

# Environmental and Social Monitoring Report

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Annual Report  
Project Number: 44239-014  
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## Bhutan: Air Transport Connectivity Enhancement Project - Additional Financing

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Prepared by Department of Air Transport, Ministry of Information and Communication for the Royal Government of Bhutan and the Asian Development Bank.

## **CURRENCY EQUIVALENTS**

(As of 4 November 2021)

Currency	–	Bhutanese Ngultrum
Nu 1.00	=	\$ 0.013
\$1.00	=	Nu 74.50

## **ABBREVIATIONS**

ADB	-	Asian Development Bank
AIDS	-	Acquired Immunodeficiency Syndrome
ATCEP	-	Air Transport Connectivity Enhancement Project
ATCEP-AF	-	Air Transport Connectivity Enhancement Project Additional Financing
BBSC	-	Bhutan Broadcasting Service Corporation
BDA	-	Bumthang Domestic Airport
CSC	-	Construction Supervision Consultant
DOAT	-	Department of Air Transport
DOL	-	Department of Livestock
EA	-	Executing Agency
EMP	-	Environmental Management Plan
GA	-	Grant Agreement
GDA	-	Gelephu Domestic Airport
HIV	-	Human Immunodeficiency Virus
IA	-	Implementing Agency
ICAO	-	International Civil Aviation Organization
IEE	-	Initial Environmental Examination
LEAPP	-	Leading Edge Aviation Planning Professionals
MOAF	-	Ministry of Agriculture and Forests
MOIC	-	Ministry of Information and Communications
MOF	-	Ministry of Finance
NEC	-	National Environment Commission
OHS	-	Occupational Health and Safety
PAM	-	Project Administration Manual
PC	-	Project Coordinator
PIU	-	Project Implementation Unit
RGOB	-	Royal Government of Bhutan
RP	-	Resettlement Plan
SPS	-	Safeguard Policy Statement
YDA	-	Yonphula Domestic Airport

## **GLOSSARY OF TERMS**

Chorten	-	Stupa
Dzongkhag	-	District
Gewog	-	Block (subdivision of district)
Lhakhang	-	Temple

## **NOTE**

In this report, "\$" refers to US dollars.

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## **EXECUTIVE SUMMARY**

1. This document reports on the environmental and social safeguards compliance of the Air Transport Connectivity Enhancement Project Additional Financing (ATCEP-AF). It covers the pre-construction, construction and operational phases of the Project. The project is financed by ADB through a grant (No.0484-BHU) worth US\$ 4.0 million approved on 29 September 2016. The project, together with the original project, will improve the infrastructure of the Bumthang, Gelephu, and Yonphula domestic airports. The additional financing will further strengthen safety and security and enhance the capacity of these airports. The overall project has supported the government's plan to develop a safe, reliable, and efficient air transport system connecting urban and rural centres to help overcome the limitations of road transport and improve accessibility, promote tourism and high-value agriculture in less-developed regions of the country. In addition to the financing of the original sub-projects at three domestic airports, the project will also finance the installation of an automated parking management system at the Paro International Airport (PIA) to help improve the overall parking management of both the arrival and the departure side of the airport and generate additional revenue for the PIA. The parking management system for PIA is planned to be implemented by the second week of September 2021.

2. The Ministry of Information and Communication (MOIC) is the Executing Agency (EA) while the Department of Air Transport (DoAT) is the Implementing Agency (IA) for the Project. The Project is supervised by the National Construction Supervision Consultants (CSC) - Gyaltsen Consultancy firm based in Thimphu.

3. Overall, environmental and social safeguards mitigation measures have been implemented in compliance with ADB's Safeguards Policy Statement 2009, the grant covenants, and the proposed mitigation measures prescribed in the Environmental Management Plan (EMP and contract specifications). The project would be 100% complaint if not for the two issues that remained to be resolved. The unresolved issues are detailed out in the following sections.

### **A. RGOB Financed Airports Construction Project:**

#### **1. Bumthang Domestic Airport (BDA)**

4. Relocation of Brown Swiss Farm: DoAT was supposed to carry out the complete takeover of Brown Swiss Farm from the Department of Livestock (DOL) by early 2019. However, the DOL requested the DoAT for a time extension of one more year since the new farm at Lebi is not yet ready for relocation. The DoAT provided a time extension and the complete relocation was expected to happen by early 2021 but due to COVID-19 restrictions, it couldn't be accomplished. The complete relocation is expected to happen by the end of 2021.

5. Bumthang Dzongkhag Administration has constructed a motorable bridge with pedestrian walkways on both sides as a mitigation measure against the demolition of the pedestrian suspension bridge between Batpalathang and Dekiling town. Cash compensation for the acquisition of 0.10-acre land has been paid and the issue is now resolved.

#### **2. Gelephu and Yonphula Domestic Airport**

6. There are no pending environmental and social safeguard issues for Gelephu and Yonphula airports. The land acquisitions and the subsequent compensation and land substitutions to the affected persons have been completed before the implementation of the ADB financed

ATCEP. The land acquisition was not undertaken in anticipation of ADB financing.

## **B. Air Transport Connectivity Enhancement Project (ATCEP) Financing**

### **1. Bumthang and Gelephu Domestic Airports**

7. Land acquisition: No private land and structures were acquired as the construction activities of Bumthang airport were carried out within the airport boundary. For the construction of the new terminal building at Gelephu airport, 0.67 acres of private land had to be acquired from one affected person. The person has been provided land substitution as per the resettlement plan.

### **2. Yonphula Domestic Airport**

8. All pending issues such as the construction of footpath to the stupa, dredging or rehabilitation of pond and the construction of gabion walls for slope protection near the pond at Yonphula domestic airport have been completed.

## **C. Air Transport Connectivity Enhancement Project (ATCEP) Additional Financing**

### **1. Bumthang and Yonphula Domestic Airports**

9. No issues are stemming from the implementation of ATCEP-AF for Bumthang and Yonphula domestic airports.

### **2. Gelephu Domestic Airport**

10. The contractor has complied with the EMP, by cleaning and removing all construction waste from the construction site to the designated landfill in Bhur, Gelephu. The finished site can be seen in a photograph provided under Annex 7, figure No.16.

11. Unanticipated issue: Gelephu Airport management has partially repaired the fences to minimize Human-Elephant conflict. However, this is considered a short-term measure as elephants can neutralize the electric fence. The long-term solution would be to find an elephant corridor, but this requires extensive cooperation and coordination among various stakeholders.

## **Conclusion**

12. The project will be 100% compliant with the ADB safeguard regulations if two issues are resolved. An issue from the implementation of RGOB funded BDA project, which predates the current ATCEP-AF and ATCEP. The other one pertains to GDA - an unanticipated human-wildlife issue that cropped up during the final phase of GDA construction works under the ATCEP-AF. The details of the issues are presented as follows.

13. DoAT has granted the time extension required by the Brown Swiss Farm under DOL for complete relocation to its new location at Lebi, Bumthang Dzongkhag. DoAT would allow the farm to remain at the current location until the new site is ready for complete relocation by the end of 2021.

14. To reduce human-elephant conflict (HEC) within the airport: two short term mitigation measures were recommended - a repair of the damaged airport security fence and an HEC

awareness session for airport personnel. The project plans to implement a knowledge sharing session on HEC issues by the third week of this October with the help of an expert from IUCN. The long-term mitigation measure of providing an elephant passage corridor is beyond the scope of this project. It will be an issue to consider if the airport is expanded in the future.



## **I. INTRODUCTION**

### **A. Purpose of the Report**

1. In June 2012, the Asian Development Bank (ADB) financed the Air Transport Connectivity Enhancement Project (ATCEP) through a grant (No.0295-BHU) worth US\$ 6.92 million. Subsequently, with the request from the RGOB, additional finance of US\$ 4.00 million was provided through a second grant project -Grant 0484-BHU: Air Transport Connectivity and Enhancement Project - Additional Financing (which is hereafter referred to as the project). The project will improve safety, security, and capacity at Bumthang, Gelephu, and Yonphula domestic airports by providing necessary infrastructures. Further, the project will improve passenger convenience in terms of the level of service at these airports. A portion of the savings from grant proceeds is intended to be used to develop an automated parking management system at the Paro International Airport (PIA). Details on the investments included under the Project are provided in section 1.5 below. Overall, the project is in line with the "Transport 2040 Integrated Strategic Vision<sup>1</sup>," which aims to provide the entire population with a safe, reliable, affordable, convenient, cost-effective and environment-friendly transport system in support of strategies for the socio-economic development of the country.

2. The objective of this environmental and social safeguards compliance report is to assess compliance of the Project with the Asian Development Bank's (ADB) Safeguards Policy Statement (SPS), 2009, the grant covenants, and the proposed mitigation measures prescribed in the Environmental Management Plan (EMP and contract specifications). This type of report is prepared annually and disclosed on ADB's website as per the requirements of the loan agreement.

3. During project preparation, it was assessed that the project did not lead to significant environmental impacts. It was categorized as "B" for the environment. An Initial Environmental Examination (IEE), which included an Environmental Management Plan (EMP) was prepared during project preparation and disclosed on ADB in 2016.

4. At the time of approval by ADB, the project was categorized as "C" for Involuntary Resettlement impacts, as no impacts were identified at the time. Similarly, the project is also categorized as "C" for Indigenous Peoples' impacts as there is no impact on indigenous peoples.

5. The report: (i) evaluates the progress of the implementation of the environmental management plan (EMP), (ii) evaluates the progress of the implementation of the resettlement plan and other social impacts and mitigation measures; (iii) detects non-compliances and recommends corrective actions, and (iv) identifies unanticipated impacts and recommends necessary mitigation measures.

### **B. Scope and Methodology**

6. This report is prepared based on field investigations and observations and the review of the following documents:

- The grant agreement signed between RGOB and ADB
- The project administration manual (PAM),
- The Contract Agreements signed between the Contractors and the DoAT
- The Safeguard Policy Statement (SPS) 2009

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<sup>1</sup> <https://www.adb.org/sites/default/files/publication/30268/bhutan-transport-2040.pdf>.

- IEE report for ATCEP
- Quarterly Progress Reports of the Project implementation
- Annual monitoring reports on Social and environmental safeguards for Air Transport Enhancement Connectivity Project concerning the improvement of Bumthang, Yonphula and Gelephu domestic airports, and
- Consultation with affected individuals, communities and key stakeholders

### **C. Project Description**

7. The ATCEP-AF Project is being implemented to improve infrastructure at the three domestic airports, comprising of (i) construction of a passenger terminal building at Bumthang Domestic Airport (BDA), (ii) construction of aviation security staff quarters at Gelephu Domestic Airport (GDA), and (iii) installation of low-level safety barrier around the perimeter of the apron at Yonphula Domestic Airport (YDA). In addition, a portion of the savings from grant proceeds has been earmarked for the development and installation of an automated parking management system at PIA.

8. The existing passenger terminal at BDA has limited capacity and is unable to handle increasing passenger numbers flying in and out of the airport. Thus, DoAT has started the construction of a new terminal building with all necessary facilities in compliance with the International Civil Aviation Organization (ICAO) regulations. Since the construction of the new terminal building is located at a distance from the existing apron, the extension of the apron towards the new terminal is to be carried out as additional works under the project.

9. GDA, being close to the international boundary, is manned by the Royal Bhutan Army (RBA) to secure the airport perimeter. Lack of accommodation facility within the airport boundaries means security personnel have to be ferried from the RBA barracks at Lodarai, some 8 km from the airport on regular basis. Therefore, under this project, DoAT has constructed living quarters for the security personnel to have permanent or round the clock presence of security personnel within the airport.

10. At YDA, the aircraft apron is elevated by one meter from the ground, posing a safety risk for aircraft in operation and passengers disembarking and boarding the plane. Initially, the construction of a low-level safety barrier was proposed. However, instead, the airside fence was constructed as an alternative.

11. PIA has seen a substantial increase in air travel passengers over the years with a simultaneous increase in the number of vehicles ferrying passengers in and out of the airport. With the installation of an automated parking management system, DoAT intends to improve the management of limited parking spaces, and generate revenue for the PIA management.

12. Overall, the project supports the government's plan to develop a safe, reliable, and efficient air transport system that connects urban and rural centres to help overcome the current limitations of road transport and improve accessibility to less-developed regions of the country. The project will also contribute to the development of the tourism industry, stimulate private sector development, and generate employment opportunities for the poor. The immediate outcome will be improved safety, security, and capacity at three domestic airports in Bumthang, Gelephu, Yonphula and ease parking problems at the PIA.

13. Overall, the civil works for the project started by October 2017 and is expected to be

completed by the first week of July 2021. Amongst the sub-projects, the construction of security quarters for Royal Bhutan Army (RBA) personnel has been completed in April 2019. The details of activities initiated under the project are provided in Table 1. Figure 1 shows the project locations.

**Table 1: List of RGOB and ADB financed Activities of three domestic airports**

<b>Domestic Airport</b>	<b>Activities Carried out by RGOB</b>	<b>Activities under ATCEP G0295-BHU</b>	<b>Activities under ATCEP – AF G0401-BHU</b>
Bumthang	1. Runway construction 2. Passenger Terminal	1. Install perimeter fence 2. Provide new access road 3. Construct apron and taxiway 4. Construct car park	Construction of New Passenger terminal building
Yonphula	1. Existing Runway Improvement 2. Passenger Terminal Building construction	1. Remove hills beside the runway 2. Reshaping runway 3. Provide asphalt on the runway 4. Provide access road 5. Provide a new car park 6. Extend apron for ATR craft 7. Remove and reconstruct perimeter fence 8. Relocate stupa	Construction of low safety barrier
Gelephu	1. Runway construction 2. Passenger Terminal	1. Install perimeter fence 2. Construct drainage system 3. Construct flood protection system	Construction of quarters for RBA personnel
Paro International Airport	None	None	Installation of Parking Management System

#### **D. Project Implementation and Arrangement**

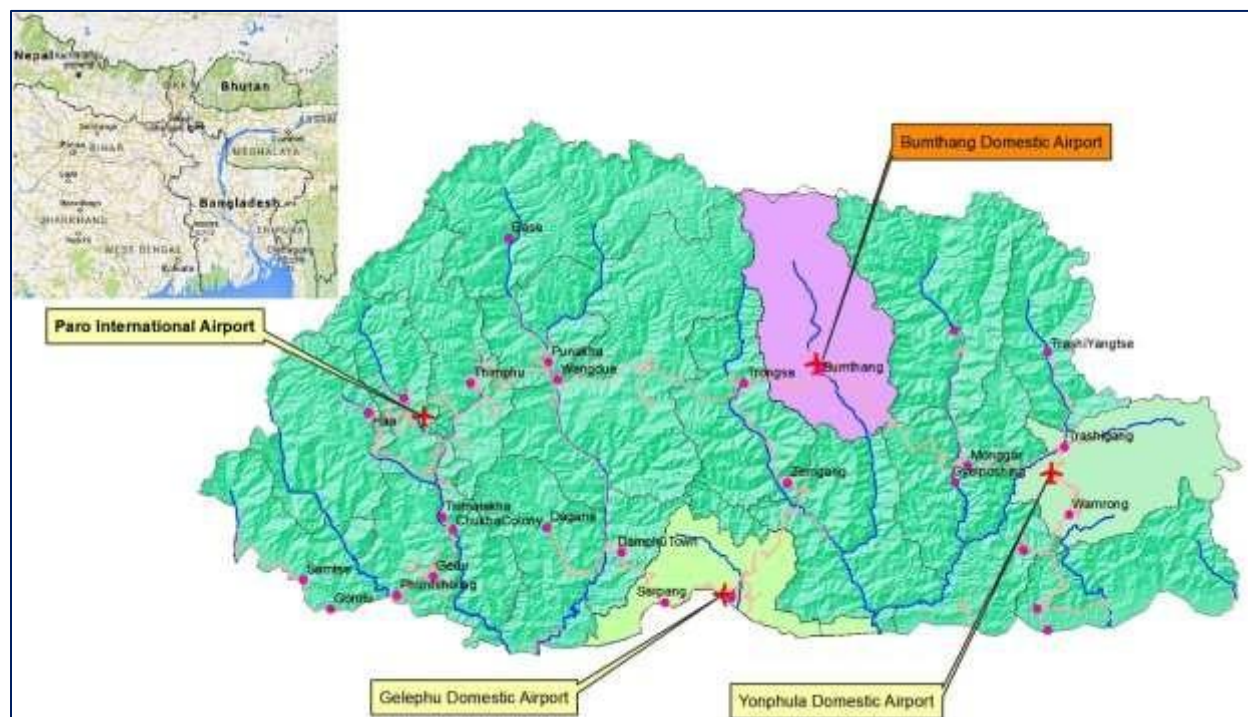
14. The Ministry of Information and Communication (MOIC) under the RGOB is the executing agency (EA) responsible for overall coordination project implementation and interagency coordination.

15. The Department of Air Transport (DoAT) is the implementing agency (IA). The project is implemented through the Project Implementation Unit (PIU) headed by the Project Director who is in turn supported by the respective Project Coordinators (PC) of sub-projects of Bumthang, Yonphula and Gelephu domestic airports. The Project Coordinators also act as the environmental/social focal persons to monitor the implementation of the environmental and social safeguards. The PIU is responsible for:

- day-to-day project management,
- recruitment of design and supervision consultants,
- Procurement of works

- Project accounts management – maintain second-generation imprest account, preparing withdrawal applications and supporting documentation, including procedures for State-of-Expenditure, and submitting through Department of Public Accounts, Ministry of Finance.
- Project progress reports

**Figure 1: Location of Sub-projects in Bhutan**



16. The Project hired the Construction Supervision Consultants (CSC) for construction supervision and monitoring. The CSC is being provided by national consultant Gyaltshen Consultancy. The CSC also includes environmental and social safeguard specialists to look after implementation and monitoring of the safeguard's measures associated with the Project.

17. The Department of Macroeconomic Affairs (DMA), Ministry of Finance (MOF) is responsible for the preparation of project progress reports, establishing and maintaining first-generation imprest account, and forwarding DoAT's withdrawal applications and supporting documentation to ADB establish second-generation imprest account.

18. ADB monitors and reviews the overall implementation of the project in consultation with the EA/PIU. It conducts missions to monitor progress and social and environmental safeguards of the project.

## **E. Project Implementation Status**

19. The construction works for the new passenger terminal building of Bumthang domestic airport started in September 2017. As of March 2021, about 70% of physical work has been completed. The slow work progress is due to the harsh winter weather conditions of the Bumthang region and the spread of the COVID-19 global pandemic. Winters in Bumthang are cold; hence, it is mandatory to stop civil works in the cold months. COVID-19 pandemic that started in late

2019 has disrupted the normal functioning of a society of the entire world. COVID-19 related restrictions and lockdowns have severely affected the movement of goods and services, thereby slowing the project work progress. Refer to Table 2 for details.

20. The construction of security quarters of GDA commenced on October 16, 2017, and was completed by April 2019. The installation of an automated parking management system at PIA is being implemented. Refer to Table 2 for details.

**Table 2: Project Implementation Status**

<b>Airports</b>	<b>Description of Activities</b>	<b>Contract Award Date</b>	<b>Implementation Status as of September 2021</b>	
			<b>Target</b>	<b>Achievement</b>
Bumthang	Construction of New Passenger terminal building	5 <sup>th</sup> August 2017	100%	70%
Gelephu	Construction of quarters for RBA security personnel	29 <sup>th</sup> September 2017	100%	100% completed
Yonphula	Airside fence erection	Not yet commenced	100%	100%
	Construction of gabion walls, dredging works of pond and construction of footpath (Safeguards works)	14 <sup>th</sup> October 2020	100%	100%
Paro	Installation of Automated Parking Management System	June 25, 2021	100%	50%

## II. SUMMARY OF ENVIRONMENTAL MONITORING

### A. Summary of Inspection Activities

21. The airport managers of the three domestic airports of Bumthang, Yonphula and Gelephu have been designated as the Project Coordinators (PCs). The PCs are the environmental safeguards focal persons at the site level, and responsible for monitoring the implementation of the EMP by the contractor. They were supported by the environment specialist<sup>2</sup> of the CSC.

22. EMP implementation records in the form of monthly or quarterly checklists were maintained by the contractor and cross-checked by the environment safeguards focal person at the site level. These are then reviewed by the environment specialist of the CSC and serves as one of the bases for the annual monitoring report. This report is then submitted to the overall environment safeguards coordinator under DoAT for submission to ADB for disclosure on its website.

### B. Noise Monitoring

23. The noise monitoring was done as part of the IEE study of the ATCEP-AF Project. The pre-construction noise level survey results are provided in Table 3 along with Bhutan's noise level limits as per the Environmental Discharge Standard 2010 published by the National Environmental Commission (NEC):

**Table 3: Result of Noise Level Monitoring (dBA) of three domestic airports of ATCEP Financing**

Airport	Pre-Construction		Noise Level Limit, Environment Standards 2010, NEC	
	Ld (Day)	Ln (Night)	Ld (Day)	Ln (Night)
Bumthang	71.55 dBA	40.11 dBA	75 dBA	65 dBA
Yonphula	61.46 dBA	32.25 dBA	65 dBA	55 dBA
Gelephu	52.49 dBA	33.42 dBA	55 dBA	45 dBA

Source: IEE Report 2012 and Ambient Noise Level Monitoring Survey December 2015.

Note: NA – Not Available; and TCO-To be Carried Out after the completion of construction activities if required.

24. Noise levels recorded for all the three airports during the pre-construction stage under ATCEP-AF financing were well within the national limits of a mixed area.

25. Subsequent noise monitoring activities for the subprojects were not conducted since the scope of the project work was drastically reduced to mere construction of a terminal building in Bumthang, construction of low safety barriers in Yonphula, and the construction of security quarters in Gelephu. These activities generate negligible noise.

### C. Air Quality

26. The ambient status of five major air pollutants viz. Total Suspended Particulate Matter

<sup>2</sup> CSC has recruited new Environmental Specialist as former expert has resigned voluntarily.

(TSPM), PM10, Sulphur Dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>) and Carbon Monoxide (CO) representing pollution level has been assessed by monitoring air quality at Bumthang, Yonphula and Gelephu airports as part of the IEE studies for the Project (Table 4).

**Table 4: Ambient Air Quality Monitoring Results**

Airport	Monitoring Stage	Parameter (measured in µg/m <sup>3</sup> )				
		TSPM	PM10	SO <sub>x</sub>	NO <sub>x</sub>	CO
Bumthang	Pre-Construction	NA	76.83	BDL	BDL	BDL
Yonphulh	Pre-Construction	NA	26.75	BDL	BDL	BDL
Gelephu	Pre-Construction	NA	32.5	BDL	BDL	BDL

Source: IEE Report, February 2016.

Note: NA – Not Available; BDL – Below detectable limits and TCO-To be Carried Out after the completion of construction activities if required.

**Table 5: NEC's Ambient Air Quality Standards (Maximum Permissible Limits in µg/m<sup>3</sup>)**

Parameter	Industrial Area	Mixed Area*	Sensitive Area**
<b>Total Suspended Particulate Matter (TSPM)</b>			
24 Hour Average	500	200	100
Yearly Average	360	140	70
<b>Respirable Particulate Matter (PM 10)</b>			
24 Hour Average	200	100	75
Yearly Average			
<b>Sulfur Dioxide</b>			
24 Hour Average	120	80	30
Yearly Average			
<b>Nitrogen Oxides</b>			
24 Hour Average	120	80	30
Yearly Average			
<b>Carbon Monoxide</b>			
8 Hour Average	5000	2000	1000
1-hour Average			

\* **Mixed Area** means an area where residential and commercial activities take place,

\*\* **Sensitive Area** means an area where sensitive targets are in place like hospitals, schools, sensitive ecosystems.

27. The pre-construction air quality monitoring result shows that the air quality particularly the TSPM and PM10 within the project areas of Bumthang, Yonphula and Gelephu are within the acceptable limits specified in the Environmental Discharge Standard, 2010 by the National Environment Commission (Refer to Table 5 for Environmental Discharge Standards of Bhutan). Other pollutants such as SO<sub>2</sub>, NO<sub>x</sub>, and CO were found to be below detectable limits.

#### **D. Water Quality**

28. Water samples were collected from Chamkhar Chhu/River close to Bumthang domestic airport and the small pond northwest end of the runway at Yonphula airport on December 16-30 to check the quality of the water as part of the Initial Environmental Examination studies for ATCEP AF in February 2016. The Chamkhar Chhu/River run is close to Bumthang domestic airport, the untreated wastewater from the airport improvement activities may pollute the river water. Similarly, the large portion of the runoff from the runway of Yonphula domestic airport

directly enters into the small pond on the northwest end of the airport. It is imperative for the project to capture water quality baseline data so the changes in the water qualities in the respective water bodies could be monitored in the future. The baseline water quality analysis results are compared with Environmental Discharge Standard 2010, NEC. The water test results are summarized and presented in Table 6.

29. Chamkhar Chhu River Water: In general, Chamkhar Chhu/River water can be considered fairly good as per the classification provided in the Environmental Discharge Standards, NEC 2010, except that it has a high content of ammonia (1.19mg/l) which is an indication of water pollution from wastewater. The source of wastewater could be from the nearby Brown Swiss Cattle farm and leakage of household sewage water. The ammonia content of the water may diminish with the relocation of the cattle farm.

**Table 6: Results of Water Quality Analysis**

Parameters	Unit	Standard 2010, NEC (A)	Water Sample 1 (Chamkhar Chhu)	Water Sample 2 (Yonphula Pond)
			Preconstruction	Preconstruction
Temperature	°C	-	3.8	5
pH		6.5-8.5	7.2	7.5
Turbidity	FAU	-	4	245
Color	CU	5	3	>1000
Smell		UNO	UNO	UNO
Copper	mg/l	0.05	0.08	0.25
Chlorine	mg/l	50	0	0.06
Chromium	mg/l	0.05	0	0
Iron	mg/l	-	0.08	>6.0
Phosphate	mg/l	0.5	0.05	0.45
Ammonia Nitrogen	mg/l	0.05	1.19	0.72
Silica	mg/l	-	>4.0	2.82
Nitrate NO3	mg/l	10	0.12	0
Fluoride	mg/l	1	0	0
Sulphate	mg/l	25	10	6
Total Hardness	mg/l	-	58	0
Total Alkalinity	mg/l	-	-	-

Source: IEE Report, February 2016 (Note: NA – Not Available; UNO - Unobjectionable and TCO – To be carried out).



**Figure 2: Pond on the northwest of Yonphula airport runway in August 2011 before the implementation of ATCEP**



**Figure 3: Pond on the northwest of Yonphula airport runway in December 2015 (partial siltation seen after the start of ATCEP)**



**Figure 4: Pond on the northwest of Yonphula airport runway as of December 2018**



**Figure 5: Gabion walls constructed for slope stabilizations and to prevent silt from entering the pond (Photo: Kuensel Online 6<sup>th</sup> May 2021)**



**Figure 6: Restored Pond at Yonphula Airport, DoAT October 2021)**



30. Pond water: Water quality sampled and tested during the pre-construction stage of ATCEP AF was poor due to the ongoing works of ATCEP – airport improvement works. The turbidity level of water was high to almost 245FAU. The ammonia content (0.72mg/l) in the water indicates water pollution from wastewater generated from the construction area of ATCEP. There are no human settlements within the immediate vicinity other than the temporary construction camps for the airport construction works. Pond restoration works by dredging the silt from the pond have been completed. Figures 1, 2, 3 and 4 illustrate conditions of the pond during pre-construction of ATCEP, Construction stage and the Post construction of ATCEP or Pre-construction stage of ATCEP-AF.

#### **E. Unanticipated Wildlife Issue: Human-Elephant Conflict**

31. Deforestation and habitat loss both within Bhutan and in the neighbouring Indian states have led to increased human-elephant conflicts (HEC) all along the southern foothills of Bhutan that includes the Gelephu and Sarpang region. Recently, the Bhutan Times (August 8, 2021) report at least 60-70 elephants in several groups have entered the Gelephu airport and its surrounding areas. Since airport boundary fencing is damaged at several points, elephants have entered airport areas posing a risk to the airport personnel and aircraft operations. As an immediate mitigation measure to minimise HEC, DOAT will be repairing the damaged fence. The long term solution will require a concerted effort to resolve HEC problems by all the stakeholders

comprising the communities, local government, Department of Forest & Park Services (DOFPS) and the concerned airport management. This is beyond the scope of the current project (ATCEP-AF).

**Figure 7: Herd of elephants crossing Gelephu-Thimphu Highway close to the airport**



Source:

<https://www.facebook.com/bhutantimes1/photos/pcb.1669447463241095/16694473765744>

37/

**Figure 8: Mother elephant and calf inside the airport boundary**



Source: ADB, July 2021



### III. SUMMARY OF SOCIAL AND RESETTLEMENT MONITORING

#### A. Bumthang Domestic Airport Projects

##### 1. Loss of Land and Structures

##### a. Under RGOB's Financed Airport Project

32. **Impact on structures** — The construction of Bumthang airport took place within the Brown Swiss Farm area without requiring demolition of any of its structures. The structures like office buildings, cattle sheds, feed stores, seed stores, silos and staff quarters belonging to Brown Swiss Farm and National Feed and Fodder Development Programme under the Department of Livestock are partially handed over to the Department of Air Transport. The remaining ones are planned to be taken over in a phased manner to allow gradual relocation and redevelopment of farm activities at the new farm site (Refer Annex 8 – Communications between the Secretaries of MOIC and MOFA). The relocation of the farm to the new site is yet to be complete as a new farm at Lebi is still under development. It was delayed because of the COVID-19 hindrances. Figure 8 shows the new Brown Swiss Farm location.

**Figure 9: Location of New Brown Swiss Farm Location at Lebi, Bumthang**



Source: Google earth imagery February 2016 and Field investigation December 2015.

##### b. Under ATCEP Financing

33. **Land Acquisition:** There were no land acquisitions for Bumthang under ATCEP.
34. **Impacts on Structures:** There was no impact on structures on Bumthang under ATCEP financing.

##### c. Under ATCEP Additional Financing

35. **Land Acquisition:** There were no land acquisitions for Bumthang under ATCEP-AF. The construction of the new terminal building is being built on the DoAT owned land.

36. **Impacts on Structures:** There will be no impact on structures in Bumthang under ATCEP ATCEP-AF.

## 2. Protection and Relocation of Community, Religious and Heritage Structures

### *a. RGOB's Financed Airport Project*

37. **Demolition of Pedestrian Suspension Bridge at Batpalathang:** For the safe operation of the aircraft, the pedestrian suspension bridge close to the runway, which connected Batpalathang to Wangdicholing was demolished. And as a mitigation measure, the Bumthang dzongkhag administration has built a replacement – a motorable bridge with pedestrian walkways on both sides, to the north of the airport over Chamkhar Chhu. The construction of the bridge began in 2017 and was completed by the beginning of 2019.

**Figure 10: Pedestrian Suspension Bridge demolished under RGOB airport component 2011**



**Figure 11: Motorable bridge with 2 sides pedestrian walkway built over Chamkhar Chhu, 2019.**



### *b. ATCEP Financing*

38. There were no impacts on the community, heritage and religious structures under ATCEP.

### *c. ATCEP Additional Financing*

39. There were no impacts on the community, heritage and religious structures under ATCEP-AF.

## 3. Occupational Health and Safety

### *a. RGOB's Financed Airport Project*

40. No monitoring was conducted.

### *b. ATCEP Financing*

41. The labourers were provided fair compensation or wages for the work they have carried out. In addition, the project provided free health care services for all construction workers. For minor injuries, the contractor had first aid provisions. For emergencies and serious medical conditions, the labourers had free access to Bumthang district hospital.

***c. ATCEP Additional Financing***

42. The project employed around 22 national and 4 skilled non-national workers for a new terminal development works in the construction period from January to September 2021. The workers are provided with personnel protection equipment (PPE) such as helmets, safety goggles, earplugs etc.; however, the usage of PPE is partial. For minor injuries, first aid kits are available both at the construction and campsites. If a serious medical condition arises, the patient is sent to the nearest district hospital at Bumthang. To date, there are no serious accidents recorded for the project.

**4. HIV/AIDS and Trafficking Prevention Program**

***a. RGOB's Financed Airport Project***

43. No monitoring was conducted at the time of RGOB financed project work.

***b. ATCEP Financing***

44. The awareness programs on HIV/AIDS and trafficking prevention programs were carried out by the Project.

***c. ATCEP Additional Financing***

45. The awareness programs on HIV/AIDS and trafficking prevention programs were carried out by the Project.

**5. Labour and Employment under ATCEP**

***a. RGOB's Financed Airport Project***

46. No monitoring was conducted.

***b. ATCEP Financing***

47. There were no reports of labour abuses, particularly related to unfair payments, discrimination and forced or child labour under airport improvement works of Bumthang.

***c. ATCEP Additional Financing***

48. There were no reports of labour abuses, particularly related to unfair payments, discrimination and forced or child labour under airport improvement works of Bumthang.

**Figure 12: Construction workers' camp at Bumthang Domestic Airport construction site, September 2021 (Source: DOAT)**



**Figure 13: First AID Box at the construction site for OHS, September 2021(source: DOAT)**



**Figure 14: Hand Wash facility for COVID-19 Safety protocol, September 2021(source: DOAT)**



## **B. Yonphula Domestic Airport Projects**

### **1. Loss of Land and Structures**

#### ***a. RGOB's Financed Airport Project***

49. **Land Acquisition:** No private agricultural land has been acquired in Yonphula.
50. **Impact on Structure:** The RGOB's domestic airport improvement works at Yonphula did not require the demolition or relocation of any structures.



***b. ATCEP Financing***

**51. Land Acquisition:** There were no land acquisition and resettlement issues for Yonphula airports as the planned Project components were implemented within airport property boundaries.

**52. Impact on Structure:** There were no impacts on structures under the ATCEP financing besides for impact on the stupa.

***c. ATCEP Additional Financing***

**53. Land Acquisition:** There were no land acquisition and resettlement issues for Yonphula airports as the planned Project components were implemented within airport property boundaries.

**54. Impact on Structure:** There were no impacts on structures under the ATCEP-AF.

**2. Protection and Relocation of Community, Religious and Heritage Structures**

***a. RGOB's Financed Airport Project***

**55.** No impact was recorded.

***b. ATCEP Financing***

**56. Footpath:** The construction of a footpath to the stupa started in October 2020 and was completed by February 2021.

***c. ATCEP Additional Financing***

**57.** There were no impacts on the community, heritage and religious structures under ATCEP AF.

**3. Occupational Health and Safety**

***a. RGOB's Financed Airport Project***

**58.** No monitoring was conducted at the time of RGOB financed project work of Yonphula being carried out.

***b. ATCEP Financing***

**59.** The labourers were provided fair compensation or wages for the work they have carried out. In addition, the project provided free health care services for all construction workers. For minor injuries, the contractor had first aid provisions. For emergencies and serious medical conditions, the labourers had free access to Trashigang district hospital.

***c. ATCEP Additional Financing***

**60.** The rehabilitation or dredging of the silted pond was done using the excavator, thus requiring no involvement of labourers. However, the construction of footpath and gabion walls were carried out using the local labourers as the import of labourers were restricted due to the



COVID-19 pandemic. There are no reports of accidents or any serious health issues during the construction.

#### **4. HIV/AIDS and Trafficking Prevention Program**

##### ***a. RGOB's Financed Airport Project***

61. No monitoring was conducted at the time of RGOB financed project work.

##### ***b. ATCEP Financing***

62. The awareness programs on HIV/AIDS and trafficking prevention programs were carried out by the Project.

##### ***c. ATCEP Additional Financing***

63. HIV/AIDS awareness will be carried out once the labourers are recruited for the pond rehabilitation, footpath construction and installation of the low safety barrier. The works are scheduled to start in May 2020.

#### **5. Labour and Employment under ATCEP**

##### ***a. RGOB's Financed Airport Project***

64. No monitoring was conducted.

##### ***b. ATCEP Financing***

65. Issues of child labour and labour conditions and their wellbeing were regularly monitored by the Regional Labour Officer of Trashigang, the Ministry of Labour and Human Resources. There were no reports of labour abuses, particularly related to unfair payments, discrimination and forced or child labour under airport improvement works of Yonphula.

##### ***c. ATCEP Additional Financing***

66. No child labourers were involved.

#### **C. Gelephu Domestic Airport Projects**

##### **1. Loss of Land and Structures**

##### ***a. RGOB's Financed Airport Project***

67. **Land Acquisition:** All issues from RGOB's finance project were resolved.

##### ***b. ATCEP Financing***

68. **Land Acquisition:** All issues resolved.

69. **Impact on Structure:** There was no impact on structures under ATCEP financing.

***c. ATCEP Additional Financing***

70. **Land Acquisition:** There were no land acquisition and resettlement issues for Gelephu airport as the planned Project components were implemented within the airport property boundaries.

71. **Impact on Structure:** There are no impacts on structures.

**2. Protection and Relocation of Community, Religious and Heritage Structures**

***a. RGOB's Financed Airport Project***

72. There were no impacts to any of the religious, historical, and cultural assets under the RGOB's funded Gelephu airport construction project.

***b. ATCEP Financing***

73. No impacts.

***c. ATCEP Additional Financing***

74. No impacts.

**3. Occupational Health and Safety**

***a. RGOB's Financed Airport Project***

75. No records are available.

***b. ATCEP Financing***

76. The labourers were provided fair compensation or wages for the work they have carried out. In addition, the project provided free health care services for all construction workers. For minor injuries, the contractor had first aid provisions. For emergencies and serious medical conditions, the labourers had free access to Gelephu regional referral hospital.

***c. ATCEP Additional Financing***

77. The construction of security quarters had around 50 personnel working at the site. It was observed the personnel protection equipment (PPE) such as helmets were provided and are being used by the labourers.

**4. HIV/AIDS and Trafficking Prevention Program**

***a. RGOB's Financed Airport Project***

78. No monitoring was conducted at the time of RGOB financed project work.

***b. ATCEP Financing***

79. The awareness programs on HIV/AIDS and trafficking prevention programs were carried

out by the Project.

***c. ATCEP Additional Financing***

80. The awareness programs on HIV/AIDS and trafficking prevention programs were carried out by the Project.

**5. Labour and Employment under ATCEP**

***a. RGOB's Financed Airport Project***

81. No monitoring was conducted.

***b. ATCEP Financing***

82. Issues of child labour and labour conditions and their wellbeing were regularly monitored by the Regional Labour Officer of Gelephu, the Ministry of Labour and Human Resources. There were no reports of labour abuses, particularly related to unfair payments, discrimination and forced or child labour under airport improvement works of Gelephu.

***c. ATCEP Additional Financing***

83. There were no reports of labour abuses, particularly related to unfair payments, discrimination and forced or child labour under the ATCEP-AF project.

**D. Paro International Airport**

**1. Loss of Land and Structures**

***d. RGOB's Financed Airport Project***

84. **Land Acquisition:** None as the RGOB financed project was only for Bumthang, Gelephu and Yonphula domestic airports.

***e. ATCEP Financing***

85. **Land Acquisition:** None as there was no component under ATCEP.

86. **Impact on Structure:** None as there was no component under ATCEP.

***f. ATCEP Additional Financing***

87. **Land Acquisition:** None as the sub-project is planned to be implemented within the airport owned land.

88. **Impact on Structure:** None.

**2. Protection and Relocation of Community, Religious and Heritage Structures**

***g. RGOB's Financed Airport Project***

89. None as a project is to be implemented only under ATCEP-AF.

***h. ATCEP Financing***

90. None as a project is to be implemented only under ATCEP-AF.

***i. ATCEP Additional Financing***

91. No impacts.

**3. Occupational Health and Safety**

***j. RGOB's Financed Airport Project***

92. None as a project is to be implemented only under ATCEP-AF.

***k. ATCEP Financing***

93. None as a project is to be implemented only under ATCEP-AF.

***l. ATCEP Additional Financing***

94. For the installation of automated parking management, the DoAT may hire a maximum of 3-4 skilled workers and hence there will be no major issue related to occupational health and safety. However, if there are any, the injured worker may be evacuated to the nearest district hospital or a national referral hospital in Thimphu depending on the severity of the patient's condition.

**4. HIV/AIDS and Trafficking Prevention Program**

***m. RGOB's Financed Airport Project***

95. None as the project is to be implemented only under ATCEP-AF.

***n. ATCEP Financing***

96. None as the project is to be implemented only under ATCEP-AF.

***o. ATCEP Additional Financing***

97. Installation of an automated parking management system is a short-term work probably less than a week and therefore may not be feasible for the project to carry out an awareness program on HIV/AIDS.

**5. Labour and Employment under ATCEP**

***p. RGOB's Financed Airport Project***

98. No monitoring was conducted.

***q. ATCEP Financing***

99. None as the project is to be implemented only under ATCEP-AF.

***r. ATCEP Additional Financing***

100. The issue of labour abuses, unfair payment and engagement of child labour will be strictly monitored and complied with.

**Table 7: Summary on impacts on private land, structures and community properties**

<b>Projects/ Airport Location</b>	<b>Land</b>	<b>Structure</b>	<b>Community Properties</b>	<b>Pending Action</b>	<b>STATUS as of Sep 2021</b>
<b>Bumthang Domestic Airport Projects</b>					
RGOB	No issue	Structures for Brown Swiss Farm and National Feed and Fodder Development Programme under Department of Livestock	Pedestrian Suspension Bridge at Batpalathang destroyed and not rebuilt – cannot be rebuilt by Dzongkhag until DoAT finalizes airport perimeters	The complete Brown Swiss Farm relocation will take one more year. The complete relocation of the farm was to happen by early 2021.  DoAT to expedite finalization of airport perimeter and support reconstruction of pedestrian/vehicular bridge	Time extension provided by the DoAT.  Motorable with pedestrian walkway built-in end of 2017 and completed January 2019.
ATCEP	Issue of erosion of right bank of Chamkhar chhu/river adjacent to Chakhar Lhakhang	No impact	No impact	Bumthang Dzongkhag Administration agreed to carry out mitigation measures by constructing river protection works on the right bank below Chakhar Lhakhang.	Riverbank protection works were carried out and completed by the end of 2018.
ATCEP-AF	No impact	No impact	No impact	None	-
<b>Yonphula Domestic Airport Projects</b>					
RGOB	Land issue resolved	No impact	<b>Sacred pond:</b> community requested the project to include the pond within the airport's boundaries and provide access to it for their ritual	Allow community residents to access the pond for their ritual. This should be monitored and reported on in the Safeguards Monitoring Report.	Pond rehabilitation work began by October 2020 and was completed by February 2021  EMP for rehabilitation works has been prepared.

<b>Projects/ Airport Location</b>	<b>Land</b>	<b>Structure</b>	<b>Community Propertijes</b>	<b>Pending Action</b>	<b>STATUS as of Sep 2021</b>
ATCEP	No impact	No impact	<b>Footpath:</b> Footpath to Yulay Namgyal stupa is not yet constructed.	Construction of a well- paved footpath connecting Yulay Namgyal stupa is still pending	Footpath construction work began in October 2020 and was completed by February 2021. <sup>3</sup>
ATCEP-AF	No impact	No impact	No impact	None	-
<b>Gelephu Domestic Airport Projects</b>					
RGOB	Land substitution and compensation paid. Hence no issue	Structures loss compensated. Hence no issue.	No impact	None	-
ATCEP	Land acquisition has been substituted. Hence no issue	No impact	No impact	None	-
ATCEP-AF	No impact	No impact	No impact	None	-
<b>Paro International Airport</b>					
RGOB	None	None	None	-	-
ATCEP	None	None	None	-	-
ATCEP-AF	No impact	No impact	No impact	Yet to be implemented	-

<sup>3</sup> A separate EMP has been prepared to be included with the contract document for bidding & subsequent implementation as well.

## IV. CONSULTATION

### A. Public/Stakeholder Consultations under ATCEP / ATCEP-AF

101. Public and stakeholder consultations were carried out during the implementation of the ATCEP AF by the respective PIUs of Bumthang and Yonphula domestic airports. The important consultations that were carried out are provided in Table 8.

**Table 8: Summary of consultations carried out during monitoring fieldwork**

<b>Airport</b>	<b>Stakeholders</b>	<b>Issues</b>	<b>Response by DoAT</b>
Bumthang	Bumthang Airport management, Supervision consultant, Contractor's Engineer	<b><i>Pending issues from RGOB &amp; ATCEP financing:</i></b> i. Brown Swiss Farm complexes takeover by DoAT	A complete takeover of Brown Swiss Farm complexes is yet to be accomplished as the new farm at Lebi could not be completed due to COVID-19 restrictions.
Yonphula	Yonphula Airport management, Supervision consultant, Contractor's Engineer and Senior monk Mr Jigme Tenzin of Yonphula Monastery	<b><i>ATCEP financing:</i></b> i. Siltation of pond ii. Gabion wall construction iii. Construction alternative footpath	Pond rehabilitation work completed.  Gabion wall construction completed.  Footpath construction to the stupa completed.
Gelephu	Gelephu Airport Manager, Project Engineer from DOAT, ADB Mission members, Executive Secretary, and Chief Planning Officer of Gelephu Thromde	<b><i>ATCEP-AF financing:</i></b> i. Human-wildlife conflict is an unanticipated issue that arose due to the airport's location close to the international border where the elephant is known to traverse from the Indian forest	Gelephu thromde/municipality and Gelephu airport management expressed the need for proper study and cooperation amongst various stakeholders to resolve the Human-elephant conflict which has become a major issue for both Gelephu municipality and the airport.
Paro	DoAT Director, Project Engineer and ADB Mission members,	<b><i>ATCEP-AF Financing:</i></b> Schedule for implementation or installation of the automated parking Management system at the PIA	Work has been awarded and is expected to be started by the 2 <sup>nd</sup> week of September 2021.



## **V. COMPLIANCE WITH GRANT AGREEMENT, PROJECT ADMINISTRATION MANUAL, WORK CONTRACT AGREEMENT AND EMP**

### **A. Compliance with Grant Agreement and Project Administration Manual**

102. The environmental and social safeguards requirements are explicitly provided in the Grant Agreement (GA) between the ADB and the Royal Government of Bhutan (RGOB); whereas the Project Administration Manual (PAM) describes how the project shall be implemented. Summary safeguard compliance status with GA and PAM is provided in the following sections. The detailed safeguard compliance with the GA and PAM are provided in Annex 1 and 2.

#### **1. Environment**

103. Grant agreement (GA), the project administration manual (PAM), IEE, and EMP were prepared in accordance with the ADB's Safeguard Policy Statement (SPS) 2009. The National Environment Commission (NEC) granted the project approval before the award of the works contract. All relevant provisions from the EMP were incorporated into the works contract.

#### **2. Social – Involuntary Resettlement**

104. The Project is classified as category B in accordance with ADB's Safeguard Policy Statement (SPS) 2009.

105. No private land had to be acquired for all three airport works under ATCEP-AF since the construction activities were undertaken within the respective airport boundaries. So there were no involuntary resettlements or resettlement plans required to be prepared. Hence, only due diligence was carried out.

106. Overall, the Project complied with safeguard measures for the prevention of involuntary resettlement provisions of the GA and PAM.

#### **3. Labour Standards and Occupational Health and Safety (OHS)**

107. The project complied with the relevant national and international labour standards as required by the GA and PAM for YDA and GDA works. For Bumthang, it is being complied with as the construction works are ongoing.

108. Occupational health and safety provisions such as first aid kits, emergency medical services, safe drinking water, adequate shelter, toilet facilities, cooking fuel, etc. were provided. No child labourers were engaged in the project activities. The specific clauses on labour and OHS are incorporated into the works contract.

#### **4. HIV/AIDS**

109. The project has carried out HIV/AIDS awareness workshops for construction workers for all three airports under ATCEP-AF. Therefore, the HIV/AIDS awareness provisions of GA and PAM which are required to be implemented by the Project are complied with.

#### **5. Safeguard Monitoring and Reporting**

110. The safeguard monitoring and reporting were carried out as required by the GA and PAM.

The monitoring was done at different levels – by ADB safeguard specialists, the project coordinators, and the CSC. The ADB monitored the project through the fielding of missions at various stages of its implementation from inception to interim and at the completion stage.

111. Respective project coordinators at BDA, GDA and YDA improvement works acted as a focal person for safeguard monitoring and monitored the project regularly. They were supported by respective site engineers of the CSC who carried out daily monitoring on the effective implementation of the resettlement plan and the environmental management plan. On top of site engineers, the CSC also included social and environmental safeguard specialists. Since the scope and nature of ATCEP-AF projects are minute, the safeguard monitoring is carried out once a year and accordingly the annual safeguard monitoring reports are prepared.

112. The project complied with the provision of safeguard monitoring requirements of GA and PAM for all three airports improvement works.

## **B. Compliance with Work Contract Agreement**

113. The contractor is obliged to comply with the safeguard's clauses included in the contract agreement. The contractors of BDA, YDA and GDA improvement works have complied with safeguard provisions on environment, social, OHS and Health and HIV/AIDS listed in the contract agreement.

114. The details on compliance with the works contract agreement are provided in Annex 3.

## **C. Compliance with EMP**

115. The Environmental Management Plan (EMP) for the project was provided in Chapter IX of the IEE report of 2012 which was also made as an integral part of the contract document. As per the EMP, environmental management activities were categorized to be implemented during the pre-construction, construction and operational stages. The summary of EMP compliance status for each airport is provided in the following sections. The detailed EMP compliance status is provided in Annex 4.

### **1. Preconstruction Phase**

116. The Project complied with the EMP by implementing the environmental management activities of the preconstruction phase such as the incorporation of seismic design into the project designs since Bhutan falls under high seismic risk zone IV and V. Seismic events may cause damage to the structure and adjacent property, and result in loss of life.

### **2. Construction Phase**

117. Though many of the provisions of EMP under construction phase are complied with, full compliance is yet to be reached due to the failure to implement the EMP provisions such as proper waste management and strict adherence to occupational health and safety measures (e.g. wearing of PPE). Therefore, the EMP has been partially complied with.

118. Air, noise and water quality monitoring activities were not implemented during the construction stage since the project activities were expected to generate an insignificant level of air, noise and water pollutants.

### **3. Operational Phase**

119. The major environmental issues during operations revolve mainly around ambient air and noise level, waste, and safety of the aircraft operations. Air safety and waste management are in place. Due to low air traffic volume, which is thrice a week to Bumthang, Yonphula and once to Gelephu, the issue of noise and air pollution is considered insignificant. Hence the noise and air pollution abatement measures recommended in EMP were found to not be necessary at this stage.

## **VI. CONCLUSION AND RECOMMENDATIONS**

120. To achieve 100% safeguard compliance, the project needs to resolve two outstanding issues as described here:
121. A complete handover of Brown Swiss Farm structures to DoAT is yet to be done. It is expected to be accomplished by the end of 2021.
122. During the ATCEP-AF implementation period, an unanticipated issue of human-elephant conflict has propped up in 2018. To address human-elephant conflict (HEC) within the airport: two short term mitigation measures were recommended - a repair of the damaged airport security fence and an HEC awareness session for airport personnel. The project plans to implement a knowledge sharing session on HEC issues by the third week of this October with the help of an expert from IUCN. The long-term mitigation measure of providing an elephant passage corridor is beyond the scope of this project. It will be an issue to consider if the airport is expanded in the future.
123. In addition, occupational health and safety provisions on site should be improved. Labour camps standards adopted by RGOB in all future projects should be fully complied.
124. There are no pending safeguard issues of YDA and hence 100% compliance is achieved.

**ANNEX 1: COMPLIANCE TO SAFEGUARDS PROVISIONS IN AGREEMENTS UNDER THE  
PROJECT**

## ANNEX 1: COMPLIANCE TO SAFEGUARDS PROVISIONS IN AGREEMENTS UNDER THE PROJECT

1. The environmental and social safeguard requirements are explicitly provided in Grant Agreement 0295-BHU between ADB and RGOB through the MOIC and DoAT. These grant agreement provisions and compliance status are provided in Table 9.

**Table 9: Status of Compliance to Environmental / Social Provisions of the Loan Agreement**

No.	Environmental & Social Provisions	Compliance Status
1.	<p><b>Schedule 3. Item 5.</b></p> <p><u>Conditions for Award of Contract</u></p> <p>The Recipient shall not award any work contracts until:</p> <p style="padding-left: 40px;">a) the National Environment Commission of Bhutan has granted the final approval of the IEE; and</p> <p style="padding-left: 40px;">b) the Recipient has incorporated the relevant provisions from the EMP into the Works contract</p>	<p>Complied.</p> <p>Environmental clearances are issued by the Dzongkhag Environmental Office as the nature, scope and scale of works under ATCEP-AF are small.</p> <p>Environmental Management Plan (EMP) is a part of the bidding document.</p>
2.	<p><b>Schedule 3. Item 6.</b></p> <p>The Recipient shall not award any Works contract which involves involuntary resettlement impacts, until the Recipient has prepared and submitted to ADB the final resettlement plan based on the Project's detailed design, and obtained ADB's clearance of such resettlement plan.</p>	<p>Not Applicable as ATCEP-AF did not require the acquisition of private land and structures.</p> <p>All activities are carried out within the confines of airport boundaries of all 3 airports.</p>
3.	<p><b>Schedule 3. Item 7.</b></p> <p>The Recipient shall not award any Works contract which involves the impact on indigenous peoples until the Recipient has prepared and submitted to ADB the final indigenous peoples' plan, and obtained ADB's clearance of such indigenous peoples' plan.</p>	<p>Not Applicable since all activities are carried out within the confines of airport boundaries of all 3 airports where no indigenous people are residing.</p>
4.	<p><b>Schedule 4. Item 1.</b></p> <p><u>Implementation Arrangement</u></p> <p>The Recipient and the Project Executing Agency shall ensure that the Project is implemented following the detailed arrangements outlined in the PAM.</p>	<p>Complied.</p> <p>The project is being implemented following the PAM</p>

No.	Environmental & Social Provisions	Compliance Status
5.	<p><b>Schedule 4. Item 2.</b></p> <p><u>Environment</u></p> <p>The Recipient shall ensure or cause the Project Executing Agency to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Recipient relating to the environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements outlined in the IEE, the EMP, and any corrective or preventative actions outlined in the Safeguards Monitoring Report.</p>	<p>Being complied.</p> <p>Relevant laws and regulations on the environment and occupational health and safety are being adhered to.</p> <p>The requirements of IEE and EMP are partly complied with and being implemented.</p>
6.	<p><b>Schedule 4. Item 3.</b></p> <p><u>Land Acquisition and Involuntary Resettlement; Indigenous People</u></p> <p>The Recipient shall ensure that the Project does not have any Indigenous Peoples Safeguards and Involuntary Resettlement Safeguards impacts. If the Project does have any such impact, the Recipient shall take all steps required to ensure that the Project complies with the applicable laws and regulations of the Recipient and with ADB's Safeguard Policy Statement.</p>	<p>Not Applicable as ATCEP-AF did not require the acquisition of private land and structures.</p> <p>All activities are carried out within the confines of airport boundaries of all 3 airports.</p>
7.	<p><b>Schedule 4. Item 4.</b></p> <p><u>Human and Financial Resources to Implement Safeguard Requirements</u></p> <p>The Recipient shall make available or cause the Project Executing Agency to make available necessary budgetary and human resources to fully implement the EMP, any resettlement plan and any indigenous peoples' plan.</p>	<p>Complied.</p>
8.	<p><b>Schedule 4. Item 5.</b></p> <p><u>Safeguards – Related Provisions in Bidding Documents and Works Contracts</u></p>	<p>Complied.</p>

No.	Environmental & Social Provisions	Compliance Status
	<p>The Recipient shall ensure or cause the Project Executing Agency to ensure that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>a) comply with the measures relevant to the contractor set forth in the IEE, the EMP, any resettlement plan and any indigenous peoples' plan (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set forth in the Safeguards Monitoring Report;</p>	<p>Requirements for complying with the IEE and EMP were included in the bidding documents for all three airports.</p>
9.	<p><b>Schedule 4. Item 5.</b></p> <p><u>Safeguards – Related Provisions in Bidding Documents and Works Contracts</u></p> <p>b) make available a budget for all such environmental and social measures;</p>	<p>Complied.</p>
10.	<p><b>Schedule 4. Item 5.</b></p> <p><u>Safeguards – Related Provisions in Bidding Documents and Works Contracts</u></p> <p>c) provide the Recipient with written notice of any unanticipated environmental, resettlement or indigenous people's risk or impacts that arise during construction, implementation or operation of the Project that was not considered in the IEE, the EMP, any resettlement plan and any indigenous peoples' plan;</p>	<p>Human-wildlife conflicts were unanticipated impacts for GDA. DoAT is considering options to address this but so far only the erection of electric fencing seems viable.</p> <p>No unanticipated issue for BDA and YDA.</p>
11.	<p><b>Schedule 4. Item 5.</b></p> <p><u>Safeguards – Related Provisions in Bidding Documents and Works Contracts</u></p> <p>d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction;</p>	<p>Complied for YDA and GDA airport works</p> <p>Being complied Bumthang airport works.</p>



No.	Environmental & Social Provisions	Compliance Status
12.	<p><b>Schedule 4. Item 5.</b></p> <p><u>Safeguards – Related Provisions in Bidding Documents and Works Contracts</u></p> <p>e) reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>	Complied
13.	<p><b>Schedule 4. Item 6.</b></p> <p><u>Safeguards Monitoring and Reporting</u></p> <p>a) submit semiannual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</p> <p>b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that was not considered in the IEE, the EMP, any resettlement plan and any indigenous peoples' plan, promptly inform ADB of the occurrence of such risks or impacts, with a detailed description of the event and proposed corrective action plan; and</p> <p>c) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, any resettlement plan or any indigenous peoples' plan promptly after becoming aware of the breach.</p>	<p>Complied.</p> <p>a) Since the scope of the project was small with minimal social impacts only annual monitoring reports were prepared and submitted.</p> <p>b) No unanticipated safeguards issues for Bumthang and Yonphula airports. Human-wildlife conflicts have been reported for Gelephu airport. Erection of electric fencing is being considered.</p> <p>c) There were no breaches in compliance with the EMP and RP</p>
14.	<p><b>Schedule 4. Item 8.</b></p> <p><u>Labour Standards</u></p> <p>The Recipient and the Project Executing Agency shall ensure that (a) civil works contractors comply with all applicable labour laws and regulations, do not allow employment of child labour for construction and maintenance activities, encourage the employment of the poor, particularly women, and provide appropriate facilities for women and children in construction campsites; (b) people directly affected by the Project are given priority to be employed by the Project; (c) contractors do not differentiate wages between</p>	<p>Complied for Gelephu and Yonphula airport works.</p> <p>Being complied Bumthang airport works.</p>

No.	Environmental & Social Provisions	Compliance Status
	men and women for work of equal value, and (d) specific clauses ensuring these will be included in bidding documents.	
15.	<p><b>Schedule</b>  <b>4. Item 9.</b></p> <p><u>Health</u></p> <p>The Recipient and the Project Executing Agency shall ensure that contractors provide adequately for the health and safety of construction workers and further ensure that bidding documents include measures on how contractors will address this, including information and awareness-raising activities for construction workers on sexually transmitted diseases, HIV/AIDS, and human trafficking.</p>	<p>Complied for Gelephu and Yonphula airport works;</p> <p>Being complied for Bumthang airport works;</p>

**ANNEX 2: COMPLIANCE TO PROJECT ADMINISTRATION MANUAL**

## ANNEX 2: COMPLIANCE TO PROJECT ADMINISTRATION MANUAL

2. The Project Administration Manual (PAM) describes how the DoAT will implement the project and deliver the results on time, with quality, within budget, and in accordance with RGOB and Asian Development Bank (ADB) policies and procedures. The PAM is mandatory and serves as the main document describing implementation details. The status of implementing the safeguards requirements set out in PAM is provided in Table 10.

**Table 10: Compliance with PAM**

SNo	Details	Compliance
1.	<p><b>Section VII</b></p> <p><b>Safeguards</b></p> <p>a) Environment</p> <p>An Initial Environmental Examination (IEE) report including an Environment Management Plan (EMP) covering generic and site-specific issues has been prepared in accordance with the ADB's <i>ADB's Safeguard Policy Statement, 2009</i>. The EMP will be attached to the bidding documents and made mandatory for implementation by the respective contractor. Hence, EMP implementation and its related costs will be the responsibility of the contractor while monitoring and technical guidance will be provided by the environmental specialist under the supervision consultant's team. DCA's project coordinator of the respective domestic airports will also be responsible for ensuring proper implementation and monitoring of the EMP by the contractor and supervision consultant respectively. Any updates to the EMP, if required, will be made by the environmental specialist under the supervision consultants and reviewed and approved by</p> <p>the overall environment safeguards coordinator of DCA. An initial coordination cum training workshop will be conducted by ADB before the start of construction</p> <p>works for DCA, contractors, and supervision consultant to agree on modalities for implementing the EMP and</p> <p>carrying out necessary monitoring and reporting activities.</p>	<p>Complied.</p> <p>Project coordinators of three domestic airports have been assigned a role to oversee the effective implementation of the EMP during project implementation.</p> <p>CSC's Environmental Specialist supported the project coordinators in monitoring and reporting on environmental safeguards</p>
2.	<p><b>Section VII Safeguards</b></p> <p>b) Social – Involuntary Resettlement</p> <p>The project is classified as category C in accordance with ADB's Safeguard Policy Statement (2009). The civil works for the project will be undertaken within the airport boundaries. There will be no acquisition of private land or</p>	<p>Complied.</p>

SNo	Details	Compliance
	<p>property. A due diligence was undertaken to find out about the status of compensation paid to the affected people for land acquired by DCA during the previous development undertaken by the government. For these, all the affected people have either been paid cash compensation or provided with land for land.</p>	
3.	<p><b>Section VII</b></p> <p><b>Safeguards</b></p> <p>c) Social – Indigenous People</p> <p>As the civil works will be undertaken within the airport boundary, there will be no acquisition of private land or property. There are no indigenous people present in the project area. As there will be no physical or economic displacement, no impact on indigenous people is envisaged.</p>	Not Applicable.
4.	<p><b>Section VIII</b></p> <p><b>Gender and Social Dimension</b></p> <p><b><u>Gender Consultation and Participation</u></b></p> <p>The project will have no direct interface with the community as it is confined within the airport boundaries. However, gender participation was ensured during the socio-economic study by undertaking the process of gender analysis to assess the possible gender impacts. Women from the project influence area are mainly engaged in agriculture and home-based income generation activities. Focus group discussions were undertaken with women belonging to different socio-economic groups. The majority of women felt positive about the possible benefits including employment opportunities during construction and tourism growth. Equal benefits for women are expected to be attained under the project. Provisions in bidding documents require contractors to ensure that all civil works comply with all applicable labour laws; do not employ child labour for construction or maintenance; encourage the employment of the poor, particularly women; and do not differentiate</p>	Complied.

SNo	Details	Compliance
	wages between men and women, particularly for work of equal value.	
5.	<p><b>Section VIII</b></p> <p><b>Gender and Social Dimension</b></p> <p><b><u>HIV and AIDS</u></b></p> <p>Bhutan continues to have a low HIV prevalence. The Royal Government of Bhutan acted early and initiated HIV/AIDS prevention activities in the country. DCA will ensure that all civil works contractors (i) carry out awareness programs for labour on the risks of sexually transmitted diseases/ AIDS and human trafficking; and (ii) disseminate information at worksites on the risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction. Contracts for the project will include specific clauses on these undertakings and compliance will be strictly monitored by DCA, with the support of construction supervision consultants during the project implementation.</p>	<p>Complied.</p> <p>The contractors have organized an awareness program on HIV/AIDS</p>
6.	<p><b>Section VIII</b></p> <p><b>Gender and Social Dimension</b></p> <p><b><u>Health</u></b></p> <p>DCA shall ensure that contractors provide adequately for the health and safety of construction workers and further ensure that bidding documents include measures on how contractors will address this, including information and awareness-raising campaigns for construction workers on sexually transmitted diseases, HIV/AIDS, and human trafficking. Contractors will carry out HIV/AIDS awareness activities for labourers at worksites, which will be monitored by the supervision consultants.</p>	<p>Complied</p>

SNo	Details	Compliance
7.	<p><b>Section VIII</b></p> <p><b>Gender and Social Dimension</b></p> <p><b><u>Labour</u></b></p> <p>DoAT shall ensure that (i) civil works contractors comply with all applicable labor laws and regulations, do not employ child labor for construction and maintenance activities, and provide appropriate facilities for women and children in construction campsites; (ii) people directly affected by the project are given priority to be employed by the contractor; (iii) contractors do not differentiate wages between men and women for work of equal value; and (iv) specific clauses ensuring these will be included in bidding documents. The construction supervision consultants monitor the provisions.</p>	Complied
8.	<p><b>Section IX</b></p> <p><b>B. Monitoring</b></p> <p><b>Compliance Monitoring</b></p> <p>Compliance with covenants will be monitored through ADB's Project Administration Missions – including project inception mission to discuss and confirm the timetable for compliance with the loan covenants; project review missions to review the borrower's compliance with particular loan covenants and, where there is any noncompliance or delay, discuss proposed remedial measures with the Government; and mid-term review mission if necessary, to review covenants to assess whether they are still relevant or need to be changed, or waived due to changing circumstances.</p>	Complied.
9.	<p><b>Section IX</b></p> <p><b>B. Monitoring</b></p> <p><b>Safeguard Monitoring - Environment</b></p>	

SNo	Details	Compliance
	<p>The respective project coordinator of the three domestic airports will also be the environmental safeguards, focal persons, at the site level, and will monitor implementation of the EMP by the contractor with the support of the environment specialist of the supervision consultants.</p> <p>EMP implementation records in the form of monthly or quarterly checklists will be maintained by the contractor and cross-checked and verified by the environment safeguards focal person at the site level. These will also be reviewed by the environment specialist of the supervision consultants. Based on these checklists and site observations, the environmental specialist will prepare an annual monitoring report and submit it to the overall environment safeguards coordinator under DCA. After review and approval by DCA, the report will be forwarded to ADB for disclosure on the ADB website in accordance with the requirements of ADB's SPS 2009.</p>	<p>Complied.</p> <p>The Project Coordinator of the three airports also played the role of the environmental focal person who was supported by the CSC environment specialist.</p> <p>Complied.</p> <p>Annual safeguards monitoring reports have been prepared for the three airports and disclosed on the ADB website.</p>
10.	<p><b>Section IX</b></p> <p><b>B. Monitoring</b></p> <p><b>Safeguard Monitoring - Resettlement</b></p> <p>This will be carried out by the supervision consultants. If there are any IR impacts during project implementation such issues should be included in the semiannual safeguards monitoring report. Semiannual monitoring reports will be submitted to EA and ADB.</p>	<p>Complied.</p> <p>Annual safeguards monitoring reports including social and resettlement issues have been prepared for the three airports and disclosed on the ADB website.</p>



**ANNEX 3: COMPLIANCE TO THE CIVIL WORKS CONTRACT AGREEMENT**

### ANNEX 3: COMPLIANCE TO THE CIVIL WORKS CONTRACT AGREEMENT

3. The contractor is obliged to comply with the safeguards clauses included in the contract agreement. Table 11 below provides an update on the status of safeguards compliance by the civil works contractor.

**Table 11: Compliance to Civil Works Contract Agreement**

<b>S No</b>	<b>Conditional Clauses</b>	<b>Compliance</b>
1.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>3. Quarries and Spoil Disposal</u></b></p> <p>Any quarry operated as part of this Contract shall be maintained and left in a stable condition without steep slopes and be either refilled or drained and be landscaped by appropriate planting. Alluvial/river materials taken from a river shall be removed over some distance to limit the depth of material removed at any one location, not disrupt the river flow or damage or undermine the river banks.</p> <p>The Contractor shall not deposit excavated material on land in Government or community or private ownership except directed by the Project Manager in writing or by permission in writing of the authority responsible for such land in Government ownership, or of the community or private owner or responsible representative of the community or owner of such land in private ownership, and only then in those places and under such conditions as the authority, owner or responsible representative may prescribe.</p>	<p>Not Applicable to the project as no new quarries were required to be established under this project. All construction materials are purchased from already established RGOB approved quarries and mines.</p> <p>Complied with GDA and YDA improvement works.</p> <p>Being complied for Bumthang airport works.</p>
2.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>4. Traffic Diversion</u></b></p> <p>The Contractor shall include the necessary safety procedures regarding traffic diversion or temporary road closures that are needed in the execution of the works. The Contractor shall include in his costing of works, any temporary</p>	<p>Not applicable since all construction activities are carried out within confines of the airport boundaries and did not require traffic diversion.</p>

S No	Conditional Clauses	Compliance
	<p>works or diversion that are needed during the construction period.</p> <p>All traffic diversion or temporary road closures should be designed for the safety of both the motoring public and the men at work. It shall ensure the uninterrupted flow of traffic for traffic diversions and minimum inconvenience to the public for temporary road closures during the period concerned. As such, adequate warning signs, flagmen and other relevant safety precautionary measures shall be provided as approved by the Project Manager to warn motorists well ahead of the intended diversion or road closure. For temporary road closures, the Contractor shall be fully responsible for informing and seeking approval from all the relevant authorities and providing adequate closure notices in accordance with the timing laid out by the relevant authorities or regulations.</p> <p>All traffic devices used shall be designed in accordance with prevailing DOR Guidelines or as instructed by the Project Manager.</p>	
3.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>6. Employment of Local Personnel</u></b></p> <p>The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the project area.</p>	<p>Partially compiled as there are no skilled labourers within the project area. It is a result of the COVID-19 Pandemic, which restricted the movement of personnel from one region to another to prevent the spread of disease.</p>
4.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>7. Reinstatement and Compensation for Damage to Persons or Property</u></b></p> <p>The Contractor shall reinstate all properties whether public or private which are damaged in consequence of the execution and maintenance of</p>	<p>No damages to Persons or Properties are recorded during</p>

S No	Conditional Clauses	Compliance
	<p>the works to a condition as specified and at least to that obtaining before his first entry on them. If in the opinion of the Project Manager the Contractor shall have failed to take reasonable and prompt action to his obligations in the matter of reinstatement, the Project Manager will inform the Contractor in writing of his opinion, in which circumstance the Employer reserves the right to employ others to do the necessary work of reinstatement and to deduct the cost thereof from any money due or which shall be due from the Employer to the Contractor.</p>	<p>construction so far for all 3 airports.</p>
5.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>16. Materials and Other Objects found in Excavation</u></b></p> <p>All materials and things of archaeological, religious and cultural significance obtained from excavations or found on or under the Site or under any additional site which the Contractor may be allowed to occupy shall remain the property of the Employer and shall not be used in the Works or sold or otherwise disposed of without the written authority of the Employer unless otherwise expressly provided in the Specification. No additional excavations are to be made upon the Site beyond those shown on the Drawings or described in the Specification without the previous written authority of the Project Manager. Provided always that the Employer shall make no charge against the Contractor for materials excavated by the Contractor on the Site and used in the Works.</p>	<p>No archaeological, religious and culturally significant items have been found during excavation.</p>
6.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>17. Protection from Weather. Storage</u></b></p> <p>The Contractor shall carefully protect all work and materials that may be affected by weather from injury thereby. The Contractor shall provide storage to the satisfaction of the Project Manager for materials to be incorporated in the Works or to be delivered to the Employer. Such storage shall be</p>	<p>Complied for Gelephu and Yonphula airport works. First aid kits were available at the construction site.</p>

S No	Conditional Clauses	Compliance
	<p>of a kind that will prevent loss of, or damage to, the materials. The Contractor shall take particular care to ensure the security of stores containing materials the loss of which would be likely to cause significant delay to the completion of the works or part thereof.</p>	<p>Being complied Bumthang airport works.</p>
7.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>18. Use of Child Labour</u></b></p> <p>The Contractor and his Sub-Contractors shall not employ any child who has not attained the age of eighteen years in any work as a labourer.</p> <p>During the continuance of the contract, the Contractor and his Sub-contractors shall abide at all times by all labour laws, including child labour related enactment, and rules made hereunder.</p>	<p>Complied with Gelephu and Yonphula improvement works.</p> <p>Being complied Bumthang airport works.</p>
8.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>19. Local Custom</u></b></p> <p>The Contractor shall make himself aware of local customs and practices and observe them as far as possible, bearing in mind his obligations under the Contract.</p>	<p>Complied with GDA &amp; YDA improvement works.</p> <p>Being complied Bumthang airport works.</p>
9.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>20. First AID and Lifesaving apparatus</u></b></p> <p>The Contractor shall provide on the Site such lifesaving apparatus as may be appropriate and an adequate and easily accessible first aid outfit or such outfits as may be required in any government ordinances, factories, acts etc., subsequently published and amended from time to time.</p> <p>In addition, an adequate number of persons permanently on the Site shall be instructed in their use, and the persons so designated shall be made</p>	<p>Complied with Gelephu and Yonphula airport works.</p> <p>Being complied Bumthang airport works.</p>

S No	Conditional Clauses	Compliance
	known to all employees by the posting of their names and designations in a prominent position on Site.	
10.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>21. Maintenance of other Services and Structures</u></b></p> <p>The Contractor shall ascertain the location of all watercourses, irrigation channels, sewers, drains, water pipes, electricity and telecommunication cables, and other services and structures which may be encountered during the execution of the works. He shall take proper care, temporarily support or divert and subsequently reinstate all such services and</p> <p>structures as necessary and to the satisfaction of the Project Manager.</p> <p>As soon as any such service or structure is encountered, on, over, under, in or through the site during the performance of the contract, the Contractor shall make a record of the location and description of such service or structure and shall send the same forth to the Project Manager.</p> <p>Any damage to such service or structure caused due to the negligence of the Contractor or his Sub-contractors shall be reinstated by the Contractor at no extra cost to the Employer.</p> <p>Where permanent diversion or support of such service or structure is rendered necessary as the unavoidable result of the execution and maintenance of the works in accordance with the Contract, the Project Manager, after consultation with the Employer, will instruct the Contractor as to the diversion or support to be provided and the Contractor shall be paid the actual cost plus ten per cent extra to this as his overhead and profit.</p>	No such services or structures were impacted under ATCEP – AF
11.	<b>Section 4 – Particular Conditions of Contract</b>	

S No	Conditional Clauses	Compliance
	<p><b>Additional Clauses</b></p> <p><b><u>24. Health and Safety</u></b></p> <p>The Contractor shall take due care and ensure that medical staff, first aid room are available at the camps, housing and on the Site at all times throughout the Contract and that suitable arrangements are made for the prevention of epidemics and all necessary welfare and hygiene requirements.</p>	<p>Complied with Gelephu and Yonphula improvement works.</p> <p>Being complied Bumthang airport works.</p>
12.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>25. Prevention of HIV/AIDS</u></b></p> <p>The Contractor shall make his staff and labour aware of the dangers of HIV/AIDS and educate them in measures to prevent the transmission of these and other sexually transmitted diseases.</p>	Complied
13.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>26. Obligation of the contractor</u></b></p> <p>The Contractor shall pay compensation for all temporary use of private or community/village lands and any loss of livelihood arising therefrom.</p>	<p>Not applicable as the construction works are carried out within the airport boundaries.</p>
14.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>27. Environmental Management Plan</u></b></p> <p>The Contractor shall be responsible for the implementation of the Environmental Management Plan (EMP) and comply with the requirements of</p>	Complied with GDA and YDA improvement works.

S No	Conditional Clauses	Compliance
	EMP in the execution of the Works. In addition, the Contractor shall abide by the terms and conditions set forth in the environmental clearance provided by the relevant authority.	Being complied Bumthang airport works.
15.	<p><b>Section 4 – Particular Conditions of Contract</b></p> <p><b>Additional Clauses</b></p> <p><b><u>28. Routine Maintenance of Road and Reinstatement of Damages</u></b></p> <p>The Contractor at own cost shall be responsible for the reinstatement of the damages to completed works (pavement, pavement surfacing, shoulder or any other works) caused due to the contractor's poor routine maintenance of drains, drainage channels, culverts, shoulders; lacking clearance of obstructions such as landslides etc. other than those occurred due to earthquake. The obligations to this requirement shall remain during the construction and defects liability period in accordance with the provision of the contract.</p>	Not applicable as the construction works are carried out within the airport boundaries.



**ANNEX 4: COMPLIANCE TO ENVIRONMENTAL MANAGEMENT PLAN**

#### ANNEX 4: COMPLIANCE TO ENVIRONMENTAL MANAGEMENT PLAN

4. The environmental management plan (EMP) for the project was provided in Chapter IX of the IEE report and also attached to the contract documents. As per EMP, environmental management activities were categorized to be implemented during the pre-construction, construction and operational stages. The following Table 16 lists out the status of activities during the pre-construction and construction stage as of December 2019:

**Table 12: Status of Compliance to the Environmental Management Plan**

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
<b>Preconstruction Stage</b>				
1.	<p>Detailed Design: Seismicity</p> <p>Bhutan fall under high seismic risk zone IV and V. Seismic events may cause damage to the structure and adjacent property, and result in loss of life.</p>	<ul style="list-style-type: none"> <li>To minimize seismic related structural damage and injury or loss of life. Detailed Consultant shall incorporate earthquake risk into the detailed design of a new terminal building of BDA and Security Staff quarter of GDA.</li> <li>For analysis, design and detailing of structures, the design consultant shall refer to Bhutan Building Rules (BBR) 2002.</li> <li>For analysis of structure BBR code, 9.2.2 IS 1893 – criteria for earthquake resistant design of structures,</li> <li>For the design of a structure, BBR code 9.3.2 IS 4326 – Earthquake resistant design and construction of the building,</li> </ul> <p>For detailing of structure, BBR code 9.4.2 IS 13920-1993;</p>	Complied	

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		Ductile detailing of concrete structures subjected to seismic forces.		
<b>Construction Stage</b>				
2.	Earthwork, Excavation and Spoil Disposal	<ul style="list-style-type: none"> <li>Excavated material/spoil from YDA pond rehabilitation and footpath construction works will be dumped in the designated area.</li> <li>Excavated material from BDA's new terminal building works shall be disposed of to the designated dumpsite southwest of the runway.</li> <li>Excavated material from GDA's security quarter construction works shall be disposed of to the designated dumpsite behind the construction.</li> <li>All disposal areas shall be compacted and watered to prevent dust pollution and soil erosion.</li> </ul>	Complied	
3.	Transportation or haulage of construction materials for airport improvement works	<ul style="list-style-type: none"> <li>Construction material such as stone aggregates and sand shall be sourced from RGOB approved existing mines at Bumthang, Gelephu and Trashigang.</li> </ul>	<p>Complied for GDA and YDA</p> <p>Being complied for Bumthang airport's new terminal building construction works.</p>	

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		<ul style="list-style-type: none"> <li>The contractor shall mandate the material transporter to comply with good practices of material transportation. All vehicles carrying hazardous, dust-generating construction material shall be properly covered during transportation to minimize dust pollution.</li> <li>All-access roads, wherever there are possibilities of generating dust pollution within contractors' jurisdiction, shall be sprayed with water at least twice daily.</li> <li>The contractor shall demand the transporters to carry out vehicular emission testing to limit the exhaust related pollution. Similarly, the contractor shall carry out regular maintenance of transport and construction vehicles/machinery</li> </ul>		
4.	Water Environment (Surface and groundwater)	<ul style="list-style-type: none"> <li>Discharge of sediment-laden construction water directly into surface water bodies shall be avoided.</li> <li>Wastewater/sewage and hazardous waste shall not be dumped into the surroundings to</li> </ul>	<p>Complied for GDA and YDA</p> <p>Being complied for Bumthang airport's new terminal building</p>	<p>Erosion and siltation have resulted in drying of the pond which is located northwest of the runway. It has been observed that the lack of slope protection works has</p>

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		<p>prevent surface and groundwater contamination. Pit toilet constructed Gelephu airport shall be line with cement to prevent leakage of sewage into the groundwater chamber,</p> <ul style="list-style-type: none"> <li>• Dumping of construction waste into stormwater drainage shall be avoided to minimize the siltation of pond water at Yonphula airport,</li> </ul>	construction works	resulted in heavy siltation of the pond leading to complete drying of the pond. However, the pond has been restored by dredging the silt, and simultaneously slope protection works were done by constructing the gabion walls at the base of the eroding slope.
5.	Solid Waste	<ul style="list-style-type: none"> <li>• Construction worker shall sort their garbage into biodegradable and non-biodegradable</li> <li>• For all campsites, the contractors shall construct garbage pits.</li> <li>• Biodegradable waste shall be put into a garbage pit while non-biodegradable waste shall be handed over to scrap dealers for recycling.</li> <li>• After completion of usage of garbage pit, the contractor shall decommission the pit by covering it with soil and suitably compact it to prevent leakage.</li> <li>• Hazardous waste such as spent batteries, acidic substances</li> </ul>	<p>Being complied for Bumthang BDA works</p> <p>Complied for GDA and YDA works</p>	Waste management still needs to be improved for BDA construction works

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		and used fuels shall be stored properly and will be sent to India recycling.		
6.	Sewage/Waste Water	<ul style="list-style-type: none"> <li>For sewage/wastewater treatment ordinary pit toilet will be constructed at BDA and YDA campsites;</li> <li>However, for GDA, a cement-lined pit toilet shall be constructed to prevent leakage of untreated sewage into the underground water chamber;</li> <li>Pit toilets once completed their usage shall be decommissioned by covering with soil and compacting it to prevent leakage of sewage into the surrounding environment.</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	
7.	Air Environment	<ul style="list-style-type: none"> <li>Regular spraying of the work area and haulage route. River water from Chamkhar chhu could be used for spraying the work area at BDA; Stream water Barizhong under Khaling Geog could be used for YDA, and Gelephu airport groundwater from the bore well could be used for dust suppression at GDA.</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		<ul style="list-style-type: none"> <li>covering construction material during transportation;</li> <li>Timely and regular maintenance of construction equipment and machineries to reduce gaseous emissions;</li> <li>Provision for gas/facemasks for construction workers to prevent direct inhalation of dust</li> </ul>		
8.	Noise environment	<ul style="list-style-type: none"> <li>Limit the working hours to daylight hours (8 am-5.30 pm)</li> <li>Provision for earplugs and use of construction equipment that produce less noise.</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	
9.	Ecological Environment: <b>Pressure on Forest product</b>	<ul style="list-style-type: none"> <li>The contractor shall provide cooking fuel either LPG or the fuelwood from the legal supplier to reduce competition local forest supply;</li> <li>The contractor shall make timely wage payments for labourers to buy foodstuff to prevent labourers from foraging for forest produce in competition with the local population.</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	
10.	Ecological Environment: <b>Impact on wildlife and habitat</b>	<ul style="list-style-type: none"> <li>PCU/Contractor in coordination with Forest Range</li> </ul>	Being complied for BDA works	

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		<p>Office at Bumthang shall carry out an awareness campaign to deter illegal fishing in Chamkhar Chhu.</p> <ul style="list-style-type: none"> <li>• Similarly, PCU/Contractor along with the Forest Range office of Yonphula and Gelephu shall carry out an awareness campaign to deter wildlife poaching, trapping and hunting etc.</li> <li>• Forest officials from respective project areas of Bumthang, Yonphula and Gelephu shall make surprise checking to discourage the construction workers from illegal activities;</li> <li>• Contractors shall be held accountable for any illegal activities that are carried out by their workforce.</li> </ul>	Complied for GDA and YDA works	
11.	<p>Socio-economic Environment:</p> <p><b>Occupational Health and Safety</b></p>	<ul style="list-style-type: none"> <li>• Construction workers shall be provided with adequate and appropriate shelter which are wind and rainproof;</li> <li>• Camps shall be located within the airport boundaries away from the local settlements;</li> <li>• First aid kit shall be provided for all the project sites</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	



SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		<ul style="list-style-type: none"> <li>• In an emergency, workers shall be allowed to avail the medical services at Bumthang, Trashigang and Gelephu hospitals free cost.</li> <li>• Clean drinking water, construction of pit toilets, and garbage disposal sites shall be provided;</li> <li>• Labour officers of respective regions of Gelephu, Trashigang and Bumthang shall make surprise checks on compliance of occupational health and safety.</li> </ul>		
12.	<p>Socio-economic Environment:</p> <p><b>HIV/AIDS and Communicable Diseases; Gender violence and Human trafficking</b></p>	<ul style="list-style-type: none"> <li>• Although RGOB makes it mandatory for the labourers to check for communicable diseases before the issuance of the work permits to prevent the spread of diseases; still the project shall carryout following measures to minimize the risk of spread of communicable diseases and the gender issues:</li> <li>• The project shall invite Health officials from respective project sites of Bumthang, Yonphula and Gelephu to provide awareness education on</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		communicable diseases to the construction workers;		
<b>Operational Phase</b>				
13.	Air and Noise Environment	<ul style="list-style-type: none"> <li>Air and noise pollution as a result of the operation of airport terminal buildings and security quarters will be negligible.               <ul style="list-style-type: none"> <li>Renewal energy shall be utilized for the heating and cooling of building operations.</li> <li>There will be no major noise generating equipment installed in the buildings.</li> </ul> </li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	
14.	Solid Waste	<ul style="list-style-type: none"> <li>Airport management of BDA, YDA and GDA shall sort their waste into biodegradable and non-biodegradable. Biodegradable shall be recycled or disposed of to the landfill;               <ul style="list-style-type: none"> <li>Non-biodegradable waste such as plastics, pet bottles, bottles, metal scraps, papers etc. could be sold or handed over to scrap dealers for recycling.</li> </ul> </li> <li>Hazardous waste such as spent batteries, acidic substances and used fuels shall be properly</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works.</p>	

SNo	Activity	Mitigation Measures	Compliance attained (Yes, No, Partial)	Comment/Reasons for Partial or Non-Compliance
		stored and sent for recycling to India.		
15.	<b>Waste Management:</b> Sewage/ Wastewater	<ul style="list-style-type: none"> <li>BDA and GDA buildings constructed shall have independent septic tanks and soak pits for wastewater treatment to prevent pollution of local water resources</li> <li>Septic tanks and soak pits shall be replaced with more advanced wastewater treatment plants such as Sequential Batch Reactor (SBR) in future as the amount of wastewater generation increases beyond the capacity for septic tanks and soak pits to handle.</li> </ul>	<p>Being complied for BDA works</p> <p>Complied for GDA and YDA works</p>	

**ANNEX 5: PHOTOGRAPHS OF BUMTHANG DOMESTIC AIRPORT**

**ANNEX 6: PHOTOGRAPHS OF YONPHULA DOMESTIC AIRPORT**

**Figure 15: Panoramic view of BDA (ADB, March 2018)**



**Figure 16: Airside Fencing works at BDA (Source: QPR: March 2021)**



**Figure 17: New Terminal Building at BDA (Source: QPR: March 2021)**

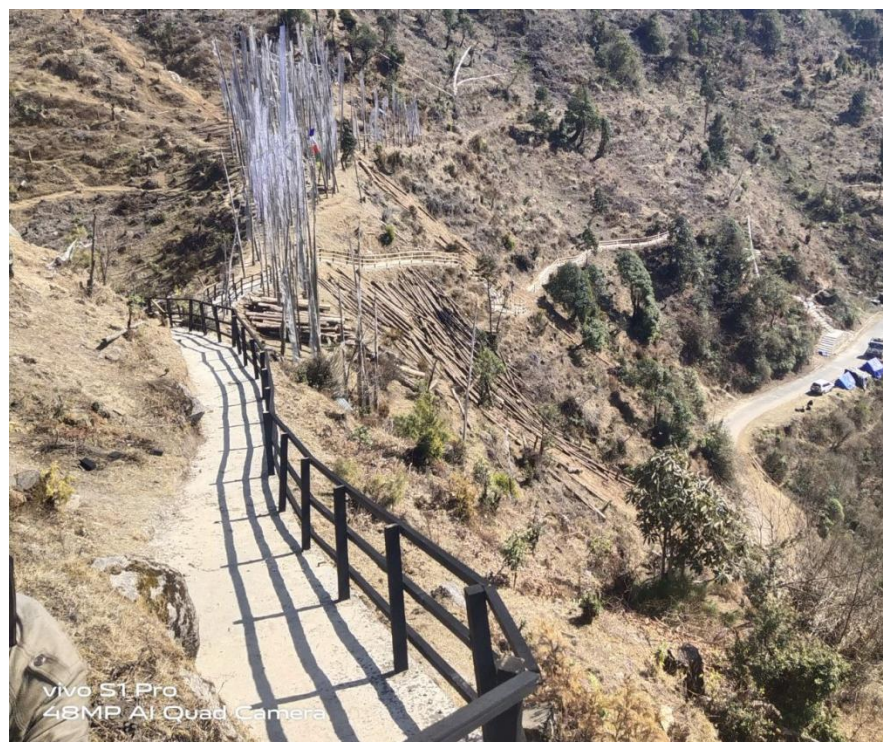




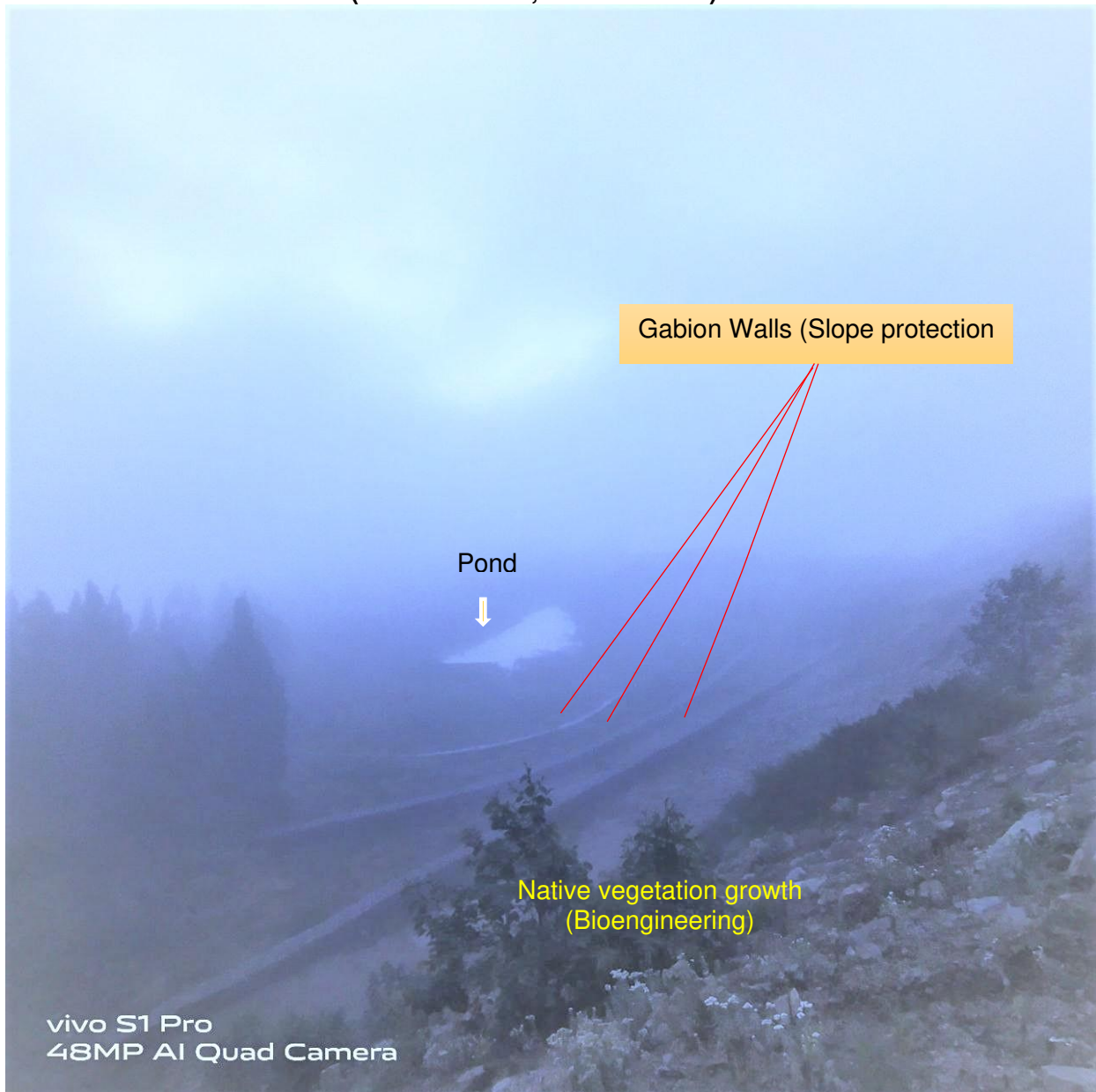
**Figure 18: Gabion wall construction for slope protection at YDA (Source: QPR, March 2021)**



**Figure 19: Footpath to Khamsum Yulay Namgyal Stupa at YDA (Source: QPR, March 2021)**



**Figure 20: Restored Pond and Gabion wall construction for slope protection at YDA**  
(Source: DoAT, October 2021)





**ANNEX 7: PHOTOGRAPHS OF GELEPHU DOMESTIC AIRPORT**

**Figure 21: Security quarters construction at GDA (July 2018)**



**Figure 22: Finished surrounding of Security Quarters of GDA (July 2018)**



**ANNEX 8: COPY OF LETTERS RECEIVED FROM MINISTRY OF AGRICULTURE & FORESTS**

ཏུང་ཆེན།

སོ་ནམ་དང་ནགས་ཚལ་ལྷན་ཁག།  
 ROYAL GOVERNMENT OF BHUTAN  
 Ministry of Agriculture & Forests  
 Tashichhodzong, Thimphu : Bhutan



13<sup>th</sup> April, 2018

The Secretary  
Ministry of Information and Communications  
Thimphu

**Sub: Handing taking over of the infrastructure to Bumthang Domestic Airport**

Dasho,

We are in receipt of the letter No. MoIC/Sec-06/2017-18/207 dated 2<sup>nd</sup> April, 2018 pertaining to complete handing over of the infrastructure which is currently operated as Brown Swiss Farm under Department of Livestock (DoL) to Bumthang Domestic Airport. As agreed in the minutes of meeting dated 21<sup>st</sup> May, 2014 between erstwhile Department of Civil Aviation (DCA) and DoL, the Department of Livestock had taken the following proactive measures;

1. Issuance of no objection letter to DCA for the construction of road diversion through farm land.
2. Handed over the quarter of Program Director, National Centre for Animal Nutrition to DCA.

However, handing over the complete land and farm infrastructures adjacent to airport has not been materialized yet as it was subject to the completion of our farm infrastructure at the new location. Owing to this fact, the dismantling of dairy shed and two unit staff quarter are still not executed. Moreover, as agreed in the earlier minutes, dated 21<sup>st</sup> May, 2014, the Ministry has not yet realized the budget for construction of two unit staff/attendant quarters from your Ministry.

Further, for smooth operation of the airport, the Department was very much committed to complete the farm infrastructure development works at the new location and shift the entire facilities including farm animals. However, the works could not be completed on time due to slow progress, even after imposing repeated fines and penalties to the defaulting contractor.



ཕོ་ནམ་དང་ནགས་ཚལ་ལྷན་ཁག།  
**ROYAL GOVERNMENT OF BHUTAN**  
**Ministry of Agriculture & Forests**  
**Tashichhodzong, Thimphu : Bhutan**



**SECRETARY**

Currently, 70 % of sheds construction and site development works have been completed. The construction of office, attendant quarters, farm bio-security and other facilities at new location are required to be put in place for operation of the farm.

While our Ministry fully understands the safety and security concerns to flight operation in the airport, we are left with no option but need some more time to complete the on-going and planned infrastructure development works at the new location. Upon completion, which we are expediting, we will then intimate your Ministry for complete handing over of the facilities to the Department of Air Transport (DoAT).

We thank you for your continued support and cooperation.

Yours Sincerely,

Dr. Tashi Samdup

**OFFTG. SECRETARY**

**Copy to:**

1. His Excellency the Hon'ble Minister, MoAF for kind information.
2. His Excellency the Hon'ble Minister, MoIC for kind information and necessary support.
3. Dasho Secretary, MoAF, for kind information.
4. Director General, DoL for information and necessary action.
5. Director, DoAT, MoIC, for kind information and support.
6. Specialist (Advisor) DoL for information and follow up.
7. Farm Manager, BS Farm, Bumthang for information and follow up.
8. Offtg. Chief, LPD, DoL for information and record.
9. Site Engineer, DoL for information and with an advice to expedite the infrastructure development works at the site.





**Royal Government of Bhutan**  
**MINISTRY OF AGRICULTURE & FORESTS**  
**DEPARTMENT OF LIVESTOCK**  
**BROWN-SWISS CATTLE FARM**



**Bumthang**

BSCBF/Adm-6/2018-2019/ **243**

Date: April 2, 2019

To  
 Airport Manager  
 Bumthang Domestic Airport  
 Department of Air Transport  
 Bumthang

**Subject: Handing over of remaining infrastructure**

**Ref: DAT/BDA/ADM/2019/210 dated 01/04/2019**

Dear Madam,

With reference to your letter no. DAT/BDA/ADM/2019/210 dated 01/04/2019, here we would like to inform you that Hon'ble Secretary, MOAF has already written to Hon'ble Secretary, MoIC vide letter No. DOL/GEN-23/2017-18/16630 dated 13<sup>th</sup> April 2018 concerning this matter, which is self-explanatory. We fully understand your concern and we are also expediting the completion of the infrastructures at the earliest possible. Due to this, we also have to implement some of the unplanned activities like fencing with Bamboo Mat for both Beautiful Bumthang and own Farm Bio-security measures. Therefore, we are left with no other options for complete handing over of the remaining infrastructures till all required infrastructure developments in the new location, Lebi are completed.

Thanking you

Yours Sincerely,

  
 (Padam B. Gurung)  
 FARM MANAGER

Copy to:

1. Director General, DoL, Thimphu, for kind information, please
2. Chief Livestock Officer, LPD, DoL, Thimphu for kind information, please
3. Office copy.