetable Seeds	Unit	2015	2016	2017	2018	2019
Japanese Green (Mibuna)	10 gm/pkt	10	10	10	10	15
Japanese Green (Taisai)	10 gm/pkt	10	10	10	10	15
Ladies Finger (PS)	10 gm/pkt	15	15	15	17	18
Lettuce (Great Lake)	5 gm/pkt	20	20	20	25	29
Sag (Him Beauty)	10 gm/pkt	10	10	10	14	15
Onion (OP/ B-Red)	10 gm/pkt	20	20	20	20	22
Onion (Pune Red)	10 gm/pkt	25	25	25	25	25
Peas (Mr. Rig). Hybrid	50 gm/pkt	10	10	10	11	13
Peas (Usui/Arkel)	50 gm/pkt	10	10	10	11	13
Beans (Pole bean white)	50 gm/pkt	10	14	10	11	NA
Pumpkin (T-Kabuta)	10 gm/pkt	10	15	10	13	15
Radish (Ivory white)	10 gm/pkt	10	10	10	10	11
Radish (Minowase)	10 gm/pkt	10	10	10	10	13
Radish (Tokinashi)	10 gm/pkt	15	15	15	19	20
Spinach All (Green/Beet)	10 gm/pkt	10	10	10	10	13
Squash (Zucchini)	10 gm/pkt	10	15	10	14	15
Tomato (PS-61)	5 gm/pkt	110	110	110	121	122
Tomato (Ratan/Roma)	5 gm/pkt	15	15	15	17	18
Turnip (PTWG)	10 gm/pkt	10	10	10	13	13
Water melon (Sugar Baby)	10 gm/pkt	15	15	15	18	22
Water melon (Hybrid)	10 gm/pkt	330	330	330	330	NA
Potato Red (Desiree)	50 kg/bag	22	25	27	NA	27
Potato White varieties	150 kg/bag	21	24	25	NA	26

Source: NSC, DoA, MoAF

Table 9.7 PRICE OF TEMPERATE FRUIT SEEDLINGS (2015-2019)
(Value in Nu)

Temperate fruit seedlings	Unit	2015	2016	2017	2018	2019
Almond (Kagzi)	Numbers	90	90	90	90	100
Apple (All Varieties)	Numbers	80	80	80	80	90
Apricot (Shakharpara)	Numbers	90	90	90	90	100
Asparagus seedlings (MW)	Numbers	4	4	4	4	4
Cherry (Seneka/Jabouny)	Numbers	80	80	80	90	95
Chestnut (Jeuphu-1)	Numbers	50	50	50	50	60
Peach (N-wase/S-Hakuto)	Numbers	90	90	90	90	100
Pear (Hosui/Kosui/Chujoro/William)	Numbers	75	75	75	75	96
Persimmon (Fuyu/Jiro)	Numbers	110	110	110	110	125
Plum (Santarosa/Stanley)	Numbers	90	90	90	90	100
Straw berry (Chandler)	Numbers	7	7	7	7	9
Walnut (Grafted – Kagzi)	Numbers	185	185	185	185	205

Source: NSC, DoA, MoAF

Table 9.8 PRICE OF SUBTROPICAL FRUIT SEEDLINGS (2015-2019)

(Value in Nu)

Subtropical fruit seedlings	Unit	2015	2016	2017	2018	2019
Areca nut (Bhur S-1)	Numbers	33	40	40	40	55
Avocado (Hasa/Pink caton)	Numbers	133	135	135	135	150
Banana (Chinichampa/Jahaji)	Numbers	25	40	40	40	50
Cardamom (Seedling multiplied)	Numbers	11	11	9	9	10
Cardamom (through seeds)	Numbers	13	13	13	NA	NA
Mandarin Orange (grafted)	Numbers	79	90	90	NA	NA
Mandarin Orange (seedlings)	Numbers	33	35	35	35	50
Gauva (L-49)	Numbers	36	45	45	45	45
Jack fruit (Bhur S-1)	Numbers	13	15	15	15	21
Litchi (E-Bedana/Shahi)	Numbers	49	60	60	60	75
Mango graft (Langra/DS/AP/CH)	Numbers	68	75	75	75	85
Papaya	Numbers	13	15	15	15	23
Passion fruit (Local)	Numbers	11	15	15	15	20
Pine apple (Sugar baby)	Numbers	30	35	35	35	25
Pomegranate (Bedana)	Numbers	28	30	30	30	50

Source: NSC, DoA, MoAF

Table 9.9 PRICE OF FERTILIZERS (2015-2019)

(Value in Nu)

Fertilizers	Unit	2015	2016	2017	2018	2019
Urea (46 % N)	50 Kg pack	895	935	938	983	885
Urea (46% N)	10 Kg pack	190	200	220	218	218
Suphala (NPK 15:15:15)	50 Kg pack	1690	1785	1870	1876	1876
Suphala (NPK 15:15:15)	20 Kg pack	690	730	780	775	775
Suphala (NPK 15:15:15)	10 Kg pack	NA	NA	400	396	NA
Suphala (NPK 15:15:15)	5 Kg pack	NA	NA	205	204	NA
SSP (16% P2O)	50 Kg pack	895	930	985	977	977
Bone Meal	50 Kg pack	1335	2840	2840	2065	2065
MOP (60% K2O)	50 Kg pack	1855	1980	2145	2132	2132
Borax (20% Boron minimum)	5 Kg pack	1230	870	945	938	938
DAP (18%N 46%P2O)	50 Kg pack	2405	2405	2405	NA	NA
CAN	50 Kg pack	1335	1335	1335	NA	NA

Source: NSC, DoA, MoAF

Table 9.10 PRICE OF PLANT PROTECTION CHEMICALS (2015-2019)

(Value in Nu. per Unit)

Category	PP Chemicals	Unit	2015	2016	2017	2018	2019
Insecticides	Alphacypermethrin	1000 ml	NA	NA	299	NA	NA
	Chlorpyrifos 20 EC	100 ml	40	34	32	32	35
	Cypermethrin 10 EC	100 ml	37	28	28	32	30
	Dimethoate30 EC	100 ml	44	39	38	38	NA
	Fenvelerate 0.4D	1 kg	36	32	32	52	42
	Malathion 50 EC	100 ml	43	NA	NA	NA	40
	Captan 50 WP	500 gms	273	273	247	NA	82
	Carbendazim50 WP	250 gms	111	100	96	96	109
Fungicides	Copper Oxychloride50 WP	100 gms	61	58	47	47	42
	Hexaconazole5EC	100 ml	40	37	34	34	NA
	Mancozeb 75 WP	250 gms	76	NA	NA	74	68
	Metalaxyl 8% + Mancozeb64 %	100 gms	67	58	53	NA	49
	Sulphur 80 WP	250 gms	68	68	131	95	NA
	Tricyclazole75 WP	100 gms	128	122	102	NA	NA
Herbicides	Butachlor 5 G	20 kg	NA	37	37	NA	NA
	Glyphosate 41 SL	500 ml	NA	153	129	124	131
	Metribuzim 70 WP	100 gms	NA	127	104	NA	568
Rhodenticides	Zinc Phosphide	10 gms	NA	13	13	13	13
	Azadirachtin0.3%	100 ml	NA	58	58	NA	60
Non-toxic/ Bio-pesticides	Orchard sprays Oil/Tree spray oil/Horticulture Mineral oil	100 litres	NA	157	157	NA	NA
	Stiker/Spreader/ Activator	250 ml	NA	67	67	65	59

Source: NPPC, DoA, MoAF

Chapter 10: Forestry

Table 10.1 PROTECTED AREAS AND COVERAGE

Protected Areas	Area (km ²)	Dzongkhags Coverage
Bumdeling Wildlife Sanctuary (BWS)	1,520.61	Lhuntse, Mongar & Tashiyangtse
Jomotshangkha Wildlife Sanctuary (JWS)	334.73	Samdrupjongkhar
Jigme SingyeWangchuck National Park (JSWNP)	1,730.00	Zhemgang, Sarpang, Tongsa & Wangduephodrang
Jigme Khesar Strict Nature Reserve (JKSNR)	609.51	Haa
Jigme Dorji National Park (JDNP)	4,316.00	Gasa, Paro, Punakha & Thimphu
Phrumsengla National Park (PNP)	909.05	Bumthang, Mongar & Lhuntse
Phibsoo Wildlife Sanctuary (PWS)	268.93	Dagana & Sarpang
Royal Manas National Park (RMNP)	1,057.00	Sarpang & Zhemgang
Sakteng Wildlife Sanctuary (SWS)	740.60	Tashigang
Wangchuck Centennial National Park (WCNP)	4,914.00	Bumthang, Lhuntse, Tongsa & Wangduephodrang

Source: Forest Facts and Figures 2019, DoFPS

Table 10.2 DZONGKHAG WISE AREA UNDER FOREST MANAGEMENT UNITS (FMU)

Dzongkhag	Name of FMU	FMU Area (Ha)	Annual Allowable Cut (ACC) in m ³		
			Commercial	Rural	Total
Bumthang	Dawathang	17,541.66	9,756.00	2,424.00	12,180.00
	Rudongla	14,686.58	12,000.00	2,999.00	14,999.00
	Karshong	6,008.54	6,200.00	1,500.00	7,700.00
Chhukha	Metapchhu	10,676.53	4,400.00	630.00	5,030.00
	Haa East	6,580.99	NA	500.00	500.00
Haa	Lon Chhu	12,644.49	5,300.00	1,000.00	6,300.00
	Sele La	9,157.00	8,886.00	3,000.00	11,886.00
Lhuntse	Rongmanchu	6,401.00	2,700.00	500.00	3,200.00
Monggar	Korila	13,137.00	1,100.00	2,700.00	3,800.00
	Lingmithang	10,490.00	8,900.00	500.00	9,400.00
Paro	Paro Zonglela	16,155.81	6,366.00	3,000.00	9,366.00
	Bitekha	7,260.10	3,600.00	900.00	4,500.00
Pema Gatsel	Khengzore	4,096.35	3,700.00	400.00	4,100.00
Thimphu	Changang-Helela	4,508.78	NA	1,800.00	1,800.00
	Gidakom	13,100.00	3,670.00	2,000.00	5,670.00
Trashigang	KhalingKharungla	7,110.30	900.00	400.00	1,300.00
Trahis Yangtse	Dongdechhu	4,856.00	3,965.00	1,250.00	5,215.00
Trongsa	Chendebji	7,852.98	4,700.00	2,000.00	6,700.00

Dzongkhag	Name of FMU	FMU Area (Ha)	Annual Allowable Cut (ACC) in m3		
			Commercial	Rural	Total
Wangdue	Khotokha	9,407.48	7,500.00	1,900.00	9,400.00
Phordang	Gogona	8,080.60	5,161.00	1,167.00	6,328.00
Zhemgang	Wangdigang	8,759.00	NA	2,100.00	2,100.00

Source: Forest Facts and Figures 2019, DoFPS

Table 10.3 NWFPS SUPPLIED AND REVENUE GENERATED BY DoFPS (2014-15 & 2016)

Product Types	2016	2014-2015		2016	
		Volume	Royalty realized (Nu.)	Volume	Royalty realized (Nu.)
Clay soil/Top soil	Kg	6,550	5,100	34,000	12,500
	Headloads	8,016	46,040	120	60
	m3	NA	NA	13,264	122,540
Flat stone	m3	160	800	232	1,200
	Bundle	NA	NA	72	36
	Headloads	767	2,544	7,552	12,616
Cane/Cane shoot	Kg	1,140	1,248	NA	NA
	Nos	700	450	28,840	510
	m3	210	1,356	310	1,784
Charcoal	Kg	NA	NA	134,800	7,290
Daphne bholua	Kg	2,701	2,800	48,480	3,756
	Headloads	NA	NA	160	400
Incense (Leaves/wood)	Kg	2,372	4,044	75,308	33,703
	m3	NA	NA	48	300
	Bundle	240	240	448	768
Large/Small Bamboo	Headloads	855	3,440	40	104
	Nos	106,297	34,908	1,227,472	118,944
	m3	16,448	2,128	8,464	2,404
Leaf mould	m3	2,636	9,730	6,392	73,332
Lemon grass oil	Ltr	NA	NA	2,360	1,475
Mushrooms	Kg	669	4,446	4,800	136,646
Ophiocordyceps sinensis (Cordyceps)	Kg	646	275,260	NA	NA
	Nos	50	150,000	22,243	883,144
Orozylum (Tsampaka)	Kg	NA	NA	80	40
Picorrhiza (Putashing)	Kg	2,249	27,887	28,680	36,340
Piper longum (Pipla)	Kg	200	120	22,264	78,660
Rubiocordifolia (Tseed)	Kg	NA	NA	111,696	236,752
Paris polyphylla (Satuva)	Kg	NA	NA	656	61,680
Shilajit (dragzhuen)	Kg	NA	NA	1,200	1,200
Terminalia spp	m3	NA	NA	16	80

Product Types	2016	2014-2015		2016	
		Volume	Royalty realized (Nu.)	Volume	Royalty realized (Nu.)
Thysanolaenatifolia (Soft broom)	Headloads	537	1,575	5,976	2,421
Viscum nepalense	Kg	NA	NA	800	500
	Kg	NA	NA	3,024	6,488
Wildlings (seeds/Seedlings)	Nos	1,141	1,922	30,416	5,984
	m3	NA	NA	96	552
Zanthoxylum (Thingey)	Kg	408	512	1,955	36,700
Wood burrs	Nos	NA	NA	420	4,600
Thatch	Bundle	NA	NA	148	15
Resin	Kg	33,089	6,617	3,029	12,116
Pine needles	Bundle	NA	NA	458	994
	m3	NA	NA	432	1,856
Star arise		NA	NA	2,770	5,540

Source: Forest Facts and Figures 2014-2015 & 2016, DoFPS

Table 10.4 NWFPS SUPPLIED AND REVENUE GENERATED BY DoFPS (2017&2018)

Product Types	Unit	2017		2018	
		Volume	Royalty realized (Nu.)	Volume	Royalty realized (Nu.)
Clay soil/Top soil	Kg	2,255	4,600	600	NA
	m3	17,688	139,030	32,952	NA
Cane/Cane shoot	Bundle	15	60	1,559	NA
	Headloads	2,281	9,448	NA	NA
	Nos	9,304	6,796	NA	NA
	m3	64	44	NA	NA
Charcoal	Kg	600,770	1,429	1,000	NA
Edgeworthia sp.	Kg	4,860	3,010	7,095	NA
	Headloads	NA	NA	NA	NA
Incense (Leaves/wood)	Kg	15,747	50,164	NA	NA
	m3	156	674	NA	NA
	Bundle	1,118	7,830	NA	NA
Large/Small Bamboo	Headloads	215	208	NA	NA
	Nos	170,120	119,288	NA	NA
	m3	5,817	2,208	NA	NA
Leaf mould	m3	74,807	11,858	NA	NA
Lemon grass oil	Ltr	319	1,595	288	NA
Mushrooms	Kg	685	4,520	5,975	NA
	Nos	4,300	4,300	7,390	NA

Product Types	Unit	2017		2018	
		Volume	Royalty realized (Nu.)	Volume	Royalty realized (Nu.)
Ophiocordyceps sinensis (Yartsa Goenbub)	Kg	41	8,200	277	NA
	Nos	241	2,055,372	NA	NA
Picorrhiza (Puti-shing)	Kg	100	1,200	100	NA
Piper longum (Pipla Fruits)	Kg	NA	NA	110	NA
Rubiocordifolia (Tseod)	Kg	31,761	515,368	18,910	NA
Paris polyphylla (Satuva)	Kg	482	7,288	572	NA
Shilajit (dragzhuen)	Kg	NA	NA	11	NA
Swertiachirayita (Plan)	Kg	457	10,968	133	NA
Terminalia spp (Fruit)	m3	16	80	100	NA
	Kg	3,024	6,488	NA	NA
Wildlings (seeds/Seedlings)	Nos	30,416	5,984	4,614	NA
	m3	96	552	NA	NA
Zanthoxylum (Fruit)	Kg	1,955	36,700	225	NA
Wood burrs	Nos	420	4,600	NA	NA
Thatch	Bundle	148	15	NA	NA
Resin	Kg	3,029	12,116	14,147	NA
	Bundle	458	994	NA	NA
Pine needles	m3	432	1,856	NA	NA
Star arise	NA	2,770	5,540	NA	NA

Source: Forest Facts and Figures 2017 & 2018, DoFPS

Table 10.5 NWFPS SUPPLIED AND REVENUE GENERATED BY DoFPS (2019)

Product Types	Unit	Quantity	Royalty Realized (Nu.)
Banana Leaves	Bundle	100	400
	Number	120	650
	Number	120	120
Calamus sp.	Bundle	782	2,942.00
	Truckload	3	1,240.00
Charcoal	Kilogram	7,300	1,476.00
	Truckload	1,223	100,694.50
Soil	Kilogram	1,700	3,400.00
Cymbidium sp. (Olatshy)	Bundle	6	240
Daphne sp.	Kilogram	5,885	5,531.00
Hippophae rhamnoides (Tarbu)	Kilogram	1,100	4,400.00
Edgeworthia sp.	Kilogram	1,000	600
Diplazium spp. (Fern top)	Truckload	2	140

Product Types	Unit	Quantity	Royalty Realized (Nu.)
Bamboo	Number	125,963	114,803.50
	Truckload	1,573	14,670.00
Lemon grass	Litre	560	2,800.00
	Number	7,250	7,250.00
Mushroom	Kilogram	52,875	106,950.00
	Kilogram	100	500
Nardostachys jatamansi (Pangpoe)	Kilogram	64,275	128,550.00
Ophiocordyceps sinensis (Yartsa Goenbub)	Kilogram	1,342	1,269,240.00
Paris polyphylla (Satuva)	Kilogram	535	8,215.00
Rhododendron sp.	Kilogram	3,081	6,241.00
Rubia cordifolia (Tseod)	Kilogram	24,524	377,504.00
River bed materials	Truckload	92,221	3,679,040.00
Pouzolzia sp.	Kilogram	8,962	17,924.00
Phyllanthus emblica (Amala)	Kilogram	3	15
Picrorhiza sp. (Puti-shing)	Kilogram	10	120
Quartzite	Truckload	6	240
Resin	Kilogram	6,464	25,856.00.
Piper longum (Pipla)	Kilogram	600	12,000.00
Pine needles	Truckload	38	1,397.00
	Bundle	72	76

Source: Forest Facts and Figures 2019 DoFPS

Table 10.6 COMMERCIAL FIREWOOD ALLOTTED BY TERRITORIAL DIVISION AND PARKS (2018)
(Value in m3)

Division/Park Office	Standing Volume	Firewood
Bumthang	3,366	421
Dagana	130	184
Gedu	427	1,747
Monggar	532	938
Paro	2,174	1,452
Pema Gatshel	67	94
Samdrup Jongkhar	2	332
Samtse	52	NA
Sarpang	1,301	523
Thimphu	73	790
Trashigang	611	45
Tsirang	21	NA
Wangdue Phodrang	867	1,470
Zhemgang	283	913
Bumdeling Wildlife Sanctuary	250	25

Division/Park Office	Standing Volume	Firewood
Jigme Dorji National Park	2,033	1,841
Jigme SingyeWangchuck National Park	238	16
Phrumshengla National Park	1,327	571
Phibsoo Wildlife Sanctuary	783	NA
Royal Manas National Park	19	NA
Sakteng Wildlife Sanctury	630	532
Thrumshingla National Park	NA	NA
WangchuckCentinial National Park	20	NA
Jomotsangkha Wildlife Sanctuary	2	NA

Source: Forest Facts and Figures 2018 DoFPS

Table 10.7 RURAL FIREWOOD ALLOTTED BY TERRITORIAL DIVISION AND PARKS (2018)

(Value in m3)

Division/Park Office	Standing Volume	Firewood
Bumthang	11,354	1,199
Dagana	1,929	2,980
Gedu	769	816
Monggar	5,504	4,305
Paro	5,754	749
Pema Gatshel	1,324	351
SamdrupJongkhar	609	NA
Samtse	4,311	6,608
Sarpang	1,428	1,274
Thimphu	5,526	3,551
Trashigang	4,780	3,685
Tsirang	1,586	NA
Wangdue Phordang	9,957	2,001
Zhemgang	1,367	24
Bumdeling Wildlife Sanctury	1,629	222
Jigme Dorji National Park	2,379	969
Jigme SingyeWangchuck National Park	530	458
Phrumshengla National Park	2,210	3,044
Phibsoo Wildlife Sanctuary	33	40
Royal Manas National Park	550	139
Sakteng Wildlife Sanctury	3,349	1,554
Thrumshingla National Park	NA	NA
WangchuckCentinial National Park	1,694	1,313
Jomotsangkha Wildlife Sanctuary	3,726	191

Source: Forest Facts and Figures 2018 DoFPS

Table 10.8 TIMBER ALLOTMENT BY TERRITORIAL DIVISION AND PARKS
(2019)

Division/Park Office	Rural (m3)	Royalty (Nu.)	Commercial (m3)	Royalty (Nu.)
Bumthang	19,006.12	324,752.70	13,356.29	1,987,804.58
Dagana	10,196.69	223,603.28	1,667.18	150,799.00
Gedu	4,263.28	105,313.53	3,627.70	116,944.87
Monggar	8,193.41	238,113.92	3,382.04	227,634.73
Paro	7,265.81	133,464.92	4,668.83	1,248,597.67
Pema Gatshel	310.98	7,616.71	217.14	10,493.98
Samdrup Jongkhar	1,874.20	52,943.51	721.30	33,534.68
Samtse	9,435.88	240,397.46	336.07	79,261.38
Sarpang	3,880.87	111,524.53	1,848.02	325,926.83
Thimphu	6,264.62	121,033.87	1,972.18	250,782.48
Trashigang	13,186.49	414,871.47	2,327.82	172,705.60
Tsirang	2,939.56	51,610.84	229.33	5,754.00
Wangdue Phordang	20,717.18	470,465.60	8,969.70	1,781,588.86
Zhemgang	3,009.29	58,190.18	659.22	167,855.55
Bumdeling Wildlife Sanctuary	5,388.17	130,132.95	528.07	87,298.83
Jigme Dorji National Park	7,751.20	131,253.81	8,467.01	1,586,650.34
Jigme Khesar Strict Nature Reserve	5,393.61	94,319.39	NA	NA
Jigme Singye Wangchuck National Park	931.32	31,666.03	NA	NA
Jomotsangkha Wildlife Sanctuary	1,878.42	55,208.92	577.43	20,849.77
Phibsoo Wildlife Sanctuary	313.11	5,640.00	46.39	32,739.69
Phrumsengla National Park	6,073.01	1,920,894.36	1,486.70	173,643.29
Royal Manas National Park	584.19	14,519.70	144.01	26,705.16

Source: Forest Facts and Figures 2019 DoFPS

Table 10.9 FIREWOOD ALLOTTED FOR RURAL AND COMMERCIAL (2019)

Division/Parks Office	Rural Firewood		Commercial Firewood	
	Volume (m3)	Royalty Realized (Nu.)	Volume (m3)	Royalty Realized (Nu.)
Bumthang	2,057	22,937	1,695	23,257
Dagana	4,064	98,050	951	21,734
Gedu	1,265	28,615	3,084	68,399
Monggar	4,578	104,492	2,625	75,286
Paro	1,470	18,784	146	10,570
Pema Gatsel	225	5,940	157	3,960
Samdrup Jongkhar	NA	NA	630	14,201
Samtse	4,954	128,276	53	3,460
Sarpang	3,020	68,567	323	7,565
Thimphu	790	9,302	419	6,036
Trashigang	6,488	149,485	1,446	46,490
Tsirang	956	22,571	224	5,040
Wangdue Phordang	1,404	25,503	741	18,481
Zhemgang	23	9,680	125	10,201
Bumdeling Wildlife Sanctuary	2,505	56,522	117	2,636
Jigme Dorji National Park	754	10,640	3,483	74,406
Jigme Khesar Strict Nature Reserve	57	1,040	NA	NA
Jigme Singye Wangchuck National Park	360	8,100	NA	NA
Jomotsangkha Wildlife Sanctuary	148	3,715	480	10,789
Phibsoo Wildlife Sanctuary	120	2,700	NA	NA
Phrumsengla National Park	1,633	1,829,363	563	12,720
Royal Manas National Park	178	4,050	NA	NA
Sakteng Wildlife Sanctuary	2,692	60,833	349	7,853
Wangchuck Centennial National Park	703	10,597	NA	NA

Source: Forest Facts and Figures 2019 DoFPS

Table 10.10 LIST OF FORESTRY WOOD-BASED INDUSTRIES IN A COUNTRY

Dzongkhag	Furniture unit	Incense factory	Integrated WBI	Sawmill	Others	Total
Bumthang	20	NA	NA	15	4	39
Chhukha	16	NA	6	3	2	27
Dagana	8	NA	NA	1	0	9
Haa	3	NA	1	22	0	26
Lhuentse	7	3	NA	NA	2	12
Monggar	19	4	NA	1	9	33
Paro	27	NA	NA	15	0	42
Pema Gatshel	7	NA	NA	1	0	8
Punakha	4	NA	NA	1	1	6
Samdrup Jongkhar	10	NA	NA	4	1	15
Samtse	5	NA	NA	3	0	8
Sarpang	12	NA	3	5	0	20
Tashigang	1	2	NA	NA	0	3
Thimphu	4	NA	5	13	2	24
Trashigang	2	1	NA	NA	3	6
Trashi Yangtse	7	NA	NA	1	6	14
Trongsa	4	NA	NA	2	0	6
Tsirang	3	NA	NA	1	1	5
Wangdue Phordang	6	NA	NA	6	0	12
Zhemgang	12	NA	NA	1	2	15
Total	177	10	15	95	33	330

Source: Forest Facts and Figures 2019 DoFPS

Table 10.11 DZONGKHAG WISE FOREST FIRE CASES AND AREA BURNT (2015-2019)

Dzongkhag	2014-2015		2016		2017		2018		2019	
	No. of cases	Area burnt (Acres)	No. of cases	Area burnt (Acres)	No. of cases	Area burnt (Acres)	No. of cases	Area burnt (Acres)	No. of cases	Area burnt (Acres)
Bumthang	NA	NA	1	4	NA	NA	3	7	2	3
Chhukha	1	31	1	2	1	105	NA	NA	NA	NA
Dagana	NA	NA	NA	NA	1	443	1	12	NA	NA
Gasa	NA	NA	NA	NA	NA	NA	1	514	NA	NA
Haa	NA	NA	3	86	NA	NA	NA	NA	1	1
Lhuntse	2	55	6	1,169	3	42	2	1,240	1	26
Monggar	5	1,820	6	3,805	8	2,383	6	2,963	5	1,549
Paro	1	100	5	1,070	3	34	6	12	NA	NA
Punakha	1	36	7	911	4	562	NA	NA	5	128
Pema Gatshel	2	4,150	NA	NA	NA	NA	3	17	NA	NA
Samdrup Jongkhar	NA	NA	1	45	1	121	NA	NA	NA	NA
Sarpang	NA	NA	1	11	NA	NA	NA	NA	3	11
Samtse	1	134	NA	NA	NA	NA	NA	NA	2	32
Thimphu	5	173	21	1,903	4	57	4	109	2	707
Trashigang	3	164	3	1,644	4	597	3	734	8	981
Trashiyangtse	3	2,725	NA	NA	2	904	NA	NA	NA	NA
Tsirang	3	5,966	3	58	NA	NA	NA	NA	1	1
Trongsa	1	NA	NA	NA	NA	NA	NA	NA	1	1
Wangdue Phodrang	5	23	11	9,751	NA	NA	14	2,466	8	68
Zhemgang	NA	NA	3	600	NA	NA	NA	NA	1	16
Total	33	15,376	72	21,058	31	5,249	43	8,075	40	3,525

Source: Forest Facts and Figures 2019 DoFPS

Table 10.12 DZONGKHAG WISE COMMUNITY FORESTRY NUMBER AND AREA COVERAGE (2015-2019)

Dzongkhag	2014-2015		2016		2017		2018		2019	
	No of CF	Area (ha)	No of CF	Area (ha)	Nos. of CFs	Area (ha)	No of CF	Area (ha)	No of CF	Area (ha)
Bumthang	27	2,865.77	30	3,078.85	33	3,399.85	33	3,399.85	35	3,723.10
Chhukha	43	2,912.84	46	3,221.02	56	3,970.02	60	4,254.74	61	4,302.74
Dagana	23	1,776.84	25	843.26	27	2,278.02	27	2,278.02	28	2,423.02
Gasa	7	452.46	7	452.46	7	452.46	7	452.46	7	452.46
Haa	17	1,648.80	18	1,696.80	18	1,696.80	18	1,696.80	19	1,839.73
Lhuntse	23	1,608.00	23	1,608.00	31	2,744.54	37	3,391.16	37	3,475.36
Monggar	30	6,518.90	30	6,518.90	32	7,594.35	34	9,390.37	34	9,390.37
Paro	25	3,970.23	26	4,217.74	27	4,387.72	29	4,627.98	30	4,842.92
Punakha	39	3,392.04	39	2,623.44	47	4,014.34	56	5,105.16	56	5,105.16
Pema Gatsel	43	3,724.18	43	3,724.18	39	3,623.44	40	3,826.45	43	4,481.89
Samdrup Jongkhar	40	5,183.41	41	5,274.96	48	6,294.57	50	6,660.07	50	6,722.45
Sarpang	29	2,463.32	31	3,163.65	52	4,739.73	57	5,358.49	62	6,607.00
Samtse	49	4,198.03	50	4,556.03	32	3,306.85	33	3,430.45	34	4,052.68
Thimphu	21	2,749.77	21	2,749.77	21	2,749.77	21	2,856.51	22	2,912.49
Trashigang	50	9,228.66	50	9,228.66	53	9,923.07	54	10,457.96	54	10,457.96
Trashiyangtse	25	2,784.26	29	3,371.97	30	3,516.77	32	4,273.12	33	4,538.31
Tsirang	37	5,735.63	38	5,766.24	29	3,063.74	30	3,175.81	30	3,568.70
Trongsa	26	2,728.88	27	2,764.08	43	6,512.12	48	7,766.79	49	9,240.67
Wangdue Phodrang	67	4,980.70	78	5,859.67	82	6,146.79	85	6,906.40	89	6,999.40
Zhemgang	24	2,595.27	25	2,671.05	26	2,800.23	26	2,855.97	31	4,009.60
Total	645	71,517.99	677	73,390.73	733	83,215.17	777	92,164.55	804	99,146.00

Source: Forest Facts and Figures, DoFPS

Chapter 11: RNR Climate Change Statistics

Table 11.1 DZONGKHAG-WISE AVERAGE RAINFALL AT VARIOUS WEATHER STATIONS (2015)

(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	10	6	37	94	75	102	151	130	73	23	3	2
Chukha	Phuntsholing	NA	NA	NA	NA	NA	NA	NA	1,124	612	39	47	31
Dagana	Dagana	11	6	25	124	99	304	312	273	231	18	4	0
Gasa	Gasa	26	10	180	254	340	526	351	409	186	71	47	24
Haa	Haa	4	32	61	119	71	139	206	215	153	37	0	0
Lhuntse	Tangmachu	15	6	36	109	111	103	120	160	90	11	13	1
Monggar	Monggar	0	0	14	114	72	144	183	230	112	4	7	0
Paro	Paro	8	12	26	78	43	114	159	80	74	27	4	0
Pema Gatshel	Pema Gatshel	22	3	28	222	118	335	213	581	221	4	1	0
Punakha	Punakha	1	0	6	94	68	187	226	17	57	16	19	0
Samdrup Jongkhar	Deothang	12	4	74	190	471	943	386	1,120	524	93	8	1
Sarpang	Bhur	25	2	44	291	467	1,153	785	1,654	718	93	52	0
Samtse	Sipsoo	20	49	164	410	964	1,224	669	1,270	674	74	24	5
Thimphu	Simtokha	8	9	23	79	27	100	148	81	81	8	0	0
Trashigang	Kanglung	24	0	24	133	102	250	197	249	54	19	5	2
Trashigangtse	Trashigangtse	52	54	54	70	80	84	82	85	79	67	75	67
Trongsa	Trongsa	12	3	60	132	128	406	307	250	123	30	5	6
Tsirang	Damphu	6	24	55	166	81	329	317	408	299	18	0	1
Wangdue Phodrang	Wangdue	22	8	42	152	108	303	256	453	201	2	5	2
Zhemgang	Zhemgang	4	0	29	49	71	231	171	139	71	11	0	0

Source: NCHM

Table 1.1.2 DZONGKHAG-WISE AVERAGE RAINFALL AT VARIOUS WEATHER STATIONS (2016)

(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	11	7	36	65	95	48	182	96	113	87	0	0
Chukha	Phuntsholing	12	24	138	66	131	141	1,481	144	774	356	0	0
Dagana	Dagana	0	19	3	7	75	121	461	94	157	282	0	0
Gasa	Gasa	13	26	137	117	200	370	393	241	279	162	2	0
Haa	Haa	0	4	70	45	82	84	266	132	157	116	0	0
Lhuntse	Tangmachu	8	6	43	99	59	111	158	105	132	102	0	3
Monggar	Monggar	14	1	45	90	90	74	313	66	89	174	0	3
Paro	Paro	10	0	43	12	85	52	229	66	122	79	0	0
Pema Gatshel	Pema Gatshel	15	3	59	148	118	208	712	63	196	95	0	0
Punakha	Punakha	0	0	12	29	101	70	199	84	141	89	0	4
Samdrup Jongkhar	Deothang	39	14	157	270	187	521	901	222	524	201	21	1
Sarpang	Bhur	12	15	38	100	278	872	2,392	341	1,005	323	0	2
Samtse	Sipsoo	34	5	134	231	558	1,088	1,416	626	675	375	0	0
Thimphu	Simtokha	4	0	42	24	62	27	252	73	154	73	1	0
Trashigang	Kanglung	16	6	49	151	111	131	287	120	90	73	0	1
Trashiyangtse	Trashiyangtse	63	66	61	69	72	76	82	75	81	71	59	65
Trongsa	Trongsa	23	12	67	129	109	186	324	158	197	150	0	12
Tsirang	Damphu	15	1	38	6	98	194	808	165	333	269	0	4
Wangdue Phodrang	Wangdue	14	2	47	34	117	170	570	130	174	262	0	0
Zhemgang	Zhemgang	14	0	7	32	38	64	229	79	149	9	1	2

Source: NCHM

Table 11.3 DZONGKHAG-WISE AVERAGE RAINFALL AT VARIOUS WEATHER STATIONS (2017)
(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	5	4	62	43	96	97	131	140	124	55	8	0
Chukha	Phuntstoling	5	9	92	361	451	489	1,318	1,507	653	130	1	0
Dagana	Dagana	2	4	52	43	121	145	237	354	169	18	0	0
Gasa	Gasa	1	24	116	141	245	302	518	582	288	148	7	0
Haa	Haa	8	1	67	81	100	82	198	153	150	22	1	0
Lhuntse	Tangmachu	2	5	49	65	246	101	220	111	109	36	0	0
Monggar	Monggar	18	4	58	53	92	121	195	179	193	96	1	0
Paro	Paro	6	0	22	61	51	34	101	69	39	6	0	0
Pema Gatshel	Pema Gatshel	6	36	46	142	118	283	231	391	337	52	1	0
Punakha	Punakha	0	1	65	37	56	48	196	173	153	45	5	0
Samdrup Jongkhar	Deothang	5	40	66	263	148	831	490	787	524	176	12	0
Sarpang	Bhur	7	16	50	153	458	1,075	924	2,075	1,032	127	11	0
Samtse	Sipsoo	2	5	147	256	690	1,085	869	1,367	1,063	261	23	0
Thimphu	Simtokha	3	1	61	45	85	90	163	93	56	12	1	0
Trashang	Kanglung	7	13	55	75	115	152	210	226	231	38	1	0
Trashigang	Trashigang	58	64	67	69	75	77	84	84	83	76	72	70
Trongsa	Trongsa	0	4	76	63	128	194	340	370	204	93	9	0
Tsirang	Damphu	5	9	34	78	33	131	514	430	177	30	0	0
Wangdue Phodrang	Wangdue	5	4	84	92	95	138	273	422	308	31	0	0
Zhemgang	Zhemgang	1	1	34	23	42	63	156	146	83	22	0	0

Source: NCHM

Table 1.1.4 DZONGKHAG-WISE AVERAGE RAINFALL AT VARIOUS WEATHER STATIONS (2018)

(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	0	1	49	64	84	59	71	130	39	9	2	24
Chukha	Phuntsholing	0	11	151	452	1,113	1,285	672	1,155	1,195	81	19	12
Dagana	Dagana	10	3	35	39	132	103	174	159	124	4	0	51
Gasa	Gasa	6	35	137	155	240	307	413	589	282	149	31	17
Haa	Haa	3	8	51	46	57	71	193	171	60	6	51	10
Lhuntse	Tangmachu	2	6	53	86	60	94	80	108	84	8	5	0
Monggar	Monggar	0	0	63	30	69	131	112	132	106	4	1	25
Paro	Paro	2	0	23	17	41	40	87	71	17	1	0	14
Pema Gatshel	Pema Gatshel	0	1	37	45	118	307	285	116	229	8	4	16
Punakha	Punakha	0	1	8	59	58	83	216	209	134	2	1	16
Samdrup Jongkhar	Deothang	0	13	147	132	388	826	638	372	524	39	35	14
Sarpang	Bhur	0	13	117	98	352	1,082	813	782	1,100	89	16	9
Samtse	Sipsoo	0	19	99	271	694	877	1,028	925	821	158	11	9
Thimphu	Simtokha	0	1	25	21	29	40	97	122	41	4	0	15
Trashigang	Kanglung	0	3	69	47	77	197	167	154	113	5	2	22
Trashigang	Trashigang	67	68	75	81	84	85	83	89	87	73	69	68
Trongsa	Trongsa	0	21	66	82	104	216	257	255	147	15	6	24
Tsirang	Damphu	0	0	20	45	166	210	290	268	211	12	0	9
Wangdue Phodrang	Wangdue	1	5	70	66	35	213	215	205	179	4	13	19
Zhemgang	Zhemgang	0	0	22	19	38	42	76	178	64	3	0	19

Source: NCHM

Table 11.5 DZONGKHAG-WISE AVERAGE RAINFALL AT VARIOUS WEATHER STATIONS (2019)
(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	1	16	26	46	102	36	192	107	75	19	0	1
Chukha	Phuntstoling	0	63	142	217	636	1,091	1,837	460	813	180	25	0
Dagana	Dagana	5	48	31	30	45	119	324	156	188	40	1	0
Gasa	Gasa	0	42	34	104	181	276	384	508	310	106	20	14
Haa	Haa	3	38	45	54	56	40	248	148	154	9	0	1
Lhuntse	Tangmachu	0	10	24	164	131	36	200	66	144	15	9	2
Monggar	Monggar	0	42	34	104	181	61	405	82	138	17	0	1
Paro	Paro	0	34	24	18	28	56	104	69	74	4	0	10
Pema Gatshel	Pema Gatshel	1	64	73	167	118	302	775	159	110	20	1	0
Punakha	Punakha	4	24	12	47	71	36	128	96	134	22	1	0
Samdrup Jongkhar	Deothang	0	102	80	529	754	885	1,287	259	524	56	15	0
Sarpang	Bhur	0	55	26	267	551	963	1,944	402	645	183	31	2
Samtse	Sipsoo	0	50	65	151	630	901	1,437	1,081	795	149	6	1
Thimphu	Simtokha	2	38	23	17	46	49	130	62	75	16	0	5
Trashang	Kanglung	0	47	44	87	174	109	523	89	126	19	0	1
Trashigang	Trashigang	64	73	73	75	81	75	85	81	87	78	76	71
Trongsa	Trongsa	6	38	43	100	163	223	302	223	165	51	2	2
Tsirang	Damphu	5	59	75	64	76	167	526	124	112	45	0	0
Wangdue Phodrang	Wangdue	7	29	12	50	39	33	139	78	91	12	4	0
Zhemgang	Zhemgang	14	73	47	84	198	128	582	101	187	30	1	8

Table 1.1.6 DZONGKHAG-WISE AVERAGE RELATIVE HUMIDITY AT VARIOUS WEATHER STATIONS (2015)

(Value in %)

Dzongkha-wise	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	70	64	67	72	70	74	77	78	76	75	73	72
Chukha	Phuntsholing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45
Dagana	Dagana	56	58	49	44	48	46	66	77	88	83	89	82
Gasa	Gasa	72	67	72	78	77	82	80	84	82	77	76	74
Haa	Haa	NA	NA	58	65	56	65	63	71	67	57	52	44
Lhuntse	Tangmachu	64	65	56	70	72	74	73	80	76	65	73	73
Monggar	Monggar	60	64	61	74	76	84	83	87	85	73	71	66
Paro	Paro	69	66	61	64	59	67	73	76	73	64	60	63
Pema Gatshel	Pema Gatshel	71	73	72	82	84	88	88	90	89	84	81	77
Punakha	Punakha	70	59	59	71		81	84	83	82	69	70	72
Samdrup Jongkhar	Deothang	57	57	57	78	83	90	87	92	88	72	62	65
Sarpang	Bhur	63	60	61	76	85	92	85	91	87	72	71	70
Samtse	Sipsoo	57	56	60	74	76	89	87	89	86	65	64	64
Thimphu	Simtokha	42	51	56	57	56	71	70	66	63	59	51	44
Trashigang	Kanglung	64	63	60	72	80	88	87	90	87	74	71	74
Trashigang	Trashigang	52	54	55	70	80	84	82	85	79	67	75	67
Trashigang	Trashigang	72	78	68	82	85	90	88	92	91	78	88	87
Trongsa	Trongsa	64	65	56	70	72	74	73	80	76	65	73	73
Wangdue Phodrang	Wangdue	67	67	65	70	69	78	78	84	78	72	76	73
Zhemgang	Zhemgang	58	68	65	81	82	90	89	89	88	74	67	68

Source: NCHM

Table 11.7 DZONGKHAG-WISE AVERAGE RELATIVE HUMIDITY AT VARIOUS WEATHER STATIONS (2016)

(Value in %)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	74	71	71	75	75	71	78	73	78	77	69	79
Chukha	Phuntstholing	45	32	72	60	65	73	85	80	78	60	51	71
Dagana	Dagana	57	56	56	56	57	59	65	76	83	92	75	84
Gasa	Gasa	78	79	79	78	82	85	85	82	83	83	79	77
Haa	Haa	55	58	54	57	62	65	76	66	74	61	47	47
Lhuntse	Tangmachu	74	70	63	66	68	70	79	67	78	70	65	70
Monggar	Monggar	69	70	66	70	75	80	88	74	84	70	59	61
Paro	Paro	67	63	64	63	66	66	82	68	76	74	60	61
Pema Gatshel	Pema Gatshel	79	77	74	79	83	87	90	86	89	85	84	78
Punakha	Punakha	79	80	69	72	68	74	80	83	89	81	61	68
Samdrup Jongkhar	Deothang	68	69	65	78	80	87	92	84	90	69	60	53
Sarpang	Bhur	78	84	89	89	91	91	93	86	91	80	75	68
Samtse	Sipsoo	62	62	60	68	79	87	91	81	87	68	57	57
Thimphu	Simtokha	43	46	50	45	60	52	67	61	69	65	54	48
Trashgang	Kanglung	75	78	76	76	80	82	89	84	88	67	56	63
Trashhi Yangtse	Trashhi Yangtse	63	66	61	69	72	76	82	75	81	71	59	65
Tsirang	Damphu	90	89	84	80	87	92	98	91	96	85	78	80
Trongsa	Trongsa	79	79	72	74	82	84	91	87	90	80	73	71
Wangdue Phodrang	Wangdue	70	70	66	64	71	75	80	80	82	82	71	71
Zhemgang	Zhemgang	69	72	66	68	80	80	90	79	89	66	60	57

Source: NCHM

Table 1.1.8 DZONGKHAG-WISE AVERAGE RELATIVE HUMIDITY AT VARIOUS WEATHER STATIONS (2017)

(Value in %)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	83	73	70	68	71	69	77	78	77	74	74	74
Chukha	Phuntsholing	71	59	63	71	79	82	86	89	88	76	63	63
Dagana	Dagana	61	49	56	51	53	61	68	69	80	85	89	89
Gasa	Gasa	82	75	72	62	71	79	84	84	81	65	43	41
Haa	Haa	60	49	51	55	69	64	77	73	74	64	42	42
Lhuntse	Tangmachu	66	71	67	67	72	73	76	80	76	70	66	68
Monggar	Monggar	61	64	69	68	74	81	83	85	86	75	62	66
Paro	Paro	64	57	57	61	61	58	68	73	72	65	58	66
Pema Gatshel	Pema Gatshel	76	77	79	78	83	88	89	90	89	86	85	84
Punakha	Punakha	61	67	70	64	73	72	78	80	79	76	77	75
Samdrup Jongkhar	Deothang	51	57	66	78	81	87	87	92	93	79	57	59
Sarpang	Bhur	61	65	69	79	86	91	90	93	93	79	72	70
Samtse	Sipsoo	47	55	64	70	73	83	86	88	87	75	61	59
Thimphu	Simtokha	52	50	50	52	51	51	68	65	61	54	46	48
Trashigang	Kanglung	59	65	69	69	73	84	87	86	88	79	66	72
Trashigang	Trashigang	58	64	67	69	75	77	84	84	83	76	72	70
Trashigang	Trashigang	81	82	82	83	90	92	95	96	96	87	80	84
Trongsa	Trongsa	67	70	73	73	81	83	88	88	86	76	68	67
Wangdue Phodrang	Wangdue	69	69	72	67	69	74	83	82	80	77	77	81
Zhemgang	Zhemgang	62	64	70	74	80	86	85	87	87	77	59	55

Table 11.9 DZONGKHAG-WISE AVERAGE RELATIVE HUMIDITY AT VARIOUS WEATHER STATIONS (2018)
(Value in %)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	76	76	72	71	72	73	73	78	73	65	67	78
Chukha	Phuntsholing	63	65	73	78	81	84	87	88	86	76	70	58
Dagana	Dagana	73	49	50	49	64	55	55	73	77	84	84	83
Gasa	Gasa	55	55	61	72	77	78	85	86	80	69	54	45
Haa	Haa	58	51	56	59	66	68	70	74	66	63	44	56
Lhuntse	Tangmachu	70	72	69	69	70	75	74	78	76	66	62	67
Monggar	Monggar	61	72	68	66	76	81	81	83	84	67	57	59
Paro	Paro	65	64	59	60	69	68	68	70	62	62	60	68
Pema Gatshel	Pema Gatshel	78	77	79	78	83	87	89	88	89	82	79	81
Punakha	Punakha	75	76	69	74	77	77	77	81	78	72	72	73
Samdrup Jongkhar	Deothang	62	68	69	71	77	89	89	88	91	70	60	59
Sarpang	Bhur	70	70	71	77	81	92	90	89	91	77	69	69
Samtse	Sipsoo	61	88	61	68	80	85	85	83	83	70	60	57
Thimphu	Simtokha	42	48	43	49	56	56	51	64	66	56	48	60
Trashang	Kanglung	74	76	72	70	81	84	88	87	86	72	68	62
Trashhi Yangtse	Trashhi Yangtse	67	68	75	81	84	85	83	89	87	73	69	68
Tsirang	Damphu	88	90	84	85	91	93	93	93	91	83	78	78
Trongsa	Trongsa	72	77	77	79	81	84	89	91	85	76	70	68
Wangdue Phodrang	Wangdue	81	77	70	71	74	72	75	80	77	72	69	79
Zhemgang	Zhemgang	61	73	69	71	77	86	86	88	87	69	63	65

Source: NCHM

Table 11.10 DZONGKHAG-WISE AVERAGE RELATIVE HUMIDITY AT VARIOUS WEATHER STATIONS (2019)

(Value in %)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	70	80	74	79	74	73	71	74	80	74	72	72
Chukha	Phuntsholing	54	63	64	72	83	84	87	85	88	79	73	66
Dagana	Dagana	61	47	46	45	67	76	91	81	91	74	60	50
Gasa	Gasa	54	64	60	63	71	77	87	78	88	77	69	59
Haa	Haa	68	67	60	57	56	64	71	69	72	62	51	49
Lhuntse	Tangmachu	64	71	67	67	77	69	82	75	85	79	77	77
Monggar	Monggar	52	69	67	69	83	79	87	75	84	74	73	64
Paro	Paro	76	79	69	61	55	61	73	69	77	64	60	76
Pema Gatshel	Pema Gatshel	74	79	78	82	85	85	90	88	88	85	86	80
Punakha	Punakha	70	76	84	76	71	70	78	75	82	77	71	72
Samdrup Jongkhar	Deothang	48	64	76	77	94	89	93	87	84	70	42	55
Sarpang	Bhur	60	77	73	77	89	86	92	83	91	81	77	69
Samtse	Sipsoo	53	60	58	68	77	81	86	82	84	72	63	66
Thimphu	Simtokha	63	64	61	60	60	67	74	73	80	67	64	65
Trashigang	Kanglung	56	72	69	77	86	84	89	86	87	78	78	70
Trashiyangtse	Trashiyangtse	64	73	73	75	81	75	85	81	87	78	76	71
Tsirang	Damphu	73	87	82	85	90	90	95	88	94	87	84	72
Trongsa	Trongsa	67	78	75	78	82	84	88	82	87	79	79	69
Wangdue Phodrang	Wangdue	82	82	76	78	74	74	83	82	86	73	78	79
Zhemgang	Zhemgang	57	80	76	76	79	79	87	79	82	74	68	61

Table 11.11 DZONGKHAG-WISE AVERAGE TEMPERATURE AT VARIOUS WEATHER STATIONS (2015)

(Value in °C)

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	Max. avg	12.9	14.1	17.2	16.7	19.4	22.4	23.0	22.0	22.0	19.8	16.4	12.0
		Min avg.	-5.5	-0.8	3.5	5.7	10.6	13.9	14.0	14.0	14.5	13.9	8.3	2.9
Chukha	Phuntsholing	Max. avg	NA	NA	NA	NA	NA	NA	NA	32.4	33.5	32.5	28.8	24.6
		Min avg.	NA	NA	NA	NA	NA	NA	NA	NA	22.1	21.4	18.7	15.8
Dagana	Dagana	Max. avg	13.5	14.6	17.9	18.2	20.4	21.1	22.1	21.1	21.4	20.1	16.9	12.2
		Min avg.	1.9	3.3	6.6	8.3	11.5	14.0	14.0	14.4	14.5	13.7	9.8	6.1
Gasa	Gasa	Max. avg	9.3	8.2	11.7	12.3	16.6	18.9	21.9	19.4	18.7	17.2	11.2	7.5
		Min avg.	-2.6	-2.6	-2.0	-2.6	3.1	4.2	4.2	9.1	9.5	10.5	4.4	-2.7
Haa	Haa	Max. avg	10.8	12.1	14.0	13.9	17.6	19.1	20.3	19.6	19.4	16.4	13.9	10.8
		Min avg.	-6.9	-4.4	-1.0	3.9	8.8	10.8	10.8	11.1	11.7	10.8	3.3	0.1
Lhuntse	Tangmachu	Max. avg	21.8	24.2	28.1	27.0	29.2	29.6	30.5	30.6	31.2	29.0	24.1	20.1
		Min avg.	4.5	8.1	11.7	13.4	16.7	19.7	19.6	19.6	19.6	19.1	13.8	10.1
Monggar	Monggar	Max. avg	18.5	21.2	25.0	23.6	25.8	26.5	27.7	25.4	24.6	24.2	19.9	15.3
		Min avg.	6.1	7.3	10.5	12.0	15.5	17.2	17.5	18.2	17.6	13.7	10.2	6.4
Paro	Paro	Max. avg	13.8	15.0	18.0	18.5	22.5	22.9	23.4	23.1	22.3	21.0	17.6	13.5
		Min avg.	-4.0	-0.6	2.5	5.9	10.2	13.3	13.6	13.6	13.7	12.9	7.1	2.7
Pema Gatshel	Pema Gatshel	Max. avg	16.5	17.9	22.7	20.6	23.3	23.2	24.1	24.0	24.3	23.5	20.2	15.7
		Min avg.	5.6	6.9	10.9	12.7	16.2	18.3	18.5	18.5	18.2	18.0	13.5	9.9
Punakha	Punakha	Max. avg	24.9	25.6	29.2	30.3	31.1	32.5	33.1	32.6	32.3	30.8	26.9	23.8
		Min avg.	2.4	7.6	12.3	16.6	19.9	22.2	22.2	22.2	22.3	21.9	17.7	11.7
Sarvang	Bhur	Max. avg	23.6	24.4	27.2	26.5	28.2	28.1	30.3	29.0	28.6	28.9	24.8	23.2
		Min avg.	13.7	16.4	18.1	20.1	24.0	24.1	25.1	25.5	25.3	23.0	19.9	16.8
Samdrup Jongkhar	Deothang	Max. avg	19.6	19.1	21.6	23.4	25.6	27.1	28.6	26.9	27.1	26.5	23.2	19.7
		Min avg.	10.5	7.7	11.3	13.6	17.0	18.7	22.7	19.0	18.7	16.6	12.8	9.6

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Samtse	Sipsoo	Max. avg	25.1	26.3	28.4	28.1	29.7	28.8	30.3	29.4	29.3	30.8	27.1	23.9
		Min avg.	12.4	13.0	16.9	18.1	20.8	22.3	22.3	22.4	22.5	21.9	20.3	16.2
Thimphu	Simtokha	Max. avg	16.3	17.6	20.5	21.6	24.8	25.0	25.5	27.0	26.4	25.8	20.9	15.7
		Min avg.	-4.6	0.5	4.0	7.4	11.2	16.3	15.8	15.6	14.6	7.7	2.3	-2.3
Trashigang	Kanglung	Max. avg	19.5	21.2	25.7	25.8	27.2	27.9	28.9	27.9	27.7	26.2	22.4	18.3
		Min avg.	3.5	4.5	8.2	9.1	12.2	15.6	16.0	15.8	15.0	10.8	7.4	3.5
Tashi Yangtse	Trashi Yangtse	Max. avg	17.0	19.0	23.3	21.2	22.9	24.9	25.2	24.7	25.4	23.2	19.1	15.7
		Min avg.	-0.5	2.8	6.0	8.8	12.2	16.2	15.9	16.4	15.7	9.0	5.7	2.8
Trongsa	Trongsa	Max. avg	14.8	15.7	18.9	17.9	20.2	21.4	22.1	21.7	22.4	21.0	17.8	13.5
		Min avg.	0.9	3.2	6.6	8.8	12.7	15.5	15.3	15.9	15.1	9.7	6.7	3.0
Tsirang	Dampchu	Max. avg	14.1	14.9	18.3	18.7	20.9	21.9	22.9	22.2	22.3	21.1	19.3	15.5
		Min avg.	5.6	6.8	11.3	13.6	16.5	17.7	19.1	18.8	19.1	14.4	9.9	7.0
Wangdue Phodrang	Wangdue	Max. avg	14.6	15.6	19.1	19.6	22.1	23.2	24.5	23.9	24.2	22.1	18.4	13.9
		Min avg.	4.2	5.4	9.0	10.6	14.3	17.1	17.4	17.4	16.5	12.2	8.4	4.3
Zhemgang	Zhemgang	Max. avg	23.7	23.9	26.3	26.6	29.5	30.0	30.5	29.6	29.8	28.9	25.4	21.3
		Min avg.	2.0	6.0	10.7	14.5	17.9	20.3	20.5	20.3	19.6	14.0	9.4	5.4

Source: NCHM

Table 11.12 DZONGKHAG-WISE AVERAGE TEMPERATURE AT VARIOUS WEATHER STATIONS (2016)

(Value in °C)

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	Max. avg	11.29	13.81	16.05	18.70	18.65	22.47	22.27	24.03	21.30	19.60	17.17	14.48
		Min avg.	-2.52	2.22	4.05	8.00	9.61	14.23	15.11	14.02	13.81	8.15	8.15	-0.25
Chukha	Phuntsholing	Max. avg	24.48	26.15	31.40	31.16	31.30	31.36	29.71	31.71	32.73	32.16	31.70	30.81
		Min avg.	9.70	18.56	21.70	21.03	20.06	22.14	23.61	24.39	23.00	22.06	21.13	21.68
Dagana	Dagana	Max. avg	11.32	13.86	17.48	20.18	20.44	21.63	20.50	23.94	21.33	20.60	17.65	15.45
		Min avg.	0.82	4.00	6.79	10.30	11.19	13.97	14.77	14.61	13.75	10.44	6.25	4.31
Gasa	Gasa	Max. avg	5.98	7.54	13.03	16.15	18.13	20.58	22.84	23.58	23.28	18.42	9.22	9.58
		Min avg.	-3.23	-3.00	1.13	4.42	6.21	10.33	12.98	13.31	12.95	8.56	-0.87	-2.19
Haa	Haa	Max. avg	9.37	12.00	13.74	16.50	17.06	19.60	18.84	22.11	17.98	16.02	15.55	14.27
		Min avg.	-5.76	-1.47	0.29	4.77	7.65	12.48	14.32	12.29	12.57	7.18	-2.42	-4.48
Lhuntse	Tangmachu	Max. avg	19.68	22.57	26.35	28.90	30.74	32.78	31.50	34.05	30.63	28.19	25.47	22.61
		Min avg.	6.24	9.66	11.95	14.82	15.68	19.32	19.87	19.55	19.18	14.53	9.73	7.47
Monggar	Monggar	Max. avg	15.08	18.41	21.97	24.32	23.82	27.03	24.50	28.92	25.25	23.84	21.17	18.05
		Min avg.	5.42	8.88	11.60	14.12	15.08	18.12	18.60	18.85	17.73	14.47	10.62	8.47
Paro	Paro	Max. avg	11.87	15.55	17.87	22.32	21.47	24.70	22.65	25.47	21.37	19.35	18.53	16.16
		Min avg.	-2.59	0.88	2.91	6.97	9.42	13.23	14.16	13.81	13.03	8.02	1.12	-1.60
Pema Gatshel	Pema Gatshel	Max. avg	14.48	17.69	21.18	23.03	23.21	25.17	22.92	26.34	24.22	24.79	21.37	18.69
		Min avg.	5.34	7.98	11.10	13.97	15.32	17.68	18.50	18.63	18.20	13.95	10.03	7.47
Punakha	Punakha	Max. avg	21.65	24.59	29.00	32.02	32.13	32.55	31.94	33.26	31.78	29.90	27.92	25.87
		Min avg.	6.82	11.45	14.53	16.33	18.42	20.93	21.37	21.63	21.15	17.55	8.23	7.69
Sarvang	Bhur	Max. avg	21.61	23.55	27.42	28.23	29.27	29.45	28.10	33.60	28.55	29.76	26.63	25.71
		Min avg.	14.76	18.10	21.24	22.57	23.92	24.97	25.16	26.39	23.40	23.03	19.23	16.16
Samdrup Jongkhar	Deothang	Max. avg	20.11	23.28	25.34	25.65	26.55	28.17	28.06	29.98	27.50	27.79	25.55	23.79
		Min avg.	8.65	12.02	14.98	17.37	17.93	20.60	20.87	21.66	20.35	17.89	14.38	12.52

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Samtse	Sipsoo	Max. avg	21.40	25.29	29.61	30.02	29.39	29.75	29.10	32.08	30.63	30.19	28.93	27.47
		Min avg.	11.44	14.29	17.42	19.42	19.69	22.23	22.65	23.44	22.37	20.72	20.72	16.90
Thimphu	Simtokha	Max. avg	14.84	17.55	20.98	24.53	24.08	27.88	26.08	28.52	25.88	22.95	21.83	19.50
		Min avg.	-3.05	0.43	4.19	7.85	10.55	15.05	16.13	14.47	14.50	8.66	0.78	-0.48
Trashigang	Kanglung	Max. avg	17.84	20.52	24.27	26.72	26.98	29.33	27.24	30.24	28.67	26.69	23.75	20.90
		Min avg.	2.47	5.50	8.55	10.53	12.47	15.12	15.95	15.97	14.60	11.90	7.05	5.32
Trashhi Yangtse	Trashhi Yangtse	Max. avg	14.58	17.67	21.05	22.77	23.18	26.90	25.32	27.97	25.53	23.60	21.03	18.55
		Min avg.	0.98	5.12	7.02	9.93	11.35	15.93	16.81	15.94	15.58	10.21	4.70	2.53
Trongsa	Trongsa	Max. avg	12.52	14.55	18.13	20.15	20.15	22.90	21.45	24.55	22.08	21.32	19.40	16.99
		Min avg.	1.94	5.16	6.95	10.05	11.42	15.33	16.31	15.40	15.25	10.32	4.78	2.84
Tsirang	Dampphu	Max. avg	14.06	17.19	20.16	22.70	23.08	23.98	23.11	25.61	23.93	23.08	20.10	17.87
		Min avg.	4.63	7.97	11.24	14.58	16.18	18.80	19.55	19.76	18.58	14.24	10.30	8.21
Wangdue Phodrang	Wangdue	Max. avg	12.52	15.43	18.65	21.47	22.31	23.93	23.69	26.84	23.75	23.19	19.43	17.19
		Min avg.	3.45	6.57	10.00	12.98	14.00	16.95	17.58	17.64	16.15	12.90	8.52	6.92
Zhemgang	Zhemgang	Max. avg	20.79	22.38	26.18	29.00	29.00	30.90	29.45	31.66	30.02	28.65	26.67	24.06
		Min avg.	4.84	9.97	11.63	15.08	17.21	19.23	19.94	20.31	19.88	14.87	7.13	6.24

Source: NCHM

Table 11.13 DZONGKHAG-WISE AVERAGE TEMPERATURE AT VARIOUS WEATHER STATIONS (2017)
(Value in °C)

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	Max. avg	12.55	14.23	14.24	18.18	19.97	21.82	22.81	22.84	21.98	19.85	16.10	14.85
		Min avg.	-4.40	0.25	2.58	7.05	10.47	13.35	14.89	15.13	13.92	9.34	0.38	-1.71
Chukha	Phuntsholing	Max. avg	28.58	26.11	28.71	30.90	30.63	30.19	29.10	29.48	30.00	29.21	28.08	26.21
		Min avg.	21.48	20.68	15.18	18.51	19.62	22.15	22.05	22.32	21.75	19.53	15.38	13.42
Dagana	Dagana	Max. avg	13.11	14.14	14.79	18.22	25.06	25.53	25.21	25.06	25.75	25.71	24.03	22.52
		Min avg.	2.02	3.95	4.84	9.05	13.39	15.30	15.97	16.37	15.82	12.69	8.43	6.95
Gasa	Gasa	Max. avg	8.90	13.05	15.00	15.82	16.05	18.18	18.69	19.23	19.85	17.29	14.55	12.03
		Min avg.	-3.65	-1.27	1.34	4.65	7.32	10.58	11.60	12.27	10.95	6.44	0.73	-1.03
Haa	Haa	Max. avg	10.90	13.09	11.65	15.73	17.44	20.25	19.85	19.90	18.87	16.50	13.90	12.87
		Min avg.	-6.58	-3.00	-0.12	4.47	8.60	11.93	14.08	14.21	12.33	6.90	-2.33	-5.69
Lhuntse	Tangmachu	Max. avg	22.18	23.61	24.24	28.87	30.13	31.63	32.19	31.89	31.43	29.79	24.85	23.21
		Min avg.	4.45	8.77	9.94	14.17	16.47	19.48	19.69	19.89	19.68	15.47	10.95	8.87
Monggar	Monggar	Max. avg	17.89	18.93	19.60	22.87	25.69	26.28	26.79	26.11	25.00	24.13	19.98	17.98
		Min avg.	6.26	8.54	9.26	13.30	15.71	17.95	18.58	18.84	19.27	14.94	10.07	8.89
Paro	Paro	Max. avg	13.24	16.07	15.21	20.17	21.32	24.65	24.18	24.55	24.17	22.34	18.57	17.73
		Min avg.	-4.65	-0.45	2.26	5.43	9.34	12.87	14.27	14.15	13.62	8.97	0.00	-2.53
Pema Gatshel	Pema Gatshel	Max. avg	17.29	18.57	18.50	21.88	24.15	25.10	24.92	24.58	24.65	24.16	21.23	19.40
		Min avg.	5.11	7.64	9.24	13.23	16.26	18.03	18.68	18.74	18.28	14.81	9.10	8.19
Punakha	Punakha	Max. avg	23.32	25.02	25.42	29.90	31.00	33.28	31.79	31.55	31.37	29.89	27.98	24.94
		Min avg.	4.45	8.77	11.13	15.57	19.52	22.02	21.71	21.35	21.68	18.97	9.97	7.85
Bhur	Bhur	Max. avg	24.48	26.02	25.68	27.13	29.11	28.95	29.71	28.89	28.60	28.98	27.98	25.94
		Min avg.	15.05	17.45	18.16	20.98	22.76	23.73	24.53	24.11	23.48	22.18	18.25	16.56
Samdrup Jongkhar	Deothang	Max. avg	22.53	23.63	23.98	25.55	27.31	27.83	28.87	27.89	27.78	27.15	25.63	23.40
		Min avg.	10.87	12.79	13.71	16.85	18.97	20.33	20.87	21.27	20.63	18.08	14.13	12.00

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Samtse	Sipsoo	Max. avg	26.37	28.21	27.47	30.27	30.66	30.53	29.40	29.95	30.53	30.82	28.82	26.50
		Min avg.	11.74	13.59	14.34	19.33	20.16	22.28	21.65	22.87	22.67	20.58	16.38	15.90
Thimphu	Simtokha	Max. avg	16.31	18.05	18.44	22.88	23.77	27.38	26.56	28.05	27.93	24.61	20.55	19.44
		Min avg.	-3.81	0.88	3.21	7.27	10.31	13.97	15.29	15.11	14.03	9.44	0.55	-2.47
Trashgang	Kanglung	Max. avg	18.68	20.20	21.45	25.62	26.85	28.02	27.63	27.27	27.12	25.90	21.93	19.94
		Min avg.	2.84	5.11	5.74	10.50	12.69	15.30	16.00	15.98	15.13	12.16	6.42	5.35
Trashhi Yangtse	Trashhi Yangtse	Max. avg	16.37	18.44	19.76	22.60	24.11	25.30	25.34	25.50	25.67	24.00	19.93	18.48
		Min avg.	-0.42	3.71	5.82	9.03	11.89	15.35	16.79	17.27	16.17	11.39	5.07	2.87
Trongsa	Trongsa	Max. avg	15.27	15.63	16.10	19.60	20.82	22.19	22.17	22.59	22.20	20.99	17.63	16.75
		Min avg.	0.45	4.29	4.92	8.66	11.82	14.74	15.78	15.84	15.51	10.75	4.49	3.33
Tsirang	Daphu	Max. avg	15.81	17.48	17.90	21.38	23.22	24.15	24.15	24.00	24.20	22.85	19.73	17.97
		Min avg.	5.48	8.00	9.15	13.73	16.86	18.90	19.32	19.74	19.25	15.11	9.60	8.11
Wangdue Phodrang	Wangdue	Max. avg	14.63	15.89	16.24	20.23	22.65	24.00	25.42	25.11	24.12	23.13	18.78	16.52
		Min avg.	3.85	6.38	7.16	11.93	14.97	16.45	17.87	17.23	16.63	12.97	7.82	6.10
Zhemgang	Zhemgang	Max. avg	21.79	22.89	22.42	26.22	29.57	31.18	30.15	30.21	29.63	28.06	26.17	24.37
		Min avg.	3.02	8.14	10.34	14.15	17.29	20.80	20.84	21.02	20.83	16.42	9.03	7.21

Source: NCHM

Table 11.14 DZONGKHAG-WISE AVERAGE TEMPERATURE AT VARIOUS WEATHER STATIONS (2018)

(Value in °C)

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Bumthang	Chamkhar	Max. avg	11.53	13.32	15.48	16.90	19.08	22.42	23.45	23.18	22.55	19.00	16.60	12.85	
		Min avg.	-2.34	0.71	3.61	6.43	9.66	13.10	14.74	14.74	14.44	12.73	4.97	-0.57	-3.68
Chukha	Phuntsholing	Max. avg	23.61	25.48	29.34	31.23	30.63	31.58	31.34	31.29	30.18	29.40	27.52	25.06	
		Min avg.	10.26	13.32	15.71	16.63	17.71	20.25	22.35	22.35	22.69	21.02	17.39	14.88	12.65
Dagana	Dagana	Max. avg	19.47	18.91	22.89	25.08	24.81	25.45	25.60	25.60	25.79	24.25	23.06	21.85	19.18
		Min avg.	4.29	5.91	8.21	11.12	12.95	15.97	16.50	16.50	16.26	15.02	9.94	7.33	4.05
Gasa	Gasa	Max. avg	8.21	9.53	12.35	13.88	15.00	19.05	19.37	19.68	18.38	15.10	12.38	10.35	
		Min avg.	-3.65	-0.54	1.37	4.22	6.66	10.47	11.95	11.74	10.17	4.77	1.18	-2.85	
Haa	Haa	Max. avg	10.68	12.13	12.74	14.35	15.92	19.73	20.37	19.73	19.18	15.35	13.30	9.76	
		Min avg.	-6.58	-2.66	0.18	4.78	8.45	13.12	14.85	14.40	11.73	2.35	-2.33	-6.75	
Lhuntse	Tangmachu	Max. avg	20.89	22.96	26.89	29.18	30.21	34.36	35.94	34.75	32.25	29.11	25.32	21.74	
		Min avg.	6.63	8.25	9.92	12.87	15.82	19.16	20.23	20.02	18.95	12.65	8.93	5.35	
Monggar	Monggar	Max. avg	15.96	17.46	21.19	23.72	24.06	26.82	27.55	27.02	24.58	23.06	20.45	16.82	
		Min avg.	6.23	7.96	10.79	12.97	15.21	18.18	19.00	18.74	17.75	12.65	9.75	6.68	
Paro	Paro	Max. avg	13.94	16.02	17.40	19.25	20.55	25.13	25.74	24.87	24.38	20.24	17.50	12.32	
		Min avg.	-3.42	-0.91	3.00	6.03	9.53	13.07	14.18	13.98	12.72	4.95	-0.12	-3.65	
Pema Gatshel	Pema Gatshel	Max. avg	16.21	17.36	21.00	23.28	23.65	25.35	25.68	26.56	23.82	23.10	20.80	17.13	
		Min avg.	5.55	7.16	10.06	12.73	15.21	18.58	18.90	18.90	17.78	11.84	8.15	5.60	
Punakha	Punakha	Max. avg	22.92	23.16	27.27	30.20	30.82	33.38	27.84	32.37	30.67	29.42	27.28	23.68	
		Min avg.	5.42	9.20	11.03	14.73	18.47	22.05	22.87	21.87	21.13	15.55	10.67	7.00	
Sarpang	Bhur	Max. avg	22.92	23.54	26.83	28.32	28.00	29.22	29.92	30.37	28.47	28.32	26.38	25.11	
		Min avg.	13.02	15.96	19.83	21.63	22.27	23.93	25.07	25.02	23.47	21.15	18.42	15.90	
Samdrup Jongkhar	Deothang	Max. avg	21.15	21.61	24.60	25.82	26.24	27.78	28.55	28.94	27.23	26.15	23.32	20.89	
		Min avg.	10.08	11.68	14.53	16.75	18.27	20.90	21.50	21.29	19.98	16.18	13.27	11.10	

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Samtse	Sipsoo	Max. avg	24.11	24.93	27.79	29.47	29.58	30.05	29.92	31.16	30.08	28.81	26.73	23.97
		Min avg.	11.11	12.79	15.79	18.80	20.05	21.70	22.89	22.53	22.53	21.95	18.68	15.82
Thimphu	Simtokha	Max. avg	16.08	18.63	21.31	22.85	24.48	29.03	29.68	28.69	28.22	21.26	18.17	14.15
		Min avg.	-4.28	-1.20	2.13	6.13	10.11	14.22	15.77	15.34	13.27	5.48	-0.43	-3.68
Trashigang	Kanglung	Max. avg	17.06	18.39	22.60	25.95	26.55	28.72	29.06	28.81	26.52	24.82	20.88	18.19
		Min avg.	2.79	4.73	7.90	9.77	12.39	15.48	16.08	15.85	14.82	9.60	6.22	3.24
Trashhi Yangtse	Trashhi Yangtse	Max. avg	15.94	17.29	20.42	21.82	22.35	23.12	26.03	25.26	23.37	21.53	19.60	16.85
		Min avg.	2.08	3.79	6.60	8.63	11.97	16.77	17.19	16.85	15.80	8.39	4.25	0.94
Trongsa	Trongsa	Max. avg	13.15	13.74	17.11	18.83	19.54	22.59	23.47	23.32	22.24	20.02	18.57	15.87
		Min avg.	2.04	4.14	6.07	8.74	12.00	15.14	16.23	15.90	14.52	8.48	5.18	1.20
Tsirang	Dampphu	Max. avg	14.89	16.27	19.73	21.77	22.27	23.88	24.69	25.16	23.53	21.27	19.23	16.16
		Min avg.	5.44	7.55	10.63	13.43	15.82	18.98	19.76	19.97	18.23	12.26	8.92	5.47
Wangdue Phodrang	Wangdue	Max. avg	13.97	14.91	18.23	21.08	22.05	24.82	25.26	26.00	24.25	21.18	18.65	15.16
		Min avg.	3.69	5.80	8.47	11.38	13.32	16.57	17.02	17.00	15.67	10.11	7.15	3.63
Zhemgang	Zhemgang	Max. avg	21.37	21.85	25.50	28.27	28.98	31.63	31.94	31.23	30.17	28.15	26.00	22.56
		Min avg.	4.95	7.89	10.90	14.47	18.18	20.98	21.35	21.74	20.08	13.71	8.93	5.37

Source: NCHM

Table 11.15 DZONGKHAG-WISE AVERAGE TEMPERATURE AT VARIOUS WEATHER STATIONS (2019)

(Value in °C)

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	Max. avg	12.16	12.86	15.21	18.67	19.53	22.80	21.76	24.02	20.92	18.29	16.80	11.97
		Min avg.	-4.87	-0.23	2.56	6.45	10.53	12.37	13.94	14.48	13.23	8.31	5.15	-3.21
Chukha	Phuntsholing	Max. avg	25.13	25.59	29.13	30.85	29.63	31.45	29.71	31.74	29.97	28.89	28.67	25.35
		Min avg.	11.34	11.50	13.73	17.20	18.68	20.42	21.40	22.68	21.10	18.02	15.92	11.10
Dagana	Dagana	Max. avg	18.94	17.86	21.27	23.77	23.97	26.50	24.23	27.03	23.77	23.44	23.03	18.24
		Min avg.	3.23	4.96	6.95	10.92	15.61	18.02	18.79	21.94	17.95	13.90	11.10	6.18
Gasa	Gasa	Max. avg	8.92	9.16	9.92	14.43	16.37	18.42	19.08	21.10	18.25	15.66	14.22	8.73
		Min avg.	-4.13	-2.00	0.74	3.55	7.44	10.10	11.92	11.58	10.43	6.29	2.48	-2.32
Haa	Haa	Max. avg	9.02	9.34	11.71	15.78	17.61	19.98	19.87	21.20	18.20	15.63	15.17	9.58
		Min avg.	-8.10	-3.95	-1.00	5.35	9.55	11.58	13.66	13.87	12.58	5.85	0.17	-5.34
Lhuntse	Tangmachu	Max. avg	22.53	23.16	25.94	30.19	29.76	33.95	30.16	33.02	29.33	26.76	24.90	20.61
		Min avg.	4.05	7.09	9.60	13.05	16.87	19.42	20.27	19.77	19.17	15.63	12.50	6.23
Monggar	Monggar	Max. avg	17.48	16.86	20.24	22.90	23.02	26.83	24.66	28.34	24.32	22.35	20.42	15.50
		Min avg.	5.82	7.41	9.39	13.45	15.92	18.08	18.35	19.05	17.67	14.16	11.97	6.27
Paro	Paro	Max. avg	11.69	13.50	15.77	19.75	22.45	24.90	25.18	26.08	22.92	20.92	19.75	12.79
		Min avg.	-3.82	-0.48	1.56	6.13	10.08	12.35	13.87	14.19	13.35	7.60	3.45	-3.53
Pema Gatshel	Pema Gatshel	Max. avg	18.19	17.02	18.92	22.57	22.21	25.53	23.66	26.39	24.62	23.63	21.57	17.13
		Min avg.	3.98	6.55	8.29	12.53	16.06	17.83	18.34	18.60	18.40	13.39	11.05	4.95
Punakha	Punakha	Max. avg	8.00	22.09	25.19	28.50	30.81	33.70	32.05	34.35	28.85	28.11	27.08	22.23
		Min avg.	5.84	10.11	13.58	17.03	20.39	22.03	23.15	22.97	20.34	18.63	14.90	7.71
Sarvang	Bhur	Max. avg	24.82	24.59	25.71	28.30	26.95	29.95	29.50	31.95	29.63	28.00	27.57	23.47
		Min avg.	15.21	16.20	18.66	21.63	22.92	24.52	24.33	24.63	23.28	21.60	20.45	14.27
Samdrup Jongkhar	Deothang	Max. avg	21.10	21.11	22.44	24.68	24.94	27.55	26.52	28.77	25.47	24.37	23.27	19.82
		Min avg.	10.58	11.68	13.98	17.00	18.11	20.75	20.97	21.48	20.66	17.73	16.17	11.11

Dzongkhag	Station	Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Samtse	Sipsoo	Max. avg	24.48	24.64	27.37	29.63	29.08	30.57	28.65	31.18	29.38	28.48	27.42	23.61
		Min avg.	11.71	12.96	15.92	18.40	19.69	21.73	22.40	22.40	22.95	21.67	18.69	16.95
Thimphu	Simtokha	Max. avg	13.17	14.23	15.69	20.73	22.32	25.72	25.66	27.81	24.00	21.97	20.20	13.48
		Min avg.	-4.13	-1.18	1.39	6.80	10.60	13.47	15.13	14.94	13.32	8.11	2.83	-4.24
Trashigang	Kanglung	Max. avg	18.82	18.32	21.08	23.80	24.21	26.12	23.71	26.10	24.83	22.77	21.47	16.39
		Min avg.	2.71	3.68	6.29	10.37	13.08	15.77	16.26	16.90	15.37	11.73	9.30	3.13
Trashhi Yangtse	Trashhi Yangtse	Max. avg	16.58	16.95	20.27	22.92	23.48	26.90	25.52	27.79	25.32	22.76	21.13	16.42
		Min avg.	-1.03	2.84	5.60	9.15	12.69	15.57	16.92	16.89	15.60	11.11	7.85	1.05
Trongsa	Trongsa	Max. avg	15.53	14.43	16.73	19.52	20.35	22.80	22.21	24.77	21.77	20.96	19.48	13.97
		Min avg.	-0.10	3.18	5.94	8.68	12.65	14.67	15.89	15.89	14.85	11.05	7.13	1.35
Tsirang	Dampchu	Max. avg	15.79	15.63	17.73	20.88	22.27	24.47	23.48	25.60	23.58	21.73	19.83	15.60
		Min avg.	4.69	5.98	9.55	13.72	17.02	18.68	19.39	19.77	18.52	14.32	11.47	5.18
Wangdue Phodrang	Wangdue	Max. avg	21.27	20.61	23.84	26.63	28.58	31.07	29.31	30.81	27.93	26.73	25.15	20.24
		Min avg.	3.03	8.59	11.66	15.22	18.94	21.05	21.73	21.90	20.77	16.94	13.38	6.58
Zhemgang	Zhemgang	Max. avg	15.24	14.41	16.13	20.27	21.19	24.55	23.50	26.68	23.58	21.61	19.30	14.27
		Min avg.	2.65	4.79	7.19	10.55	14.06	16.05	16.71	16.90	15.67	11.74	9.12	3.79

Source: NCHM

Table 11.16 DZONGKHAG-WISE AVERAGE SUNSHINE AT VARIOUS WEATHER STATIONS (2015)

(Value in Hr)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	6.6	6.7	6.7	4.5	4.3	4.3	3.8	2.6	3.9	6.2	5.7	6.1
Chukha	Phuntsholing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dagana	Dagana	6.8	5.7	4.9	3.8	4.1	2.4	3.0	1.5	3.0	7.0	6.6	6.7
Gasa	Gasa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Haa	Haa	4.8	5.8	5.7	5.6	4.9	5.6	5.1	4.7	4.3	1.8	2.5	2.9
Lhuntse	Tangmachu	7.0	5.8	5.2	3.7	4.1	3.2	3.8	2.6	4.6	5.5	5.1	5.1
Monggar	Monggar	7.3	6.3	6.1	4.5	3.9	3.3	3.5	2.0	4.3	8.5	7.5	6.9
Paro	Paro	5.0	6.6	5.2	4.2	5.0	3.2	3.4	2.0	3.3	6.0	6.5	4.9
Pema Gatshel	Pema Gatshel	6.7	6.0	6.3	4.5	3.9	2.3	2.4	2.1	3.9	7.2	6.7	6.1
Punakha	Punakha	6.8	6.1	4.9	4.9	5.2	4.5	4.4	4.8	4.9	6.1	4.6	5.9
Samdrup Jongkhar	Deothang	6.8	6.0	5.7	4.0	2.9	1.9	3.7	1.4	3.1	6.2	5.8	5.0
Sarpang	Bhur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Sipsoo	6.5	5.3	4.5	4.1	3.8	1.7	3.7	1.8	3.5	7.1	6.1	5.0
Thimphu	Simtokha	7.3	6.6	6.6	5.5	5.8	2.3	4.0	4.4	4.7	6.6	6.9	6.8
Trashang	Kanglung	6.9	6.9	6.8	5.1	4.8	3.9	3.6	3.3	4.6	7.9	6.9	6.7
Trashigang	Trashigang	6.8	5.1	5.1	3.2	2.0	1.8	2.6	1.9	3.4	7.1	5.7	5.7
Trongsa	Trongsa	6.8	6.7	6.5	4.2	3.8	2.2	2.5	NA	3.6	7.2	6.3	6.5
Tsirang	Damphu	7.4	6.3	6.4	5.2	4.7	NA	3.6	3.4	3.4	7.9	7.0	6.7
Wangdue Phodrang	Wangdue	6.5	6.3	5.9	4.4	4.9	3.8	4.3	3.0	4.4	6.5	5.8	6.1
Zhemgang	Zhemgang	6.1	5.2	5.4	3.8	3.4	2.3	2.8	2.2	3.5	6.6	6.6	5.6

Source: NCHM

Table 11.17 DZONGKHAG-WISE AVERAGE SUNSHINE AT VARIOUS WEATHER STATIONS (2016)

(Value in Hr)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	5.8	6.6	5.7	5.7	3.5	4.9	2.2	6.4	4.3	5.4	7.7	6.8
Chukha	Phuntsholing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dagana	Dagana	5.8	4.7	4.7	5.0	3.7	3.8	1.2	6.0	2.5	6.4	8.5	6.6
Gasa	Gasa	1.8	6.4	5.8	4.2	6.0	4.5	3.8	3.0	4.5	2.0	1.8	3.7
Haa	Haa	3.5	5.2	5.7	5.4	5.3	4.5	3.1	3.5	4.3	6.6	7.4	6.8
Lhuntse	Tangmachu	4.5	4.2	4.3	4.5	3.6	4.5	3.3	7.1	4.3	5.5	7.8	6.1
Monggar	Monggar	6.4	4.9	6.2	6.4	4.5	5.0	2.3	7.5	3.5	7.3	7.7	5.7
Paro	Paro	4.5	6.1	4.7	5.5	2.5	3.0	1.4	5.0	2.0	4.1	6.6	5.9
Pema Gatshel	Pema Gatshel	5.7	4.9	5.2	4.9	4.0	4.0	1.3	4.1	3.5	6.7	7.4	6.4
Punakha	Punakha	4.3	4.8	4.2	4.9	4.3	5.0	4.1	2.7	3.5	4.4	6.3	5.6
Samdrup Jongkhar	Deothang	4.6	5.4	5.5	4.6	3.5	3.6	1.7	4.2	2.1	5.9	6.6	5.0
Sarpang	Bhur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Sipsoo	4.0	4.1	5.1	5.0	3.3	2.8	0.9	3.7	3.1	6.9	8.8	7.9
Thimphu	Simtokha	7.1	7.5	7.3	7.6	4.6	4.0	2.7	6.4	4.1	5.5	7.5	6.7
Trashigang	Kanglung	5.9	5.4	5.9	6.1	5.1	4.9	2.0	5.5	4.3	6.8	7.3	7.1
Trashiyangtse	Trashiyangtse	5.1	4.4	4.1	3.4	3.5	3.8	2.4	5.9	2.8	5.2	7.1	6.0
Trongsa	Trongsa	5.8	5.2	5.9	6.0	3.1	3.4	1.5	5.2	2.6	6.1	8.5	7.1
Tsirang	Damphu	6.8	6.3	5.8	5.4	5.5	5.1	1.6	5.9	4.4	7.4	9.0	7.3
Wangdue Phodrang	Wangdue	5.3	5.6	6.6	6.8	4.4	5.0	3.9	6.0	3.8	5.8	6.4	5.3
Zhemgang	Zhemgang	4.9	3.9	4.8	4.4	3.0	3.0	1.4	5.1	3.1	6.1	7.3	6.1

Source: NCHM

Table 11.18 DZONGKHAG-WISE AVERAGE SUNSHINE AT VARIOUS WEATHER STATIONS (2017)

(Value in Hr)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	6.8	7.0	6.3	6.1	4.9	4.8	3.5	3.6	4.5	6.5	6.2	6.8
Chukha	Phuntsholing	NA	NA	NA	4.5	4.4	3.5	1.7	1.6	2.9	5.2	7.5	6.6
Dagana	Dagana	6.6	5.4	4.4	5.0	4.7	4.0	3.8	3.0	3.6	6.0	7.9	7.6
Gasa	Gasa	NA	NA	NA	4.8	3.7	3.0	2.4	2.3	3.3	4.9	6.2	7.6
Haa	Haa	3.5	5.2	5.7	5.4	5.3	4.5	3.1	3.5	4.3	6.6	7.4	6.8
Lhuntse	Tangmachu	7.1	5.4	4.7	4.6	4.3	4.8	4.5	4.4	5.0	6.5	6.5	6.7
Monggar	Monggar	7.2	5.6	4.7	5.5	4.9	3.4	3.8	3.6	3.5	6.6	7.7	5.4
Paro	Paro	2.8	7.5	4.9	4.6	5.1	4.2	2.0	2.3	3.0	5.0	6.9	5.9
Pema Gatshel	Pema Gatshel	6.6	5.4	4.5	4.5	4.3	3.8	2.8	2.9	3.1	5.7	7.2	6.8
Punakha	Punakha	6.5	5.5	4.8	6.1	5.2	4.9	3.8	4.4	5.6	6.4	6.7	6.6
Samdrup Jongkhar	Deothang	6.7	5.6	4.8	3.9	3.4	2.5	3.0	2.0	2.1	4.9	6.8	7.0
Sarpang	Bhur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Sipsoo	7.6	4.4	4.3	4.5	4.5	2.6	1.5	1.7	3.5	5.6	7.6	7.2
Thimphu	Simtokha	7.3	6.5	6.5	6.5	6.0	5.2	4.0	4.0	5.2	6.0	NA	NA
Trashang	Kanglung	6.9	6.3	5.4	5.7	5.3	4.5	3.1	3.5	4.3	6.6	7.4	6.8
Trashiyangtse	Trashiyangtse	6.2	5.4	4.1	4.1	3.5	3.3	2.8	3.3	3.7	5.9	5.9	6.7
Trongsa	Trongsa	7.7	6.2	5.7	6.1	4.8	3.9	3.2	2.0	3.7	6.5	6.8	7.4
Tsirang	Damphu	8.0	8.0	6.2	7.4	6.4	3.0	3.1	3.4	4.6	6.3	8.0	7.8
Wangdue Phodrang	Wangdue	6.4	5.4	5.4	6.0	3.9	4.5	3.2	3.8	4.6	5.6	5.7	3.3
Zhemgang	Zhemgang	6.8	4.9	3.5	4.6	4.2	3.6	2.9	2.8	3.3	5.3	6.7	6.4

Source: NCHM

Table 11.19 DZONGKHAG-WISE AVERAGE SUNSHINE AT VARIOUS WEATHER STATIONS (2018)

(Value in Hr)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	6.4	6.2	5.0	4.0	4.0	4.6	4.2	3.8	5.6	7.3	6.5	6.2
Chukha	Phuntsholing	6.6	4.6	6.6	7.0	5.3	3.7	1.9	2.0	3.7	6.3	7.4	7.3
Dagana	Dagana	5.8	4.0	5.2	4.8	3.3	3.8	3.2	4.2	4.1	6.3	7.3	6.4
Gasa	Gasa	4.8	3.9	3.1	2.3	2.3	2.6	1.7	2.0	3.4	3.8	4.6	5.8
Haa	Haa	5.3	5.2	4.3	2.2	2.1	1.6	1.7	1.4	3.6	5.5	5.8	4.4
Lhuntse	Tangmachu	5.4	4.2	3.9	4.8	4.0	4.0	4.9	4.2	5.4	5.9	6.2	5.9
Monggar	Monggar	5.2	3.4	5.3	4.4	3.2	3.8	4.5	4.7	3.5	7.6	7.7	7.0
Paro	Paro	7.0	4.2	5.0	3.0	3.4	3.0	2.4	3.2	4.2	6.6	7.3	5.9
Pema Gatshel	Pema Gatshel	5.9	4.2	5.4	4.3	3.2	3.1	3.5	4.1	3.6	7.1	6.9	6.0
Punakha	Punakha	4.9	4.8	5.7	5.2	5.3	5.2	5.5	5.0	5.3	6.6	5.6	5.3
Samdrup Jongkhar	Deothang	6.6	3.4	5.4	4.6	3.6	2.8	2.5	2.8	2.4	5.8	6.7	5.3
Sarpang	Bhur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Sipsoo	6.3	2.3	4.5	4.2	3.5	2.5	1.4	2.1	3.3	6.1	6.7	6.8
Thimphu	Simtokha	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.2	7.0	6.4
Trashigang	Kanglung	5.8	4.7	5.7	5.4	4.2	4.3	4.8	4.8	4.9	7.1	6.9	5.4
Trashigang	Trashigang	5.3	4.4	4.5	3.0	2.5	1.8	2.6	2.6	3.0	6.2	5.8	5.8
Trongsa	Trongsa	5.8	4.5	5.5	3.6	3.2	3.7	3.3	2.7	4.0	6.8	6.6	6.6
Tsirang	Dampchu	7.0	4.9	5.7	5.4	4.2	3.0	3.6	4.6	5.0	7.7	8.4	7.4
Wangdue Phodrang	Wangdue	4.7	3.5	5.0	4.2	3.8	3.4	4.2	4.4	5.2	6.8	6.0	5.6
Zhemgang	Zhemgang	4.6	3.5	4.6	3.5	2.6	3.5	3.5	3.7	3.6	6.1	6.4	5.9

Source: NCHM

Table 11.20 DZONGKHAG-WISE AVERAGE SUNSHINE AT VARIOUS WEATHER STATIONS (2019)

(Value in Hr)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chukha	Phuntsholing	7.7	5.0	6.1	4.9	1.4	3.2	1.2	3.7	1.7	5.5	6.2	3.8
Dagana	Dagana	7.7	4.8	5.3	4.4	4.0	4.3	2.8	5.9	2.6	5.6	6.4	6.0
Gasa	Gasa	5.8	4.4	3.8	4.2	2.6	3.0	2.1	3.7	2.2	3.8	4.9	4.6
Haa	Haa	3.6	4.0	5.0	3.6	3.2	1.3	1.8	3.3	1.5	4.6	6.4	5.2
Lhuntse	Tangmachu	7.3	5.5	4.4	3.9	3.6	4.8	3.7	5.9	3.8	5.7	6.2	4.7
Monggar	Monggar	8.0	5.2	5.0	5.1	2.6	5.0	3.0	5.7	2.9	5.5	5.7	6.0
Paro	Paro	6.6	5.5	5.7	4.2	4.6	2.3	2.3	3.9	2.0	5.1	7.4	4.3
Pema Gatshel	Pema Gatshel	7.3	4.8	4.6	4.8	2.9	3.9	2.3	4.2	3.0	5.4	5.8	6.1
Punakha	Punakha	6.2	4.5	4.6	5.1	4.9	4.9	3.0	5.8	2.7	5.2	5.6	5.1
Samdrup Jongkhar	Deothang	7.0	4.9	4.5	4.4	1.6	2.8	2.1	4.1	1.4	3.5	4.7	4.2
Sarpang	Bhur	5.9	5.5	5.9	4.9	5.3	5.3	3.7	5.7	3.3	5.4	6.6	6.1
Samtse	Sipsoo	6.7	3.9	4.4	4.0	2.1	2.7	0.9	3.1	2.4	5.3	6.1	6.4
Thimphu	Simtokha	6.7	5.4	6.2	4.5	5.5	5.0	3.3	5.7	3.2	6.3	7.1	4.2
Trashang	Kanglung	6.7	4.8	5.6	5.0	3.7	4.3	2.9	5.0	4.0	5.4	5.3	4.9
Trashiyangtse	Trashiyangtse	6.3	4.3	4.5	3.2	3.3	4.1	3.0	5.5	2.3	4.9	5.5	5.5
Trongsa	Trongsa	7.4	5.7	5.8	5.3	3.3	4.0	2.2	4.8	2.9	5.4	5.7	5.2
Tsirang	Damphu	8.1	NA	6.5	5.9	4.6	4.7	3.2	6.1	3.4	6.2	6.8	7.0
Wangdue Phodrang	Wangdue	5.5	4.6	5.0	4.5	4.5	5.0	3.3	5.6	2.7	5.1	5.5	5.1
Zhemgang	Zhemgang	6.5	4.4	4.5	4.2	2.8	4.3	2.5	5.3	2.8	5.8	6.1	5.8

Source: NCHM

Table 11.21 DZONGKHAG-WISE AVERAGE EVAPORATION AT VARIOUS WEATHER STATIONS (2015)

(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	2.5	3.1	3.8	3.0	3.4	4.1	4.1	3.2	3.1	3.1	2.3	2.0
Chukha	Phuntsholing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dagana	Dagana	1.7	1.6	2.2	2.1	2.2	2.7	2.8	2.0	1.8	2.1	1.6	1.4
Gasa	Gasa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Haa	Haa	2.0	2.5	2.2	1.6	1.7	1.2	1.4	1.4	1.9	2.0	2.1	1.4
Lhuntse	Tangmachu	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monggar	Monggar	1.4	1.4	0.5	0.5	0.5	0.5	0.8	0.7	0.4	0.4	0.3	0.3
Paro	Paro	2.3	0.3	3.4	3.6	3.8	3.1	2.7	2.9	2.6	3.1	3.4	1.9
Pema Gatshel	Pema Gatshel	1.3	1.7	2.5	2.4	2.3	2.0	1.9	1.9	1.9	2.1	1.6	1.2
Punakha	Punakha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	Deothang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Sipsoo	3.5	3.7	3.7	2.8	2.9	NA	2.6	2.0	2.8	4.5	3.8	2.9
Sarpang	Bhur	7.2	3.9	5.1	4.3	3.7	1.0	3.7	1.9	2.8	8.1	6.7	6.6
Thimphu	Simtokha	1.6	1.9	2.6	3.5	6.0	5.4	4.2	6.2	4.5	6.0	2.7	1.3
Trashigang	Kanglung	2.0	2.5	2.2	1.6	1.7	1.2	1.4	1.4	1.9	2.0	2.1	1.4
Trashiyangtse	Trashiyangtse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trongsa	Trongsa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tsirang	Damphu	1.7	2.2	3.0	2.8	3.0	2.7	2.2	2.3	2.3	2.7	1.4	1.5
Wangdue Phodrang	Wangdue	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zhemgang	Zhemgang	27.1	24.7	31.1	28.2	31.1	23.8	27.8	25.7	26.1	36.1	28.1	21.8

Source: NCHM

Table 11.22 DZONGKHAG-WISE AVERAGE EVAPORATION AT VARIOUS WEATHER STATIONS (2016)
(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	1.9	3.0	3.1	3.5	2.6	4.1	2.6	3.6	2.9	2.3	3.7	2.0
Chukha	Phuntscholing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dagana	Dagana	1.3	1.5	2.0	2.4	2.0	2.2	1.9	2.6	1.8	1.9	1.8	1.5
Gasa	Gasa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Haa	Haa	1.3	1.3	1.5	1.4	1.4	1.3	1.1	1.3	1.6	2.2	2.5	2.4
Lhuntse	Tangmachu	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monggar	Monggar	0.3	0.3	0.5	0.7	1.1	0.6	0.8	3.1	2.0	1.5	1.4	1.1
Paro	Paro	1.9	2.1	3.3	4.8	3.0	3.6	2.6	2.4	2.5	2.8	2.7	1.9
Pema Gatshel	Pema Gatshel	1.2	1.8	2.5	2.6	2.5	2.4	1.3	2.2	2.0	2.2	1.7	1.2
Punakha	Punakha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	Deothang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Sipsoo	2.2	2.4	3.3	3.3	2.6	2.7	1.6	2.9	2.3	4.1	4.3	3.5
Sarpang	Bhur	5.6	4.0	3.7	3.6	3.2	2.5	0.9	4.3	2.8	6.5	8.6	7.4
Thimphu	Simtokha	1.1	1.9	2.1	2.5	2.2	4.4	3.3	4.1	4.4	4.7	5.4	3.3
Trashang	Kanglung	1.3	1.3	1.5	1.4	1.4	1.3	1.1	1.3	1.6	2.2	2.5	2.4
Trashigang	Trashigang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trashigang	Trashigang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trongsa	Trongsa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tsirang	Dampchu	1.7	2.7	3.5	3.2	2.9	2.8	2.0	3.0	2.1	2.1	2.0	1.3
Wangdue Phodrang	Wangdue	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zhemgang	Zhemgang	2.1	2.2	2.2	2.4	2.6	2.6	2.3	3.0	2.3	2.0	1.7	2.0

Source: NCHM

Table 11.23 DZONGKHAG-WISE AVERAGE EVAPORATION AT VARIOUS WEATHER STATIONS (2017)

(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	2.3	3.1	3.2	3.4	3.5	3.4	2.7	3.0	2.7	3.1	2.5	2.3
Chukha	Phuntsholing	NA	NA	NA	NA	NA	NA	NA	2.2	3.3	3	4	NA
Dagana	Dagana	1.5	1.5	1.5	2.1	3.3	2.9	2.9	2.7	2.4	2.5	3.3	2.9
Gasa	Gasa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0
Haa	Haa	1.8	1.6	1.4	1.4	1.7	1.6	1.5	1.7	1.8	1.7	2.1	2.4
Lhuntse	Tangmachu	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Monggar	Monggar	1.0	1.5	2.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Paro	1.2	3.5	2.8	3.4	3.7	4.1	2.4	2.3	2.4	3.2	2.7	2.0
Pema Gatshel	Pema Gatshel	1.4	1.8	1.9	2.3	2.3	2.3	2.0	1.7	1.9	1.7	1.6	1.1
Punakha	Punakha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	Deothang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Sipsoo	2.7	2.0	2.1	2.4	2.3	2.0	1.6	1.7	2.4	3.5	3.8	2.4
Sarpang	Bhur	8.1	5.3	4.8	3.6	3.7	2.0	2.3	1.7	1.8	6.3	8.7	8.2
Thimphu	Simtokha	1.2	NA	NA	NA	5.2	5.7	4.1	5.2	6.3	NA	NA	NA
Trashigang	Kanglung	1.8	1.6	1.4	1.4	1.7	1.6	1.5	1.7	1.8	1.7	2.1	2.5
Trashigang	Trashigang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trongsa	Trongsa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tsirang	Dampchu	2.1	2.1	2.4	3.4	3.2	NA	3.0	2.7	3.1	2.8	2.5	2.7
Wangdue Phodrang	Wangdue	2.1	2.2	3.8	2.9	4.5	5.3	4.9	3.8	4.9	3.8	3.2	2.3
Zhemgang	Zhemgang	2.1	2.3	2.3	2.5	2.5	2.5	2.3	2.6	2.5	2.6	2.4	2.4

Source: NCHM

Table 11.24 DZONGKHAG-WISE AVERAGE EVAPORATION AT VARIOUS WEATHER STATIONS (2018)
(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	2.7	3.0	2.7	2.7	3.2	3.6	4.1	3.3	4.1	3.1	2.4	2.2
Chukha	Phuntsholing	2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dagana	Dagana	2.3	2.0	2.8	3.1	2.5	3.0	3.0	2.9	2.5	2.9	2.9	2.4
Gasa	Gasa	0.9	0.6	1.2	0.7	1.1	1.7	0.7	0.9	0.9	0.9	0.9	0.8
Haa	Haa	NA	NA	NA	2.1	2.0	2.0	NA	2.3	2.3	3.2	3.5	NA
Lhuntse	Tangmachu	1.2	1.2	3.2	1.3	1.7	1.0	0.6	0.4	0.5	0.4	0.3	0.4
Monggar	Monggar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Paro	2.4	3.0	3.1	3.1	3.6	3.7	3.1	3.2	3.7	3.5	NA	2.1
Pema Gatshel	Pema Gatshel	1.3	1.6	2.1	2.4	2.0	2.1	2.1	2.4	1.8	2.0	1.5	1.2
Punakha	Punakha	75	76	69	74	77	77	77	81	78	72	72	73
Samdrup Jongkhar	Deothang	NA	NA	NA	2.1	2.0	1.7	2.3	2.2	2.4	2.5	2.9	2.5
Samtse	Sipsoo	2.1	1.3	2.9	3.5	2.7	1.8	1.5	1.8	2.3	3.0	2.9	2.8
Sarpang	Bhur	7.7	1.9	5.0	4.6	2.9	3.0	2.6	3.4	3.0	6.5	7.3	7.6
Thimphu	Simtokha	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.0	1.6	0.8
Trashang	Kanglung	2.0	1.6	1.6	1.6	1.7	1.8	1.8	1.8	1.7	2.5	2.4	1.8
Trashhi Yangtse	Trashhi Yangtse	NA	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	NA	NA	NA
Trongsa	Trongsa	NA	0.9	1.7	1.8	1.6	2.2	1.9	1.6	1.6	1.8	1.4	1.2
Tsirang	Damphu	1.7	1.7	3.3	3.4	2.7	2.6	3.0	2.3	3.0	3.4	3.3	2.3
Wangdue Phodrang	Wangdue	NA	NA	4.4	5.5	4.7	5.8	4.0	4.2	4.0	3.4	2.7	2.1
Zhemgang	Zhemgang	2.5	2.4	2.8	2.8	3.0	2.9	2.8	2.8	2.8	2.8	2.7	2.8

Source: NCHM

Table 11.25 DZONGKHAG-WISE AVERAGE EVAPORATION AT VARIOUS WEATHER STATIONS (2019)

(Value in mm)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Chamkhar	2.6	2.9	3.4	3.2	3.6	4.1	3.3	3.8	2.8	3.0	2.9	2.1
Chukha	Phuntsholing	NA	NA	NA	NA	NA	NA	NA	NA	2.7	4.7	5.8	3.6
Dagana	Dagana	2.9	2.4	3.1	3.1	2.9	3.3	2.8	3.7	2.3	2.6	2.5	1.3
Gasa	Gasa	1.0	0.6	0.3	0.8	0.7	1.0	1.2	0.9	0.3	0.2	2.0	0.6
Haa	Haa	NA	NA	NA	2.1	3.7	2.0	1.8	2.9	1.4	2.3	1.8	NA
Lhuntse	Tangmachu	0.3	0.3	0.4	0.5	0.4	0.5	0.4	0.6	0.5	0.4	0.3	0.2
Monggar	Monggar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Paro	2.6	2.3	2.5	3.5	3.9	3.9	3.1	4.0	3.1	3.1	3.6	2.6
Pema Gatshel	Pema Gatshel	1.5	1.5	2.0	2.2	2.0	2.2	1.7	2.3	1.7	1.6	1.3	1.1
Punakha	Punakha	70	76	84	76	71	70	78	75	82	77	71	72
Samdrup Jongkhar	Deothang	2.6	2.7	NA	2.4	1.7	2.3	1.9	2.3	1.1	1.8	2.3	2.3
Samtse	Sipsoo	2.3	2.7	2.7	2.9	2.3	2.0	1.0	2.3	1.8	2.2	2.5	2.1
Sarpang	Bhur	8.4	5.9	5.5	4.2	1.3	3.2	1.9	5.5	3.2	4.8	7.1	7.0
Thimphu	Simtokha	1.2	1.9	2.1	2.5	NA	3.7	3.1	2.7	2.6	2.6	2.3	1.2
Trashigang	Kanglung	2.0	1.7	2.3	2.3	1.9	2.6	2.1	2.4	1.6	1.3	1.2	1.2
Trashigang	Trashigang	NA	NA	NA	NA	NA	1.7	1.0	2.3	1.0	1.7	2.1	1.2
Trongsa	Trongsa	1.4	1.3	1.8	1.8	1.8	2.2	1.6	2.3	1.4	1.5	1.4	1.2
Tsirang	Damphu	2.3	2.3	3.2	3.0	2.4	2.4	2.5	2.8	2.2	2.7	2.6	1.7
Wangdue Phodrang	Wangdue	2.3	2.6	3.2	3.9	4.6	5.1	4.6	6.0	3.7	4.3	3.3	2.5
Zhemgang	Zhemgang	2.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6

Source: NCHM

Table 11.26 DZONGKHAG-WISE MINIMUM SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2017)
(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chamkhar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhukha	Tsimalakha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Kamji	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dagana	Dagapela	NA	NA	NA	NA	NA	NA	NA	NA	10.03	16.51	NA	NA
	Kerabari	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gasa	Laya	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dorithasa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Pangbisa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dungkar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lhuentse	Ladung	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Gyelposhing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mongar	Thrumshingla	NA	NA	NA	NA	NA	11.78	NA	NA	NA	NA	NA	NA
	Gunitsawa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Cheykha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	66.22
	Dechenling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pema Gatsel	Nganglam	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thinleygang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Punakha	Lobesa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jomotshangkha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	Dorokha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sarpang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sarpang	Jigmechoiling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thimphu	Lingzhi	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Bjeemina	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Bidung	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trashigang	Sakteng	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Merak	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trashigang	Bumdeling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Tsirangtoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tsirang	Mendreligang	NA	NA	NA	NA	NA	NA	196.21	106.00	60.07	NA	NA	NA
	Dorji Goenpa	NA	NA	NA	NA	NA	NA	NA	0.29	0.19	0.61	NA	NA
Trongsa	Simpbu	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Tongtongpey	NA	NA	NA	NA	29.00	NA	NA	NA	NA	NA	NA	NA
Wangdue Phodrang	Gaselo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Buli	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zhemgang	Khomshar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: NCHM

Table 11.27 DZONGKHAG-WISE MAXIMUM SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2017)
(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	NA	NA	NA	NA	NA	NA	NA	NA	807.56	771.59	734.05	662.25
	Chamkhar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhukha	Tsimalakra	752.80	806.99	875.68	930.47	968.34	949.84	812.98	818.76	918.52	869.67	804.50	729.45
	Kamji	657.15	631.63	693.41	804.37	842.52	619.45	515.16	489.88	643.46	615.84	672.61	616.67
Dagana	Dagapela	NA	NA	NA	NA	NA	NA	84.46	67.71	59.24	310.45	614.41	521.48
	Kerabari	NA	NA	NA	NA	NA	NA	823.51	795.47	843.66	748.03	715.68	636.62
Gasa	Laya	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Haa	Dorithasa	NA	NA	NA	NA	NA	1,112.03	770.44	754.80	776.80	845.73	NA	NA
Paro	Pangbisa	764.63	861.36	909.44	990.32	998.94	1,070.38	936.30	985.63	987.15	887.36	811.53	737.41
	Dungkar	677.60	663.25	755.02	817.57	922.88	923.98	936.73	857.67	892.02	764.01	727.65	606.43
Lhuentse	Ladung	676.64	696.50	797.34	882.52	965.11	892.61	937.00	668.81	NA	NA	NA	NA
	Gyelposhing	720.03	666.54	752.81	895.18	934.05	852.54	903.17	845.07	788.24	771.49	656.08	607.54
Mongar	Thrumshingla	599.80	706.29	620.92	847.01	769.49	587.20	716.68	698.05	645.92	745.24	660.14	720.31
	Gumitsawa	NA	NA	353.25	1,021.97	989.38	946.04	863.61	912.83	860.70	830.90	NA	NA
Paro	Cheykha	79.49	92.47	87.61	108.40	99.98	198.60	908.45	874.93	956.23	916.79	871.34	649.15
	Dechenling	65.33	71.53	80.77	77.63	92.47	86.86	85.69	71.24	74.84	75.72	69.16	61.75
Gatsel	Nganglam	NA	NA	NA	69.10	80.84	71.47	76.86	474.01	647.49	674.50	630.99	546.19
	Thinleygang	NA	NA	NA	NA	NA	767.45	962.78	875.67	841.49	774.74	686.31	650.51
Punakha	Lobesa	691.34	721.31	813.94	949.61	1,003.31	1,025.22	946.99	945.07	911.30	825.39	729.88	646.99
Samdrup Jongkhar	Jomotshangkha	65.53	65.84	74.94	81.71	86.93	83.22	85.47	78.30	86.73	75.62	73.65	63.67
	Dorokha	714.95	706.58	791.82	884.66	936.31	968.16	851.37	757.02	870.11	809.29	775.55	702.33
Samtse Sarpang	Sarpang	NA	NA	NA	NA	NA	NA	930.93	770.05	788.11	754.49	720.21	633.35
	Jigmecholing	700.68	705.42	769.90	812.47	954.57	850.43	802.17	719.67	710.57	777.04	728.05	641.07

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thimphu	Lingzhi	80.97	93.49	103.74	113.08	107.72	243.30	967.68	870.52	996.78	945.46	848.87	758.14
	Bjeemina	764.07	803.01	852.51	958.16	994.90	978.56	971.60	932.25	933.01	857.79	795.30	716.55
	Bidung	702.35	769.28	861.28	950.35	1,006.56	1,002.41	1,016.50	976.64	961.01	864.49	765.95	675.76
Trashigang	Sakteng	753.36	811.52	913.52	992.07	1,052.35	998.33	923.09	977.77	907.77	813.95	NA	NA
	Merak	NA	89.65	93.19	96.61	97.40	223.02	844.64	964.71	978.21	942.18	852.83	678.89
Trashiyangtse	Bumdeling	713.72	731.49	778.76	908.31	950.40	998.21	995.46	975.73	906.80	852.91	761.33	692.81
	Tongtongpey	748.90	735.51	797.24	928.67	1,076.07	NA	NA	NA	730.56	838.92	744.13	685.72
Trongsa	Dorji Goempa	NA	NA	NA	NA	NA	792.24	830.42	716.53	827.78	742.90	773.03	706.51
	Simpbu	NA	NA	NA	NA	NA	935.82	973.71	971.62	940.97	913.36	793.81	733.29
Tsirang	Tsirangtoe	718.77	741.84	815.59	888.40	1,001.87	995.24	910.17	913.44	900.44	834.77	765.36	693.52
	Mendrelgang	NA	NA	NA	NA	NA	NA	254.97	106.00	350.27	720.83	719.96	443.20
Wangdue Phodrang	Gaselo	800.29	841.41	920.57	1,032.34	1,088.97	1,124.19	1,050.54	1,055.55	992.07	859.94	789.26	700.95
	Buli	734.01	746.89	858.67	883.11	975.12	932.90	904.91	857.39	791.56	894.53	774.64	720.95
Zhemgang	Khomshar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: NCHM

Table 11.28 DZONGKHAG-WISE AVERAGE SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2017)
(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	NA	NA	NA	NA	NA	NA	NA	NA	126.51	119.29	104.19	89.31
	Chamkhar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhukha	Tsimalakha	176.58	183.72	187.82	211.13	198.24	193.19	153.15	153.31	186.24	181.51	191.63	178.50
	Kamji	127.99	124.33	140.93	168.74	144.44	98.96	80.69	73.92	89.98	102.84	136.56	122.99
Dagana	Dagapela	NA	NA	NA	NA	NA	NA	16.77	12.38	19.05	65.77	90.96	65.42
	Kerabari	NA	NA	NA	NA	NA	NA	166.14	148.85	153.98	165.22	185.08	161.05
Gasa	Laya	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Haa	Dorithasa	NA	NA	NA	NA	NA	233.33	145.04	135.13	97.25	162.67	NA	NA
	Pangbisa	186.94	218.98	219.02	249.19	222.74	245.84	201.43	203.74	201.57	193.00	203.37	188.17
Paro	Dungkar	148.80	139.00	153.14	189.32	198.73	192.43	206.95	183.34	174.79	139.49	133.84	113.68
	Lhuentse	158.54	149.46	165.51	202.20	187.65	171.48	167.18	107.51	NA	NA	NA	NA
Mongar	Gyelposhing	132.86	136.12	131.43	181.70	179.98	177.17	185.74	172.90	146.90	151.00	131.90	112.48
	Thrumshingla	133.77	140.64	101.44	187.59	139.43	133.26	149.50	118.14	104.71	129.43	148.32	167.22
Paro	Gunitsawa	NA	NA	44.10	216.23	181.55	181.72	163.84	150.54	165.13	141.81	NA	NA
	Cheykha	19.56	22.79	21.80	25.06	22.17	35.11	179.07	175.00	179.93	213.39	235.32	287.42
Pema	Dechenling	15.63	16.48	19.03	19.12	20.01	16.98	18.18	13.79	13.09	16.33	16.45	14.19
	Gatshel	NA	NA	NA	16.30	17.26	13.61	14.34	81.22	99.83	138.73	147.25	127.61
Punakha	Thinleygang	NA	NA	NA	NA	NA	128.45	194.14	177.88	162.82	160.75	147.59	141.30
	Lobesa	144.29	158.95	176.28	230.85	213.80	240.24	207.50	203.61	194.23	179.31	160.56	122.84
Samdrup Jongkhar	Jomoshangkha	15.86	15.39	18.44	18.87	18.19	15.43	18.86	15.28	15.88	16.89	16.00	14.42
	Dorokha	158.07	150.70	172.80	200.33	183.63	183.36	149.32	136.52	151.23	157.74	168.16	148.79
Samtse	Sarpang	NA	NA	NA	NA	NA	NA	182.68	130.15	135.32	169.31	178.08	156.08
	Jigmecholing	154.45	157.16	166.54	190.42	190.82	158.91	152.62	128.31	114.59	152.98	160.17	134.80

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thimphu	Lingzhi	19.91	23.67	25.84	26.86	20.43	44.18	179.85	162.91	189.20	190.07	213.40	196.78
	Bjeemina	175.44	195.94	188.31	226.16	200.90	220.00	192.06	181.92	167.52	177.06	183.86	176.53
	Bidung	181.22	184.84	203.28	236.60	246.88	239.09	218.29	209.09	208.07	213.74	196.87	170.63
Trashigang	Sakteng	186.52	189.72	199.49	215.32	211.51	223.89	193.87	185.26	175.10	209.40	NA	NA
	Merak	NA	19.39	21.13	21.31	20.16	43.85	168.08	176.87	184.38	195.77	201.43	154.59
Trashiyangtse	Bumdeling	160.39	157.39	132.77	184.00	177.28	189.02	194.11	188.55	169.14	158.15	170.48	158.98
	Tongtongpey	167.10	158.06	157.99	208.66	335.48	NA	NA	NA	141.39	178.27	168.16	156.39
Trongsa	Dorji Goempa	NA	NA	NA	NA	NA	153.77	164.45	139.03	146.85	185.60	184.33	167.75
	Simpbu	NA	NA	NA	NA	NA	168.46	194.82	187.84	177.59	181.46	168.25	164.83
Tsirang	Tsirangtoe	176.51	173.44	200.44	227.99	228.14	224.12	195.98	184.68	192.07	198.65	194.24	171.45
	Mendrelgang	NA	NA	NA	NA	NA	NA	212.28	106.00	111.53	147.09	146.28	85.85
Wangdue Phodrang	Gaselo	186.00	189.25	211.96	258.10	231.72	238.89	223.77	228.34	208.53	191.32	179.15	163.54
	Buli	182.01	170.61	176.24	209.24	188.14	186.29	191.73	166.65	160.65	195.46	190.90	170.12
Zhemgang	Khomshar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: NCHM

Table 11.29 DZONGKHAG-WISE MINIMUM SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2018)
(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chamkhar	48.92	49.10	49.10	49.10	4.75	NA	NA	NA	NA	NA	NA	NA
Chhukha	Tsimalakha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Kamji	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dagana	Dagapela	NA	NA	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20
	Kerabari	NA	NA	NA	NA	57.81	1.19	0.00	622.31	333.21	1101.63	1379.73	1318.62
Gasa	Laya	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dorithasa	143.80	143.80	49.46	22.01	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Pangbisa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dungkar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lhuentse	Ladung	NA	NA	NA	NA	NA	NA	638.71	900.00	900.00	900.00	NA	NA
	Gyelposhing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mongar	Thrumshingla	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Gunitsawa	709.13	716.70	716.70	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Cheykha	26.12	NA	NA	NA	NA	NA	NA	0.85	1.64	57.97	NA	NA
	Dechenling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pema Gatsel	Nganglam	NA	NA	NA	NA	NA	8.90	NA	NA	NA	NA	NA	NA
	Thinlygang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Punakha	Lobesa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jomotsangkha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	Dorokha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sarpang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sarpang	Jigmecholing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thimphu	Lingzhi	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Bjeemina	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Bidung	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trashigang	Sakteng	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Merak	32.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trashiyangtse	Bumdeling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Tongtongpey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trongsa	Dorji Goenpa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Simphu	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Tsirangtoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tsirang	Mendrelgang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wangdue Phodrang	Gaselo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Buli	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zhemgang	Khomshar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: NCHM

Table 11.30 DZONGKHAG-WISE MAXIMUM SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2018)

(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	707.36	738.72	843.89	805.56	909.18	961.93	964.09	875.66	817.55	805.59	710.93	623.61
	Chamkhar	49.10	49.10	49.10	49.10	94.11	1,085.52	1,079.63	972.94	952.62	923.85	789.34	713.39
	Tsimalakha	767.45	817.72	861.55	1,008.07	954.96	904.50	817.74	909.49	861.13	893.01	773.50	708.92
Chhukha	Kamji	677.15	497.69	725.43	878.06	731.18	602.67	515.17	511.86	597.13	601.28	644.20	563.19
	Dagapela	577.30	0.00	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20
Dagana	Kerabari	635.24	589.32	733.15	860.39	1,032.17	959.50	857.03	1,229.96	1,021.93	1,436.53	1,537.63	1,524.84
Gasa	Laya	NA	NA	NA	NA	NA	975.55	NA	934.63	1,066.87	984.01	NA	NA
Haa	Dorithasa	146.16	143.80	505.06	582.50	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Pangbisa	773.51	843.68	989.81	1,042.10	975.65	1,018.21	1,056.97	986.16	962.62	946.60	806.83	720.68
	Dungkar	571.41	650.63	736.14	852.45	892.84	927.36	960.54	929.75	799.77	801.09	701.44	661.46
Lhuentse	Ladung	NA	NA	NA	NA	935.00	959.07	868.22	900.00	900.00	900.00	NA	NA
	Gyelposhing	543.05	567.14	728.66	824.06	900.94	906.21	912.16	807.75	741.37	755.27	550.64	660.60
Mongar	Thrumshingla	561.78	647.25	795.28	723.48	701.67	713.06	715.24	NA	NA	887.53	719.43	711.95
	Gunitsawa	721.60	716.70	716.70	NA	NA	NA	NA	NA	693.03	877.11	777.99	721.26
Paro	Cheykha	811.15	897.85	1,058.74	1,044.92	1,055.09	934.11	878.94	765.35	934.59	780.74	NA	NA
	Dechenling	63.93	62.48	75.57	85.64	550.12	743.66	887.10	692.70	NA	NA	NA	547.32
Pema	Gatshel	567.27	594.66	709.66	788.31	775.42	711.16	NA	NA	NA	NA	NA	NA
	Thinleygang	599.62	670.23	818.18	949.56	986.13	984.60	967.22	912.55	823.66	787.44	686.78	651.23
Punakha	Lobesa	686.25	0.00	863.65	918.62	970.95	998.22	1,023.67	981.70	913.42	782.28	679.73	647.57
Samdrup Jongkhar	Jomotshangkha	65.10	61.82	72.64	82.85	567.29	895.18	855.84	879.16	812.86	775.87	672.33	658.67
Samtse	Dorokha	687.33	630.67	752.50	916.15	870.76	829.21	806.91	953.87	718.04	327.18	303.06	350.28
	Sarpang	622.09	599.13	736.62	855.53	775.60	827.95	654.04	NA	NA	NA	NA	NA
Sarpang	Jigmecholing	671.99	664.64	803.94	933.53	905.59	909.87	NA	NA	641.74	761.32	652.32	621.26
Thimphu	Lingzhi	797.64	903.25	1,071.29	1,107.21	1,083.41	1,027.33	907.04	819.11	1,008.88	980.13	845.10	763.76

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Bjeemina	757.32	803.19	924.20	979.07	892.52	1,036.54	996.87	937.70	NA	NA	NA	NA
	Bidung	712.34	754.53	904.93	1,039.30	1,004.45	1,053.00	1,064.52	1,037.41	925.39	840.47	NA	NA
	Trashigang	787.36	795.93	953.98	991.66	980.15	1,116.16	1,060.67	990.82	890.34	882.79	791.76	721.70
	Merak	788.01	846.70	981.36	971.70	918.76	1,092.46	1,013.29	998.92	947.67	983.50	849.86	765.99
Trashi Yangtse	Bumdeling	641.17	739.57	839.56	896.31	984.11	1,008.39	990.35	916.52	896.22	782.49	679.21	651.61
	Tongtongpey	689.71	670.59	785.75	908.45	1,003.50	1,001.08	876.58	NA	NA	NA	NA	NA
Trongsa	Dorji Goenpa	659.94	590.13	959.06	969.27	795.13	NA	NA	NA	NA	NA	NA	NA
	Simphu	669.42	718.13	912.51	962.81	941.84	1,011.30	1,007.63	1,035.43	902.62	872.75	753.19	644.55
	Tsirangtoe	730.38	717.61	834.47	942.67	983.63	943.47	973.05	1,007.03	897.10	830.72	721.53	681.06
Tsirang	Mendrelgang	NA	NA	NA	NA	908.75	842.39	854.63	928.15	723.36	720.80	NA	NA
Wangdue Phodrang	Gaselo	687.81	762.72	903.39	975.28	1,020.53	1,017.88	1,044.00	999.26	954.99	855.16	778.24	699.34
	Buli	728.48	758.04	851.02	919.62	904.94	968.98	981.34	NA	790.68	NA	NA	NA
Zhemgang	Khomshar	NA	NA	797.33	880.55	904.21	1,004.88	947.23	990.73	873.22	807.79	717.38	643.42

Source: NCHM

Table 11.31 DZONGKHAG-WISE AVERAGE SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2018)

(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	91.45	114.53	133.71	129.81	157.97	172.65	173.01	157.99	142.11	120.91	96.50	84.51
	Chamkhar	49.10	49.10	49.10	49.10	190.94	226.22	232.45	208.73	226.04	206.26	192.99	166.28
Chhukha	Tsimalakha	172.63	172.12	180.53	194.24	176.47	181.75	151.21	171.55	167.41	199.54	181.49	162.48
	Kamji	137.54	95.20	145.05	157.41	116.85	91.69	75.43	79.66	87.77	105.60	132.85	102.31
Dagana	Dagapela	68.30	NA	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20	766.20
	Kerabari	184.43	154.01	178.65	178.60	319.59	321.68	165.17	853.83	626.56	1268.47	1464.79	1426.02
Gasa	Laya	NA	NA	NA	NA	NA	198.94	NA	183.67	234.67	202.72	NA	NA
Haa	Dorithasa	143.87	143.80	250.78	258.37	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Pangbisa	194.44	213.44	250.88	223.63	205.72	220.76	221.03	188.17	236.75	237.76	203.70	174.59
Lhuentse	Dungkar	164.77	125.48	145.55	167.45	167.05	190.79	212.53	200.25	166.49	175.47	149.97	137.62
	Ladung	NA	NA	NA	NA	176.78	193.63	693.99	900.00	900.00	900.00	NA	NA
Mongar	Gyelposhing	96.37	111.69	141.92	151.59	162.72	183.51	173.81	168.96	154.39	139.79	100.33	113.95
	Thrumshingla	139.79	139.66	146.29	117.86	117.32	121.55	128.40	NA	NA	204.18	152.11	145.47
Paro	Gumitsawa	716.64	716.70	716.70	NA	NA	NA	NA	NA	131.77	181.28	168.18	160.85
	Cheykha	277.75	221.99	222.65	198.95	198.55	180.19	160.45	152.82	234.34	310.24	NA	NA
Pema	Dechenling	14.14	13.56	17.39	18.90	110.07	141.53	179.18	128.74	NA	NA	NA	107.14
	Nganglam	130.02	131.13	168.97	175.95	154.95	161.34	NA	NA	NA	NA	NA	NA
Punakha	Thinlygyang	120.73	141.21	171.24	176.48	187.39	205.94	203.94	186.51	179.37	168.51	137.77	128.61
	Lobesa	156.60	NA	208.42	192.43	208.60	222.38	234.38	218.64	206.38	181.77	142.61	115.78
Samdrup Jongkhar	Jomotshangkha	14.55	13.74	17.51	17.59	115.69	177.31	163.42	165.23	158.89	182.05	159.22	150.66
Samtse	Dorokha	145.54	125.99	156.00	170.37	159.92	156.24	147.04	165.85	113.52	51.05	40.02	41.75
	Sarpang	150.93	134.49	167.25	179.01	154.69	158.40	121.46	NA	NA	NA	NA	NA
Sarpang	Jigmeholing	135.50	132.27	170.74	185.16	183.40	191.32	NA	NA	117.13	173.35	144.34	121.40

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Thimphu	Lingzhi	204.13	222.79	227.51	188.81	226.84	197.41	169.77	161.42	202.59	216.75	207.05	193.77
	Bjeemina	180.20	192.13	194.78	191.33	170.13	201.56	200.71	179.60	NA	NA	NA	NA
	Bidung	167.65	177.83	209.03	228.13	226.74	253.54	253.93	238.52	211.41	219.10	NA	NA
Trashigang	Sakteng	187.42	177.32	195.29	182.98	186.55	233.36	217.23	206.06	185.25	213.10	186.78	170.35
	Merak	208.80	200.20	199.47	166.72	168.27	213.13	195.86	187.21	201.41	223.78	206.60	178.45
Trashiyangtse	Bumdeling	132.40	147.28	160.51	158.39	180.60	196.74	190.68	173.30	167.17	152.70	134.41	140.58
	Tongtongpey	135.58	133.26	169.07	174.29	188.27	213.60	187.36	NA	NA	NA	NA	NA
Trongsa	Dorji Goempa	144.68	112.48	223.44	178.90	107.80	NA	NA	NA	NA	NA	NA	NA
	Simpbu	140.26	141.79	172.14	163.71	164.01	199.39	203.09	197.35	179.85	180.79	147.93	136.15
Tsirang	Tsirangtoe	165.51	153.24	195.01	217.69	212.24	217.65	214.99	215.02	189.95	204.85	181.50	162.18
	Mendrelgang	NA	NA	NA	NA	186.58	171.73	164.32	181.54	133.97	160.24	NA	NA
Wangdue Phodrang	Gaselo	148.11	167.39	198.73	212.71	216.00	216.55	230.37	223.46	216.28	211.48	172.81	152.97
	Buli	158.28	151.96	173.51	178.84	158.84	197.78	204.88	NA	145.36	NA	NA	NA
Zhemgang	Khomshar	NA	NA	175.90	171.52	163.06	194.69	191.16	216.97	167.12	179.28	165.96	134.63

Source: NCHM

Table 11.32 DZONGKHAG-WISE MINIMUM SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2019)

(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	NA	NA	NA	93.59	133.70	133.70	133.70	133.70	133.70	133.70	133.70	133.70
	Chamkhar	NA	NA	NA	196.65	256.50	247.95	NA	NA	NA	NA	NA	NA
	Tsimaklaha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhukha	Kamji	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	843.36	918.48
Dagana	Dagapela	766.20	766.20	766.20	766.20	740.66	740.66	18.75	30.60	30.60	30.60	30.60	30.60
	Kerabari	1,275.82	1,027.31	1,291.82	918.16	24.10	938.37	272.42	846.99	905.80	NA	NA	NA
Gasa	Laya	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Haa	Dorithasa	NA	NA	NA	1,120.06	1,131.35	1,099.93	1,116.58	1,151.58	1,138.55	1,079.48	1,048.75	919.86
Paro	Pangbisa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dungkar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lhuentse	Ladung	NA	NA	NA	NA	NA	NA	608.48	725.50	725.50	725.50	725.50	725.50
	Gyelposhing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mongar	Thrumshingla	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Gunitsawa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Paro	Cheykha	NA	NA	NA	NA	53.27	10.46	1.82	164.80	NA	NA	NA	NA
Pema	Dechenling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Gatshel	Nganglam	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thinleygang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Punakha	Lobesa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samdrup Jongkhar	Jomotishangkha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samtse	Dorokha	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sarpang	NA	NA	NA	NA	NA	NA	NA	8.01	NA	NA	NA	NA
Sarpang	Jigmecholing	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thimphu	Lingzhi	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Bjeemina	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Bidung	NA	NA	49.32	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Trashigang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Merak	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Trashi Yangtse	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Tongtongpey	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Trongsa	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Simphu	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Tsirangtoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mendrelgang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Gaselo	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Wangdue Phodrang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zhemgang	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Khomshar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Source: NCHM

Table 11.33 DZONGKHAG-WISE MAXIMUM SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2019)

(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	672.10	740.53	878.12	334.00	133.70	133.70	133.70	133.70	133.70	133.70	133.70	133.70
	Chamkhar	775.80	832.46	929.97	402.17	256.50	286.73	995.43	1,128.57	906.63	894.69	784.53	704.85
Chhukha	Tsimalakha	754.07	793.96	950.27	931.70	925.31	942.97	735.79	919.83	NA	NA	NA	704.85
	Kamji	660.96	648.38	NA	826.02	681.47	631.16	339.27	731.23	489.85	573.90	1,357.37	1,565.32
Dagana	Dagapela	766.20	766.20	766.20	766.20	766.20	772.18	310.65	30.60	30.60	30.60	30.60	30.60
	Kerabari	1,527.07	1,460.60	1,548.66	1,308.15	168.01	1,333.61	544.67	1,241.21	1,211.67	NA	NA	NA
Gasa	Laya	644.57	855.81	1,025.04	1,117.33	1,078.28	980.60	NA	1,149.03	927.93	922.46	822.23	781.43
Haa	Dorithasa	NA	NA	NA	1,414.06	1,386.79	1,396.98	1,375.41	1,415.68	1,423.23	1,424.59	1,405.79	1,354.57
Paro	Pangbisa	756.25	828.42	965.03	1,029.19	1,032.77	996.70	939.30	1,062.02	935.79	895.55	NA	NA
	Dungkar	702.29	678.64	841.51	929.49	851.54	898.92	802.15	1,011.17	743.40	797.09	683.46	592.59
Lhuentse	Ladung	NA	NA	310.40	884.03	874.77	938.22	776.13	725.50	725.50	725.50	725.50	725.50
	Gyelposhing	678.88	644.33	824.37	238.00	NA	NA	828.66	815.57	949.71	833.16	727.09	683.67
Mongar	Thrumshingla	734.23	0.00	675.27	766.27	703.07	757.55	666.00	927.94	657.05	637.18	705.78	540.67
	Gumtiswa	711.50	777.06	970.75	1,041.81	1,039.32	940.03	914.46	1,026.93	846.61	906.27	783.13	700.25
Paro	Cheykha	NA	NA	NA	NA	788.57	1,079.95	704.54	164.80	744.30	965.24	868.67	801.40
	Dechenling	540.20	497.49	670.53	NA	NA	NA	NA	NA	NA	NA	703.00	419.88
Pema	Gatshel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	645.56	636.84
	Thinlygang	675.42	684.03	831.90	907.24	936.95	963.68	879.92	1,015.86	768.88	813.70	666.16	615.45
Punakha	Lobesa	657.63	706.21	844.04	972.08	952.02	991.44	955.36	904.83	908.89	798.87	662.85	616.49
Samdrup Jongkhar	Jomotshangkha	662.70	696.61	789.74	834.30	668.92	847.06	697.37	929.08	768.70	742.65	672.42	660.33
Samtse	Dorokha	421.06	478.64	806.86	333.13	824.89	833.65	688.04	918.42	722.36	832.41	730.88	683.62

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sarpang	Sarpang	NA	NA	726.54	899.56	559.16	NA	NA	855.15	944.15	NA	759.96	644.29
	Jigmecholing	684.96	667.46	878.27	866.87	764.14	836.78	662.61	774.22	430.67	NA	952.46	706.51
Thimphu	Lingzhi	814.04	890.06	1,077.90	1,113.59	1,121.56	1,098.04	927.93	1,044.31	887.36	972.31	847.40	761.65
	Bjeemina	NA	NA	NA	988.50	994.08	947.81	904.30	1,077.99	842.75	870.32	766.07	692.89
Trashigang	Bidung	744.93	766.63	1,083.22	NA	NA	NA	NA	NA	NA	NA	NA	697.36
	Sakteng	758.30	795.16	933.52	908.10	921.70	1,061.72	838.59	1,052.81	818.67	818.29	778.56	722.26
Trashigang	Merak	762.34	862.00	1,051.33	930.56	932.52	1,051.37	844.25	966.79	866.08	912.02	861.90	792.72
	Bumdeling	713.37	735.49	839.00	894.43	910.28	965.01	907.03	1,051.18	869.01	826.44	729.45	660.48
Trongsa	Tongtongpey	NA	NA	837.61	919.88	891.55	962.74	856.85	982.61	831.43	892.42	NA	735.40
	Dorji Goenpa	NA	NA	847.56	969.39	956.76	940.69	818.82	934.18	729.37	861.75	748.48	702.99
Tsirang	Simpbu	791.66	742.54	848.30	916.26	941.01	962.57	885.99	1,023.70	866.81	911.36	787.53	680.08
	Tsirangtoe	725.83	724.16	865.28	974.30	908.17	965.91	822.92	1,042.00	896.72	859.11	752.36	708.60
Wangdue Phodrang	Mendrelgang	NA	NA	1,007.91	1,190.52	1,039.48	1,120.26	928.22	1,174.16	920.07	NA	633.27	803.41
	Gaselo	736.66	755.86	893.21	997.38	971.35	983.34	947.29	1,038.94	904.26	883.84	774.52	681.89
Zhengang	Buli	NA	NA	NA	944.45	805.25	966.74	821.30	NA	864.23	788.35	772.46	983.31
	Khomshar	710.79	710.85	838.22	880.22	838.73	945.22	759.52	1,008.94	802.15	787.70	682.96	655.88

Source: NCHM

Table 11.34 DZONGKHAG-WISE AVERAGE SOLAR RADIATION AT VARIOUS WEATHER STATIONS (2019)

(Value in Sq.m)

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bumthang	Dhur	95.47	111.94	140.81	133.72	133.70	133.70	133.70	133.70	133.70	133.70	133.70	133.70
	Chamkhar	173.26	187.85	206.33	239.01	256.50	259.85	216.50	248.48	180.84	185.00	178.68	159.62
	Tsimalakha	164.55	163.91	195.95	181.21	183.08	193.12	139.30	176.82	NA	NA	NA	176.70
Chhukha	Kamji	141.26	126.27	NA	151.29	116.76	100.08	56.23	113.82	75.44	94.04	1,009.98	1,299.10
	Dagapela	766.20	766.20	766.20	766.20	766.20	747.67	81.03	30.60	30.60	30.60	30.60	30.60
Dagana	Kerabari	1,416.06	1,308.63	1,474.29	1,121.93	88.56	1,194.64	393.85	1,029.68	1,071.59	NA	NA	NA
Gasa	Laya	161.23	200.96	234.25	249.46	213.54	214.92	0.00	266.23	180.64	186.25	207.94	182.36
Haa	Dorithasa	NA	NA	NA	1,234.13	1,229.08	1,262.31	1,244.86	1,284.85	1,261.99	1,226.37	1,183.74	1,057.70
Paro	Panghisa	176.54	196.63	250.26	226.41	241.44	213.39	212.55	243.41	167.91	192.71	NA	NA
	Dungkar	153.06	131.55	161.07	191.99	144.20	177.08	163.73	221.26	130.76	138.48	115.08	101.16
Lhuentse	Ladung	NA	NA	62.20	184.30	153.83	193.94	659.34	725.50	725.50	725.50	725.50	725.50
	Gyelposhing	122.98	116.69	145.51	27.60	NA	NA	165.08	208.21	169.69	172.03	148.89	137.46
Mongar	Thrumshingla	147.67	NA	118.89	129.10	127.15	127.80	123.93	173.54	105.19	113.54	128.65	111.07
	Gunitsawa	157.42	165.93	213.87	200.16	209.69	170.34	173.13	194.19	142.67	169.76	178.31	156.17
Paro	Cheykha	NA	NA	NA	NA	243.07	237.80	263.04	164.80	127.69	208.00	215.65	193.37
	Dechenling	123.26	102.78	135.60	NA	NA	NA	NA	NA	NA	NA	142.63	130.28
Pema	Nganglam	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	143.98	140.87
Gatshel	Thinlyegang	139.25	134.67	174.61	190.67	185.05	202.78	187.13	220.14	138.44	158.72	137.98	121.99
Punakha	Lobesa	126.01	149.03	193.45	205.08	202.07	219.86	207.85	204.46	173.06	175.10	137.78	112.50
	Jomotshangkha	159.74	152.57	176.59	184.88	120.67	174.52	138.77	207.02	147.72	154.95	147.18	144.26
Samdrup Jongkhar	Dorokha	46.07	72.94	153.27	65.00	162.90	159.82	120.38	169.49	117.51	152.37	134.51	116.80
Samtse	Sarpang	NA	NA	161.62	191.19	108.36	NA	NA	185.91	176.67	NA	164.64	150.75
	Jigmecholing	149.87	131.46	180.31	181.92	135.21	167.78	110.72	154.29	92.46	NA	173.38	133.63
Thimphu	Lingzhi	196.01	213.25	261.80	227.41	223.55	216.96	180.93	211.10	163.50	195.12	206.47	186.91

Dzongkhag	Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Bjeemina	NA	NA	NA	201.71	200.35	193.71	190.39	231.13	149.97	165.15	179.66	152.28
	Bidung	185.88	172.78	270.69	NA	NA	NA	NA	NA	NA	NA	NA	161.16
	Trashigang	180.18	172.98	204.34	205.45	178.93	233.55	172.15	216.06	157.16	184.97	169.81	161.60
	Merak	169.37	183.48	220.42	194.20	191.36	214.06	175.21	204.61	164.12	198.05	186.10	178.37
	Trashi Yangtse	152.98	137.20	165.36	181.48	158.36	190.78	175.36	235.23	150.59	153.63	150.28	138.86
	Tongtongpey	NA	NA	174.89	189.64	176.88	199.55	177.42	214.87	150.08	159.14	NA	146.16
	Dorji Goenpa	NA	NA	177.14	203.35	183.94	199.29	157.10	199.15	125.53	179.64	156.21	143.95
	Simphu	161.52	143.56	167.81	178.05	160.93	186.08	176.34	219.54	151.16	171.85	153.85	137.32
	Tsirangtoe	173.42	151.32	204.51	217.67	188.64	223.79	174.03	233.32	173.25	201.71	176.26	161.75
	Mendrelgang	NA	NA	213.04	247.63	190.95	247.62	173.85	246.11	176.91	NA	91.37	152.09
	Gaselo	161.87	165.85	210.56	215.99	209.98	209.96	204.11	248.38	174.01	198.25	169.10	151.69
	Phodrang	NA	NA	NA	194.45	139.50	200.13	153.51	NA	164.66	182.21	189.98	215.73
	Zhemgang	157.89	137.64	172.31	184.92	141.56	200.84	149.13	216.86	145.38	162.57	149.20	129.20

Source: NCHM

Chapter 12: RNR Gross Domestic Product and Budget

Table 12.1 GOVERNMENT BUDGET ALLOCATION FOR RNR SECTOR
(Value in Million Nu, unless specified)

Five Year Plans	Total Budget	Total Budget for RNR sector	Share (%) of total budget
1st (1962-1967)	107	7	6.54
2nd (1967-1972)	202	34	16.83
3rd (1972-1977)	475	111	23.37
4th (1977-1982)	1,106	430	38.88
5th (1982-1987)	4,711	332	7.05
6th (1987-1992)	9,559	880	9.21
7th (1992-1998)	15,236	2,434	15.98
8th (1998-2003)	39,524	4,746	12.01
9th (2003-2008)	70,000	4,548	6.50
10th (2008-2013)	146,252	8,124	5.55
11th (2013-2018)	213,292	13,643	6.40
12th (2018-2023)	197,942	13,947	7.05

Source: GNHC

Table 12.2 GDP CONTRIBUTION BY RNR SECTOR AT CURRENT PRICE
(Value in Million Nu.)

Sector	2014	2015	2016	2017	2018
Agriculture (Crops)	8,871.83	9,914.62	11,101.64	12,922.58	14,101.50
Livestock	4,869.27	5,210.04	5,789.16	7,050.34	7,463.70
Forestry & Logging	3,152.09	3,431.72	3,991.88	4,016.48	5,020.59
Total	16,893.19	18,556.38	20,882.68	23,989.40	26,585.79

Source: National Accounts Statistics 2019, NSB

Table 12.3 SHARE OF GDP BY RNR SECTOR AT CURRENT PRICE
(Value in %)

Sector	2014	2015	2016	2017	2018
Agriculture (crops)	7.62	7.71	7.65	8.10	8.43
Livestock	4.18	4.05	3.99	4.40	4.46
Forestry & logging	2.71	2.67	2.75	2.52	3.00
Total	14.51	14.43	14.39	15.02	15.89

Source: National Accounts Statistics 2019, NSB

Table 12.4 MOAF'S AGENCY-WISE OUTLAY AND EXPENDITURE FOR 11TH AND 12TH FYP
(Value in Million Nu.)

Agency	FY	Revised Approved Budget			Release			Expenditure		
		Current	Capital	Total	Current	Capital	Total	Current	Capital	Total
DoA	2015-16	429.18	688.22	1117.40	421.00	516.59	937.59	408.32	607.98	1016.29
	2016-17	467.54	611.77	1079.32	457.21	506.87	964.08	440.95	530.00	970.95
	2017-18	461.38	765.14	1226.51	456.84	541.15	997.98	446.63	537.70	984.33
	2018-19	459.12	560.96	1020.08	454.93	429.99	884.92	440.18	453.90	894.08
	2019-20	537.43	556.99	1094.41	535.84	403.81	939.65	525.50	319.21	844.71
	Total	2354.65	3183.07	5537.72	2325.82	2398.41	4724.23	2261.57	2448.79	4710.36
DoL	2015-16	409.75	480.32	890.07	407.31	449.22	856.53	401.98	403.00	804.98
	2016-17	475.36	574.69	1050.05	472.05	485.41	957.46	453.37	516.55	969.92
	2017-18	458.55	345.87	804.42	457.22	316.32	773.54	450.95	290.83	741.78
	2018-19	455.96	192.02	647.98	452.45	155.15	607.60	447.62	152.29	599.91
	2019-20	513.47	290.89	804.36	511.44	271.81	783.25	508.53	247.60	756.12
	Total	2313.10	1883.79	4196.89	2300.47	1677.91	3978.38	2262.44	1610.27	3872.71
DoFPS	2015-16	818.64	371.07	1189.71	794.67	310.98	1105.65	775.72	272.84	1048.57
	2016-17	901.84	453.19	1355.02	886.67	372.08	1258.74	875.07	357.15	1232.22
	2017-18	929.19	374.24	1303.43	913.15	336.04	1249.19	890.33	308.79	1199.12
	2018-19	884.42	429.23	1313.65	869.24	321.96	1191.20	846.57	287.56	1134.13
	2019-20	1018.92	527.47	1546.39	1004.34	406.55	1410.89	1000.14	362.28	1362.41
	Total	4553.01	2155.19	6708.20	4468.06	1747.61	6215.68	4387.83	1588.62	5976.44
DAMC	2015-16	25.48	81.20	106.67	23.25	48.47	71.72	22.60	45.22	67.81
	2016-17	28.97	75.76	104.73	28.18	43.29	71.47	27.86	42.86	70.72
	2017-18	40.47	57.63	98.10	39.21	48.90	88.11	38.27	41.71	79.98
	2018-19	40.11	66.53	106.65	37.11	34.28	71.39	32.60	31.43	64.03
	2019-20	38.98	304.39	343.37	36.75	259.49	296.24	35.38	127.56	162.94
	Total	174.01	585.51	759.51	164.49	434.44	598.93	156.70	288.78	445.48

Agency	FY	Revised Approved Budget			Release			Expenditure		
		Current	Capital	Total	Current	Capital	Total	Current	Capital	Total
	2014-15	95.80	59.02	154.82	92.73	35.25	127.98	90.73	31.89	122.61
	2015-16	99.45	52.14	151.59	98.85	33.83	132.68	99.23	26.71	125.93
	2016-17	105.36	59.00	164.36	104.49	53.19	157.68	101.09	47.19	148.27
BAFRA	2017-18	109.18	37.49	146.67	109.18	34.09	143.27	109.24	33.57	142.81
	2018-19	102.70	31.25	133.95	102.70	24.06	126.76	102.65	31.25	133.90
	2019-20	38.98	304.39	343.37	36.75	259.49	296.24	35.38	127.56	162.94
	Total	551.46	543.29	1094.76	544.70	439.91	984.61	538.30	298.16	836.46
	2015-16	104.98	288.14	393.12	96.82	220.03	316.85	94.38	193.68	288.06
	2016-17	102.93	191.08	294.01	95.84	116.13	211.97	91.94	116.45	208.39
DS &	2017-18	107.49	212.82	320.31	101.46	200.81	302.27	92.77	188.62	281.40
Secretariat	2018-19	121.45	219.60	341.05	116.92	193.26	310.18	106.91	182.09	288.99
	2019-20	111.81	161.83	273.64	106.43	109.33	215.76	102.00	99.63	201.63
	Total	548.66	1073.47	1622.13	517.47	839.55	1357.02	487.99	780.47	1268.46
	2015-16	51.52	26.51	78.04	46.50	21.90	68.40	45.63	21.17	66.80
	2016-17	44.80	17.92	62.72	42.50	9.80	52.30	42.00	9.43	51.42
NBC	2017-18	43.97	14.93	58.90	40.54	12.86	53.40	40.45	12.63	53.08
	2018-19	45.62	9.16	54.78	40.94	8.12	49.05	40.02	7.84	47.85
	2019-20	41.87	14.16	56.03	39.55	13.60	53.15	37.35	10.41	47.76
	Total	227.79	82.68	310.47	210.02	66.27	276.30	205.44	61.47	266.91

Source: Finance Division, DoS, MoAF

