

**THE ROYAL GOVERNMENT OF BHUTAN
MINISTRY OF HEALTH**

**PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR
REPLACEMENT OF AMBULANCES PHASE 2
IN
KINGDOM OF BHUTAN**

FEBRUARY, 2015

JAPAN INTERNATIONAL COOPERATION AGENCY

BINKO INTERNATIONAL LTD.

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PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to consist of Binko International Ltd.

The survey team held a series of discussions with the officials concerned of the Royal Government of Bhutan, and conducted field investigations. As a result of further studies in Japan, the present report was finalized.

I hope that this report will contribute to the promotion of the Project and to the enhancement of friendly relations between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Royal Government of Bhutan for their close cooperation extended to the survey team.

February, 2015

Takao TODA

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Summary

1. Outline of the Country

The Kingdom of Bhutan (hereinafter “Bhutan”) is an inland South Asian country extending from 26 to 29 degrees north latitude and from 88 to 93 degrees east longitude. At elevations ranging from 200 to 7000 m, the land mostly comprises steep and high mountains, and is located between India and China (Tibet). Total land area is approximately 38,400 km², roughly the same as that of Kyushu. The border with China runs mostly on the Himalayas, and has not yet been fixed in many parts despite continuing demarkation talks. Elevations vary widely from place to place in the country, and so do climate and vegetation. The climate has five seasons: summer, monsoon, fall, winter, and spring. The country is rich in biological diversity.

Population is about 720,000 (2012)¹, of which 63% live in rural areas. Population pyramid comprises 31% young population (0-14 years old), 64% working age population (15-64), and 5% elderly population (65+).²

Bhutan is the only country in the world that accepts Tibetan Buddhism as the state religion. About 80% of people are ethnic Tibetans and 20% are ethnic Nepalese. The national language is Dzongkha. The capital is Thimphu. Administrative divisions are 20 districts (dzongkhags), which are subdivided into counties (dungkhags) and then villages (gewogs).

National economy has been growing rapidly in recent years. The growth rate increased from 8% in 2005 to 14% in 2006 and phenomenal 22.4% in 2007. Instead of gross domestic product (GDP), Bhutan uses gross national happiness (GNH) as the measure of development. The Business Week survey in 2006 ranked Bhutan as the happiest country in Asia and the 8th happiest in the world. GDP in 2013 was 1,985 million dollars (about 200 billion yen), and per capita GDP was 2,665 dollars. According to the data released by Asian Development Bank in 2011, the estimated number of people with an income below 2 dollars a day is 170,000, representing 25% of the total population. Bhutan is one of the least developed countries (poorest countries) as classified by the United Nations. The most important industry is agriculture (rice, wheat, and forestry) representing about 35% of GDP, and the most important export is electric power to India. On the other hand, the most important source countries of import are India, Korea, Singapore, Japan, Thailand, and Sweden in decreasing order.

2. Background and Outline of the Project

The need for safe transportation of patients is an issue to be addressed in Bhutan because of the geographical constraints with steep mountainous terrains and the predominance of rough roads,

¹ Source: Annual Health Bulletin 2013

² Source: Royal Government of Bhutan National Statistics Bureau, Dzongkhag Population Projection 2006-2015, issued in June 2008.

many of which are unpaved. With the recent increases in man-made and natural disasters, such as traffic accidents, earthquakes, and floods, there is an increasing need for the improvement of the emergency medical care system for people in remote areas. During the term of the Tenth Five Year Plan (2008 - 2012), the government conducted development of a nation-wide emergency service network toward the goal of “providing equal access to quality health services,” in addition to the actions to improve education for health personnel, strengthen capacity of institutions, and develop and improve infrastructure, such as equipment and medical facilities to promote the spread of healthcare services. As a part of these initiatives, “The Project for Replacement of Ambulances” was implemented in 2011 as a Japanese Grant Aid Project and 26 obsolete ambulances were replaced. Health Help Centre (HHC)³ was established in the same year aiming at the reinforcement of emergency medical services.

In 2013, the Ministry of Health (MoH) developed the Ambulance Service Guideline (hereinafter “the Guideline”), which regulated the number of ambulances to be allocated to each medical facility, personnel system, etc. The Eleventh Five Year Plan (2013-2018) formulated in the same year keeps it focus on this field and plans further improvement of ambulance service networks for the improvement of access to healthcare services and emergency and disaster responses. Although the Guideline defines the number of ambulances needed at each medical facility, there are facilities that have not been supplied with necessary ambulances and do not satisfy the standard. In addition, many ambulances have been superannuated. At the time of preliminary study for the formulation of “The Eleventh Five Year Plan,” it was considered necessary to replace 48 ambulances that had been used for 10 years or more. The Project plans to assist in the improvement of ambulance networks based on the above situation.

3. Outline of the Survey / Contents of the Project

In response to the request from the Bhutanese side, Japan dispatched the survey team for the preparatory survey on the Project for Replacement of Ambulances Phase 2 (hereinafter “the Project”) from July 3 to July 26, 2014. After additional work was conducted in Japan, an outline design summary was presented and explained in Bhutan from November 15 to 23, 2014.

Because more than one year had passed between the time of request (May 2013) and the time of this outline design survey, the Bhutanese side submitted a new list of equipment concerning the procurement of ambulances at the time of this outline design survey. While the old list requested the replacement of existing ambulances that had become unusable due to superannuation, mechanical failure, etc., the new list of equipment included the procurement of new ambulances for the facilities lacking them, in addition to the replacement of existing ambulances. Table-1 shows the changes

³ HHC aims to achieve the establishment of toll-free call centers, the centralized management of ambulance operation through the installation of global positioning system (hereinafter “GPS”) on ambulances, and the establishment of a system for communication with medical facilities all over the country.

form the old list of equipment requested to the new list of equipment requested.

Table-1 Comparison between Old and New Lists of Requests

Request	Old List of Requests	New List of Requests
Replacement of existing ambulances	20 units	19 units
New ambulances	0 units	10 units
Time of request	May 2013	July 2014

The new list of requests reflects a number of factors in addition to the results of survey on the present state of the ambulance service system at the time of the preliminary survey for the formulation of “The Eleventh Five Year Plan.” One is the increase in the demand for ambulance services arising from traffic accidents and other causes as a result of the recent development of the road network and changes in road conditions. This changed the pattern of operation of existing ambulances as compared with that at the time of the original request, and expanded the areas where ambulances are needed. Another factor is the further reinforcement of the emergency medical service system promoted with the commencement of the full-scale operation of HHC, which was established in 2011.

The new request contains the request for 29 ambulances in total, including replacement of 19 superannuated existing ambulances and provision of 10 new ambulances. One of the existing ambulances in the original request was not found at the facility it was assigned to at the time of the outline design survey, and it is now requested as a new ambulance. The 29 ambulances will be allocated to 28 facilities, which are either Basic Health Unit Grade-I (hereinafter “BHU-I”⁴) or Grade-II (hereinafter “BHU-II”⁵).

While the Guideline implemented in 2013 demands the deployment of one ambulance at each BHU-I, there are facilities that lack ambulances and do not meet the standard. As for BHU-IIs, ambulances are provided to the facilities that MoH considers important for the reinforcement of emergency medical services. In this situation, the Bhutanese side considered it necessary to provide 29 ambulances at 28 facilities urgently, but it is difficult for the country to provide them on their own resources due to financial problems. For this reason, the Bhutanese side requested to the government of Japan for the replacement and addition of the above ambulances and on-board equipment as a Grant Aid Project.

Considering the above background, the Project plans to procure 19 ambulances and on-board equipment for ambulances to be provided to the Project’s target facilities. The implementation of the

⁴ BHU-Is are staffed with physicians as a rule. Each facility covers a population of 5,000 or more.

⁵ Medical services at BHU-IIs are provided by health assistants. Each facility covers a population less than 5,000.

Project is expected to improve the performance of vehicles and equipment, leading to the improvement of access to healthcare facilities and the betterment of the quality of emergency medical services.

The main equipment planned for procurement through the Project and the facilities they are allocated to are as shown in Tables-2, 3, and 4.

Table-2 Main specifications of equipment to be procured and its purpose of use

Equipment	Main Specification	Purpose for use	Quantity
Ambulance	2 box model, 4 wheel drive, diesel engine, right handle	For transportation of emergency patient to referral hospital.	29

Table-3 Main On-Board Equipment

Name of Equipment	Quantity	Name of Equipment	Quantity
Scoop Stretcher	29	Thermometer	29
Spine Board with Cervical Immobilizer	29	Resuscitation Bag (Adult and Pediatric)	29
Suction Apparatus (Footpump type)	29	Tourniquet	29
Pulse Oxymeter	29	Splint and Traction	29
Short Spine Board	29	Adjustable Cervical Collar	29

Table-4 Ambulance allocation list

• Facilities for Ambulance replaced

• Facilities for Ambulance Newly procured

No.	Name of Dzongkhag	Facility Name for Ambulance replaced	Quantities Requested	Quant.to be procured	Reason for procurement	No.	Name of Dzongkhag	Facility Name for New Ambulance procured	Quantities Requested	Quant.to be procured	Reason for procurement
1	Dagana	Drugyegang BHU II	1	1	Replacement	20	Wangduephodrang	Kamichu BHU II	1	1	Replenishment
2	Gasa	Gasa BHU I	1	1	Replacement	21	Tsirang	Burichu II	1	1	Replenishment
3	Haa	Bali BHU I	1	1	Replacement	22	Haa	Sombekha BHU II	1	1	Replenishment
4	Mongar	Mongar ERRH	1	1	Replacement	23	Chukha	Bongo BHU II	1	1	Replenishment
5		Drematse BHU II	1	1	Replacement	24	Pemagatshel	Nanong BHU II	1	1	Replenishment
6		Gyelposhing BHU I	1	1	Replacement	25	Trongsa	Tongtongphey BHU I	1	1	Replenishment
7	Paro	Betekha BHU II	1	1	Replacement	26	Sarpang	Chhuzagang BHU I	1	1	Replenishment
8	Punakha	Punakha Hospital	1	1	Replacement	27	Tashigang	Khaling BHU I	1	1	Replenishment
9	Samdrup Jongkhar	Gomdar BHU-I	1	1	Replacement	28	Chukha	Khatikha BHU I	1	1	Replenishment
10		Jomotshangkha BHU I	1	1	Replacement	29	Wangdi Phodrang	Sephu BHU II	1	1	Replenishment
11		Deothang hospital	1	1	Replacement	Total Quantity		29	29		
12	Samtse	Dorokha BHU II	1	1	Replacement						
13	Sarpang	Gelephu CRRH	1	1	Replacement						
14			1	1	Replacement						
15	Zhemgang	Buli BHU II	1	1	Replacement						
16	Trashigang	Bartsham BHU II	1	1	Replacement						
17		Tsangpo BHU II	1	1	Replacement						
18		Tashigang Hospital	1	1	Replacement						
19	Tsirang	Damphu Hospital	1	1	Replacement						

4. Implementation Period and Cost Estimation of the Project

The implementation period of the Project is approximately 12 months, including approximately 4 months for works related to bidding and approximately 8 months for procurement supervision. The Project cost is approximately 23 million ngultrum (43 million yen) to be borne by the Bhutanese side.

5. The Project Evaluation

1) Relevance

Bhutan is promoting the development of ambulance service networks aiming at “the provision of equal access to quality health services” with GNH as the basic principle of development. As the Project will help the improvement of access to medical services for the inhabitants of the areas that are distant from cities, such as mountainous areas, enabling inhabitants equally to keep health and safety, it is considered highly appropriate to implement the Project under the grant aid scheme of Japan.

In addition, the implementation of the Project under the grant aid scheme of Japan is considered appropriate based on the following facts.

- ① The MoH of Bhutan has established HHC, aiming to build a system that would allow 90% of people to receive specialized medical services within one hour irrespective of their locations of residence. However, many of the ambulances needed for patient transportation have become unusable due to mechanical failure resulting from oldness, accidents, etc., while the demand for emergency medical services is expanding as a result of factors such as the changes in the traffic environment. Urgent provision of ambulances is needed in this situation. Through provision of ambulances, the Project plans to help the establishment of the emergency medical service system, which HHC is intended to achieve.
- ② The Project does not include advanced equipment. As the types of equipment to be procured are already used in the country and the system for maintenance has been established, it can be operated and managed by a minimal addition of personnel and can be used effectively for a long time.
- ③ The beneficiary areas of the Project are 16 districts and the beneficiary population is approximately 130,000 who are living in the service coverage of the Project’s target facilities. Beneficiary population is estimated based on the answers of interview survey at project sites. This means that the Project will benefit as many as approximately 18% of the total population.
- ④ The goal of the Project is to “provide equal access to quality health services” for the general public and in line with the aim of ensuring basic human needs (hereinafter “BHN”) through “improvement of health services” stipulated under the priority area “social development” in the assistance policy of Japan. In addition, the development of a nationwide emergency medical service network through the Project is expected to make possible the rapid provision of ambulance services to inhabitants in remote areas and contribute to the stabilization of the people’s lives.

2) Effectiveness

The implementation of the Project is expected to enhance the emergency medical service system involving emergency patient transportation and exhibit the following quantitative and qualitative effects.

1. Quantitative Effects (outcome indices showing the attainment of the purpose of the Project)

Indicators	Baseline value (performance in 2013)	Target value (2019) 【3 years after project completion】
Annual number of patients transported per replaced ambulance ⁶	43 patients	Increase
Annual number of repair days per replaced ambulance	81 days	Decrease

2. Qualitative Effects

- ① The replacement of vehicles and on-board equipment is expected to improve the quality and increase the types of transport services that can be provided in ambulances.
- ② The shortening of time needed for patient reception will improve the trust of medical workers including the HHC staff in ambulance services.

⁶ The number of patients calculated from the annual number of ambulance dispatches provided by HHC. Because one patient is transported at a time in Bhutan, the annual number of dispatches is regarded the same as the annual number of patients transported.

Contents

Preface

Summary

Contents

Location Map

List of Figures and Tables

Abbreviations

Chapter 1 Background of the Project	1
1-1 Introduction, Background, and History of Grant Aid Request	1
1-2 Natural Condition	1
1-3 Environmental impact assessment	1
Chapter 2 Contents of the Project.....	2
2-1 Basic Concept of the Project.....	2
2-1-1 Background of the Project	2
2-1-2 Overall Goal and Project Goal.....	2
2-1-3 Project Outline	2
2-2 Outline Design of the Japanese Assistance.....	4
2-2-1 Design Policy	4
2-2-2 Basic Plans (Equipment Plan).....	5
2-2-3 Outline Design Drawing (Map of the target facilities)	18
2-2-4 Implementation Plan	20
2-3 Obligations of Recipient country	26
2-4 Project Operation Plan	27
2-5 Project Cost Estimation	29
2-5-1 Initial Cost Estimation	29

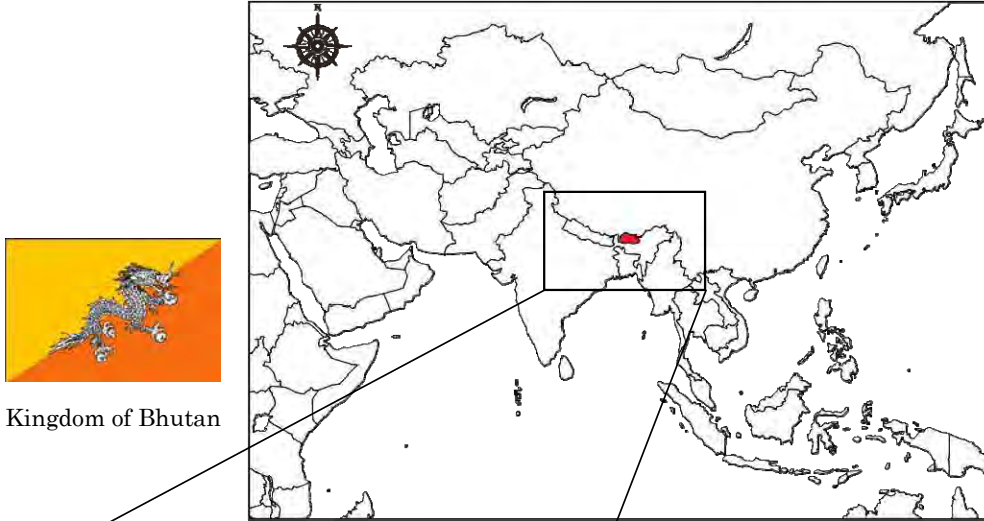
2-5-2 Operation and Maintenance Cost.....	29
Chapter 3 Project Evaluation.....	32
3-1 Preconditions	32
3-2 Necessary Inputs by the Recipient Country.....	32
3-3 Important Assumptions.....	32
3-4 Project Evaluation.....	33
3-4-1 Relevance.....	33
3-4-2 Effectiveness	33

Appendices :

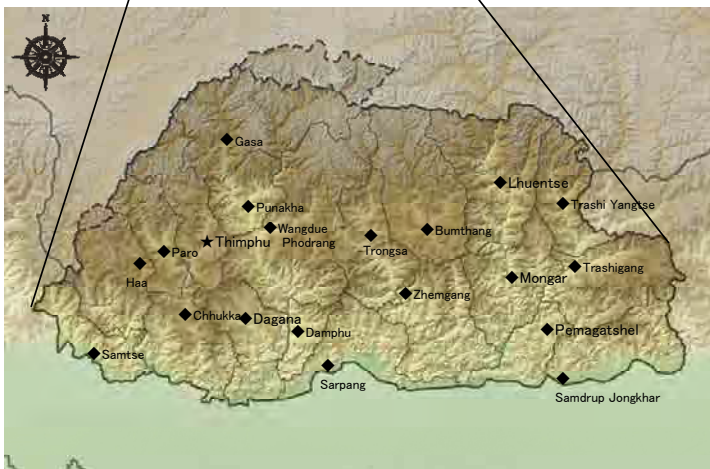
- Appendix 1. Member List of the Study Team
- Appendix 2. Study Schedule
- Appendix 3. List of Parties Concerned in Recipient Country
- Appendix 4. Minute of Discussion

Location Map

Kingdom of Bhutan Location Map



Kingdom of Bhutan



★ Capital: Thimphu

◆ District Headquarters

List of Figures and Tables

No.	Title of Figures and Tables	Page
Figure 2-1	Site location map	19
Figure 2-2	Figure Implementation Schedule	25
Table 2-1	Vehicles targeted for replacement and facilities for allocation	7
Table 2-2	Ambulance service activity status at 18 target facilities	8
Table 2-3	Additional requests and ambulance status at target facilities and quantity requested to be procured by the Project.	9
Table 2-4	Consistency with the status of the target facilities for this project that were additionally requested and the ambulance allocation criteria	10
Table 2-5	Ambulance allocation list	15
Table 2-6	On-board equipment recommended by the Guideline	17
Table 2-7	Main specifications of equipment to be procured and its purpose of use	18
Table 2-8	Main On-Board Equipment	18
Table 2-9	Major undertakings to be taken by Japanese and Bhutan side	21
Table 2-10	The Project costs of Bhutan side	29
Table 2-11	Estimate of O&M costs (fuel costs)	30
Table 2-12	Estimate of O&M costs (Labor and consumables)	31

Abbreviations

4WD	4 Wheel Drive
A/P	Authorization to Pay
B/A	Banking Arrangement
AED	Automated External Defibrillator
BHN	Basic Human Needs
BHU	Basic Health Unit
BS	British Standard
CT	Computerizing Tomography
DANIDA	Danish International Development Agency
DIN	Deutsches Institut für Normung
E/N	Exchange of Notes
EMT	Emergency Medical Technician
FDA	Food and Drug Administration
G/A	Grant Agreement
GDP	Gross Domestic Product
GMP	Good Manufacturing Practice
GNH	Gross National Happiness
GPS	Global Positioning System
GQP	Good Quality Practice
HA	Health Assistant
HHC	Health Help Centre
IMF	International Monetary Fund
JDWNRH	Jigme Dorgi Wanchuku National Referral Hospital
JICA	Japan International Cooperation Agency
JIS	Japan Industrial Standard
MRI	Magnetic Resonance Imaging
NEC	National Environment Commission
ORC	Outreach Clinic
RIHS	Royal Institute of Health Science
STCB	State Trading Corporation of Bhutan Ltd.
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VHW	Village Health Worker
WHO	World Health Organization

Chapter 1 Background of the Project

Chapter 1 Background of the Project

1-1 Introduction, Background, and History of Grant Aid Request

The need for safe and rapid transportation of patients to medical facilities is a high-priority issue for emergency medical services in Bhutan because of the geographical constraints with steep mountainous terrains and the predominance of rough roads, many of which are unpaved. With the recent increases in man-made and natural disasters, such as traffic accidents, earthquakes, and floods, there is an increasing need for the improvement of the emergency medical service system for people in remote areas.

With the recent progress of road development in Bhutan, both the number of dispatches and travel distances of ambulances are increasing. Each ambulance records a drive distance between 15,000 and 40,000 km and is dispatched up to 179 times in a year. According to the preliminary survey at the time of the formulation of “The Eleventh Five Year Plan” (2013-2018), 48 ambulances that had been used for 10 years or more out of the 107 ambulances owned by the state were considered as requiring replacement. In this situation, the Bhutanese side considered it necessary to provide 29 ambulances at 28 facilities urgently, but it is difficult for the country to provide them on their own resources due to financial problems. For this reason, the Bhutanese side requested to the Government of Japan (hereinafter “the GOJ”) for the replacement and addition of the above ambulances and on-board equipment as a Grant Aid Project.

1-2 Natural Condition

Altitudes vary quite widely in the country from 100 m in the southern part to 7,550 m in the northern part. The climate is alpine, where some areas are covered with permanent snow in summer. There are many valleys in Bhutan, and different valleys often have different climate depending on elevation. Most of the annual precipitation occurs in the rainy season (the monsoon season from mid-June to September). Mean annual precipitation is 3,000-5,000 mm in the southern border zone, 1,200-2,000 mm on the southern Himalayan slopes, 500-1,000 mm in the inland canyon areas, and 500 mm or less on the high mountain areas with the altitudes of 4,000 m or more. The Project design therefore needs to be developed considering harsh natural conditions ranging from a hot humid to a cold dry environment.

1-3 Environmental impact assessment

Vehicle emission regulations in Bhutan have been stipulated by National Environment Commission (NEC). At the present, NEC specifies that all imported vehicles must comply with the Euro2 standards⁷ irrespective of the type of engine. However, it is possible that more strict standards may be required at the time when equipment is provided in the Project. Therefore, the vehicles selected for the Project shall have engines with exhaust gas specifications surpassing these standards.

⁷ Uniform European environmental standards for automobile exhaust gases.

Chapter 2 Contents of the Project

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

2-1-1 Background of the Project

During the term of the Tenth Five Year Plan (2008 - 2012), the Royal Government of Bhutan (hereinafter “the RGoB”) developed national emergency medical service system to increase the accessibility of healthcare services and also took action to improve education for health personnel, strengthen capacity of institutions, develop and improve infrastructure, such as equipment and medical facilities. As a part of these initiatives, “The Project for Replacement of Ambulances” was implemented in 2011 as a Japanese Grant Aid Project and 26 obsolete ambulances were replaced.

While the RGoB is trying to improve quality of healthcare services and access to it, geographical constraint with steep mountains and unpaved rough roads forms a part of the challenges to transport emergency patients safely. Further, due to the increasing number of natural disasters, such as earthquakes and floods, and traffic accidents accompanying the development of the road network, the necessity to strengthen the emergency medical service system is increasing.

In response to the situation, Health Help Centre (HHC)⁸ was formed for enforcement of emergency medical service network in 2011. In addition, the Ambulance Service Guideline⁹ (hereinafter “the Guideline”) was developed by the Ministry of Health (MoH) in 2013, which regulated the number of ambulances to be allocated to each medical facility according to its grade, the institutional and personnel system for uninterrupted emergency care services, and streamlined the utility of ambulances. The Eleventh Five Year Plan (2013-2018) enforced in 2013 keeps its focus on this field, as well as the previous one, to achieve the goal of providing equal access to high quality healthcare services. Based on such a background, the RGoB requested to the GOJ “The Project for replacement of Ambulances Phase 2 (hereinafter “the Project”)”.

2-1-2 Overall Goal and Project Goal

The Project aims to improve quality and accessibility of emergency medical services as the overall goal and to enhance the emergency medical service system as the Project goal.

2-1-3 Project Outline

In order to achieve the goals, the Project plans to procure 29 ambulances with on-board equipment for the target facilities according to the Guideline; 19 for replacement and 10 for new deployment. The Project is also designed with consideration of the particular situation of ambulance service in Bhutan about contents of the service, long patient transportation time, geographical situation and etc.

⁸ HHC is responsible for establishing a nation-wide HHC communication system with other medical facilities, centrally managing the allocation of ambulances through the on-board Global Positioning System (GPS), and establishment of free-dial call centers.

⁹ Emergency Medical Services Programme, Department of Medical Services, Ministry of Health, 2013, *Ambulance Service Guideline 2013 First Edition*.

Existing ambulances and on-board equipment are intensively damaged since they have to travel on many unpaved roads in mountainous areas with great differences in altitude. These result in damage of ambulances by temperature and humidity changes, and oscillation. In particular, ambulances that are more than 10 years old must be frequently repaired, and this repair cost is putting pressure on the running expenses of emergency medical service. Moreover, as these ambulances cannot respond to emergency calls while being repaired, some facilities face difficulty in maintaining the emergency medical service. Additionally, due to the increasing number of medical demands and traffic accidents stemming from the growing traffic volume, more facilities are required to have ambulances.

The number of ambulances and the list of on-board equipment under the Project are based on the Guideline and the ambulance deployment plan of the RGoB. The Guideline prescribes the contents of on-board equipment and the number of ambulances to be allocated to medical facilities in Bhutan depending on their grade or size of coverage population; four to six ambulances are allocated to Referral Hospitals, which are superior medical facilities; two to four are given to mid-range medical facilities; one to two for Basic Health Units Grade-I (BHU-I)¹⁰, which are lower range medical facilities. Additionally, allocation of ambulance to Basic Health Units Grade-II (BHU-II)¹¹ shall be decided by the MoH. In total, there are 107 ambulances for the entire country as of July 2014, when the outline design survey (hereinafter “the Survey”) was conducted.

During the preliminary survey that the RGoB conducted to develop the Eleventh Five Year Plan, 48 ambulances were found to be replaced as they were inoperable due to accidents or oldness from more than 10 years of use. Furthermore, it was determined by the MoH that new ambulances needed to be provided to BHU-IIs which located at important traffic sites and/or in remote locations, and had large catchment area or coverage populations. In these circumstances, the RGoB could prepare a part of the total requirement, however, the RGoB still requires 29 ambulances to a total of 28 facilities; 19 replacement and 10 new deployment.

The Survey for the Project found that emergency medical service in Bhutan has characteristics such as long-hours patient transportation, rugged road condition and etc. The Project plans the ambulances and equipment based on the situation in Bhutan. The specification of ambulance and equipment shall be designed according to current situation of emergency medical services.

Through the implementation of the Project, improvement of ambulance and equipment performance will contribute to increase in access to healthcare facilities and the quality of emergency medical services.

¹⁰ At BHU-I, doctors are generally allocated and the catchment area population is more than 5,000.

¹¹ At BHU-II, health assistants provide medical services and the catchment area population is less than 5,000.

(Source: Basic Design Report for the Project of Replacement of Ambulances 2011 and MOH interview record.)

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

(1) Basic policy

The Project will procure ambulances and on-board equipment along with the Guideline to be the same level of existing ones with consideration of current situation of emergency services system and the Project's sustainability. Referring to the Guideline, the specifications of ambulances shall be appropriate as a Japanese Grant Aid Project. Moreover, on-board equipment would be the almost same specification as the ones used for existing emergency medical services. However, on-board medicines are not to be procured through the Project although it is regulated in the Guideline since those are already supplied as a part of medicines in the facilities.

(2) Environmental conditions

Since Bhutan is a mountainous country, the Project plans 4WD vehicles for travelling rough roads. The long-lasting rains in rainy season mix with sediment on unpaved mountain roads, and the subsequent mud prevents vehicles from travelling on these roads. Additionally, as the temperature drops as low as to -4°C in the highlands during winter, ambulances designed for cold areas shall be selected.

(3) Socioeconomic conditions

At the time of the Survey in July, 2014, diesel engine vehicles in Bhutan must meet EURO II emissions standard. The Project plans to procure diesel engine vehicles that are compatible with higher standards: EURO III or EURO IV, as there is a discussion to adopt higher standards in the future.

(4) Procurement

The ambulances and on-board equipment shall be procured from Japan or third countries based on the Grant Aid scheme as they are not manufactured in Bhutan. The procurement condition shall be summarized as shown below.

Ambulance procurement

- a. Vehicles that will form the base of the ambulance shall be manufactured in an assembly line (Marketed product). The ambulance shall be equipped and painted at a certified factory managed by the vehicle manufacturer.
- b. An official agent for the vehicle manufacturer shall be located in Bhutan, so that supply, maintenance, and exchange of periodical replacement parts and consumable goods will be carried out smoothly.

On-board equipment procurement

Considering the economic efficiency of transportation costs, on-board equipment shall be

procured in Japan. To maintain superior product quality, country of origin of the equipment may include European countries and the United States, in addition to Japan.

(5) Operation and maintenance (O&M)

For the Project it is not necessary to plan O&M instructions (by means of a soft component [technical assistance] under the Grant Aid Scheme of Japan) as the ambulances to be procured are the same grade as those used in Bhutan. Manufacturers' official agents as well as repair workshops acquainted with the above vehicles are required to be located in Bhutan for inspection and repair.

As there is no on-board equipment that requires consumables (excluding oxygen for oxygen cylinders) or periodical replacement of spare parts, they shall be procured from manufacturers that have sales dealers in Japan, Bhutan, or India.

(6) Equipment grade

The specifications of the equipment shall be based on the grade of the ambulances and on-board equipment that are currently used in Bhutan.

(7) Overall project term

The term of the Project shall be 12 months after signing the Exchange of Notes (E/N) and the Grant Agreement (G/A). In order to avoid project delays due to landslides and main road traffic closures caused by heavy rain and poor weather, procurement is planned to be completed before the rainy season (from May to September).

(8) Consumables and replacement parts

The oxygen for on-board oxygen cylinders will be supplied by the hospitals in each region. Consumable goods for vehicles are not included in the Project.

2-2-2 Basic Plans (Equipment Plan)

(1) Overall plan

The number of ambulances to be procured by the Project is 29, of which 19 are for replacement of existing ambulances at 18 medical facilities and 10 are new deployment of ambulances at 10 medical facilities. One set of on-board equipment will also be prepared for each ambulance.

1) Confirmation of Request

As more than one year had passed since the request was submitted in May 2013 when the Survey for the Project was conducted, Bhutan submitted a new list of ambulances during the Survey. This new list was submitted as of changed condition of the ambulances after the original list was submitted, and the MoH decided to deploy new ambulances. Additionally, HHC established in 2013 became fully operational, and the emergency medical service system is enhanced further.

The new list has requests for 29 ambulances. 19 existing ambulances need to be replaced and 10 BHU-I and II are to receive new ambulances, of which one BHU-II was on the previous list to have an ambulance for replacement, but the ambulance that was supposed to be replaced has never come to the facility from another facility since it was inoperable and disposed off; hence they still do not have an ambulance and is on the latest list for new deployment.

The ambulances are to be used to transport emergency patients in the service areas to hospitals and transport severely ill patients to superior medical facilities. In Bhutan, some existing ambulances cannot provide sufficient or quality services due to accidents and oldness. Further, it is an urgent challenge for Bhutan to ensure the provision of immediate and appropriate emergency medical services while enhancing its system. To achieve equal access to quality healthcare services as stated in the on-going Five Years Plan and related documents of the MoH, improvement of ambulance service network is also considered as an important factor. In the light of support Bhutan's National Plan, the Project is considered as relevant for implementation.

Detail examination of relevance of each ambulance is explained below.

a. Situation of the existing ambulances to be replaced

For the medical facilities listed below, Bhutan has requested to replace ambulances and on-board equipment that are inoperable or have troubles for smooth operation due to dilapidation and accidents. The replacement request and current condition of ambulances at target facilities are shown in Table 2-1.

The repair costs for an ambulance at these facilities sometimes exceeds 250,000 ngultrum depending on what needs to be repaired and its frequency due to deterioration, frequent failures, and poor functionality stemming from accidents, etc., and this is putting pressure on the management budget of ambulance services. Furthermore, as there is no choice but to ask neighboring medical facilities for help with emergency operations during repair, provisions of immediate emergency medical services are hindered.

Table 2-1 Vehicles targeted for replacement and facilities for allocation

No.	Name of Dzongkhag	Facility Name for Ambulance replaced	Vehicle Type **	model	Mileage *	Status of Vehicle	Existing Number	Quantity requested
1	Dagana	Drugyegang BHU II	L/C Ambulance	2001	268, 400	Repeated breakdown	1	1
2	Gasa	Gasa BHU I	L/C Ambulance	2000	225, 000	Repeated breakdown	1	1
3	Haa	Bali BHU I	L/C Ambulance	2003	135, 149	Repeated breakdown	2	1
4	Mongar	Mongar ERRH ***	L/C Ambulance	2004	N/A	Repeated breakdown	5	1
5		Drematse BHU II	L/C Ambulance	2000	162, 268	Repeated breakdown	1	1
6		Gyelposhing BHU I	L/C Ambulance	2001	364, 000	Repeated breakdown	1	1
7	Paro	Betekha BHU II	L/C Ambulance	2001	258, 154	Repeated breakdown	1	1
8	Punakha	Punakha Hospital	L/C Ambulance	1999	270, 175	Repeated breakdown	1	1
9	Samdrup Jongkhar	Gomdar BHU-I	L/C Ambulance	2000	212, 641	Repeated breakdown	1	1
10		Jomotshangka BHU I	L/C Ambulance	2001	213, 784	Repeated breakdown	1	1
11		Deothang hospital	L/C Ambulance	1998	Abandon	Out of order	1	1
12	Samtse	Dorokha BHU II	L/C Ambulance	2000	262, 585	Repeated breakdown	1	1
13	Sarpang	Gelegphu CRRH ****	L/C Ambulance	2000	245, 052	Repeated breakdown	4	1
14					304, 720			1
15	Zhemgang	Buli BHU II	L/C Ambulance	1999	365, 000	Repeated breakdown	1	1
16	Trashigang	Bartsham BHU II	L/C Ambulance	2001	Abandon	Out of order	1	1
17		Tsangpo BHU II	L/C Ambulance	1999	250, 420	Out of order	1	1
18		Tashigang Hospital	L/C Ambulance	2009	133, 072	Repeated breakdown	2	1
19	Tsirang	Damphu Hospital	L/C Ambulance	2004	222, 855	Repeated breakdown	1	1

Source: HHC data

* The mileages is as of July 2014

** L/C Ambulance : Land Cruiser Ambulance

*** ERRH: Eastern Regional Referral Hospital

**** CRRH : Central Regional Referral Hospital

Table 2-2 shows the allocation status of medical personnel and ambulance performance records at the 18 target facilities. There are many cases in which emergency patients are transported for complication of pregnancy or childbirth, injury, and high fever. In particular, difficult deliveries, severe bleeding at deliveries, injuries, and high fever with nausea require immediate medical attention at superior medical facilities.

Table 2-2 Ambulance service activity status at 18 target facilities

No.	Name of Dzongkhag	Facility Name for Ambulance replaced	Number Medical Staff				Ambulance		
			Doctors	*Health Assisitant	Nurse	EMT	Avrage No. of dispatch /month	Referral Facility	Main cases for transportation
1	Dagana	Drugyegang BHU II	0	3	1	1	6	Punaka Hospital, JDWNRH	peptic stricture, hyper tension
2	Gasa	Gasa BHU I	2	1	1	0	4	Punaka Hospital, JDWNRH	delivery case, swelling (tumor)
3	Haa	Bali BHU I	1	2	6	1	10	PARO Hospital	stroke, fetal disease
4	Mongar	Mongar ERRH	16	4	67	2	30	JDWNRH **	injury, delivery case
5		Drematse BHU II	0	2	0	0	4	Mongar Regional Hospital	high fever, fracture
6		Gyelposhing BHU I	1	2	4	1	4	Mongar Regional Hospital	asthma, delivery case
7	Paro	Betekha BHU II	0	3	0	0	4	PARO Hospital	abortion, injury
8	Punakha	Punakha Hospital	6	7	14	2	15	JDWNRH	head injury, Abnormal pregnancy
9	Samdrup Jongkhar	Gomdar BHU-I	0	1	1	0	5	Samdrup Jongkhar Hospital Mongar Regional Hospital	rabies fracture Abnormal pregnancy
10		Jomotshangkga BHU I	1	2	4	1	3	Samdrup Jongkhar Hospitals	premature delivery, ALD case ***
11		Deothang hospital	2	3	16	0	6	Mongar Regional Hospital	high fever, delivery case, injury
12	Samtse	Dorokha BHU II	0	1	2	2	5	JDWNRH	pneumonia, premature delivery
13	Sarpang	Gelegphu CRRH	15	15	48	2	25	JDWNRH	fall injury, ALD case Abnormal pregnancy
14			15	15	48	2	25	JDWNRH	fall injury, ALD case Abnormal pregnancy
15	Zhemgang	Buli BHU II	0	3	0	0	5	Gelegphu CRRH, JDWNRH	asthma,high fever, Chest disease
16	Trashigang	Bartsham BHU II	0	1	2	0	4	Trashigang Hospital	fall injury, diabtes
17		Tsangpo BHU II	0	1	0	1	3	Trashigang Hospital	asthma, delivery case
18		Tashigang Hospital	7	3	19	2	16	Monger ERRH Hospital	post dated delivery, prolonged labor
19	Tsirang	Damphu Hospital	2	3	16	2	6	Gelephu CRRH JDWNRH	fracture, premature delivery

Source: the preparatory survey team

* Health assistant include Basic Health Worker

** JDWNRH: Jigme Dorgi Wanchuku National Referral Hospital

*** ALD: Alcoholic Liver Disease

b. Assessment of additional requests for ambulance

In addition to the aforementioned replacement of existing ambulances, the RGoB requested allocation of 10 ambulances to BHU-I and BHU-II as shown in Table 2-3 while the preparatory survey team (hereinafter “the Team”) was dispatched to Bhutan in July, 2014.

Table 2-3 Additional requests and ambulance status at target facilities
and quantity requested to be procured by the Project.

No.	Name of Dzongkhag	Facility Name for New Ambulance to be procured by the Project	Number of Ambulance Existing	Quantity requested to be procured by the Project
20	Wangduephodrang	Kamichu BHU II	0	1
21	Tsirang	Burichu II	0	1
22	Haa	Sombekha BHU II	0	1
23	Chhukha	Bongo BHU II	0	1
24	Pemagatshel	Nanong BHU II	0	1
25	Trongsa	Tongtongphey BHU I	0	1
26	Sarpang	Chhuzagang BHU I	0	1
27	Tashigang	Khaling BHU I	0	1
28	Chukha	Khatikha BHU I	0	1
29	Wangdi Phodrang	Sephu BHU II	0	1

Source : Additional request form and the outline design survey (2014, July)

BHU-Is serve populations of more than 5,000 people, and have doctors. They have been recommended to have an ambulance since before the Guideline was developed. Of the BHU-Is targeted for ambulance allocation by the Project, three were supposed to have an ambulance already but have not been installed as they were considered as the lower priority than other BHU-Is due to the limited budget of the MoH. However, in accordance with the enactment of Guideline at the end of 2013, further development of the ambulance service system was listed as an urgent issue, and it was requested that these facilities have an ambulance allocated by the Project.

In contrast, BHU-IIs generally service populations of less than 5,000 and doctors need not to be allocated. According to the Guideline, ambulance must be provided to them when the MoH verifies the necessity.

The facilities which have the ambulances procured under the Project meet some of or all of the

following conditions:

1. Located at an important traffic site
2. Located in a remote location
3. Has a large catchment area or coverage population

The MoH aims to allocate ambulances to BHU-IIs that meet any of these conditions and therefore requested new allocation of ambulances, including six BHU-IIs, to the Team.

Criteria for BHU-II to allocate ambulances by the MoH	
1. Important locations	Facilities that are located along national roads where there are many emergency patients due to traffic accidents and have a high need of an ambulance
2. Remote locations	Facilities that are geographically remote from other medical facilities with ambulances and cannot easily provide immediate medical services.
3. Large catchment area and coverage population	<ul style="list-style-type: none"> • BHU-IIs that also provide the area and population with emergency medical services as well as BHU- I . • Facilities that expect an increase in population in the target area to provide emergency medical services and more requests for emergency operations due to the regional development projects.

Source: Interview with the MoH

The following table shows consistency with the status of the target facilities for the Project that were additionally requested and the ambulance allocation criteria.

Table 2-4 Consistency with the status of the target facilities for the Project that were additionally requested and the ambulance allocation criteria

Map number ⁱ	Medical facility name	Applicable allocation criteria	Validity and reason for new allocation
20	Kamichu BHU II	1, 2, 3	Although the coverage population is about 4,500 people in the area, it also covers neighboring area since there is no BHU-I in the surrounding area and it offer BHU-I medical services. Therefore, the MoH is considering upgrading Kamichu BHU-II to BHU-I. There is high demand for emergency call-outs from traffic accidents attributable to poor road conditions, and the facility is on a main road. Also, traffic is increasing due to construction of a hydroelectric power station.
21	Buricchu BHU II	1, 2, 3	Although the coverage population is about 4,000 people in the area, it offers same services as BHU-I for neighboring area since there are no BHU-I in the district. Therefore, the MoH is considering upgrading Buricchu BHU-II to BHU-I. In addition to the facility being located on a main road, traffic volume is increasing due to the construction of a hydroelectric power station, and traffic accidents are increasing due to poor road conditions. Therefore, the MoH has decided to allocate an ambulance to this facility even though it is a BHU-II.

22	Sombekha BHU II	2	The facility is located in a mountainous area at an altitude higher than 3,500m in the southern part of the district. There is another BHU-II nearby, but it does not have any ambulances. Currently two ambulances on standby at the district government office fulfill the needs for this area. However, driving conditions are poor due to the unpaved roads. Further, as the ambulance passes through mountains of about 4,000m altitude on the way to pick up patients, it takes approximately three hours to reach the patients, which is the average time for ambulances to arrive in Bhutan. Nonetheless, it is necessary for patients to be transported in a short time in emergencies. It is estimated that pick up time may be reduced by 20-30%, but it depends on the situation. Although the population in the coverage area is about 1,550 people, the MoH concluded that an ambulance must be allocated even though the facility is a BHU-II as it is geographically distant from the emergency medical service system.
23	Bongo BHU II	2	This facility is located in the south-east of the district at an altitude of not less 3,000m and away from a main road. Despite a total of nine ambulances allocated to the district at three hospitals (of which two experience frequent faults), it is difficult for these ambulances to respond to emergency calls. There are many instances of transporting patients to superior medical facilities in neighboring India, and they cannot respond immediately as it takes time to arrive due to poor conditions of the roads. Although the population benefitting in this area is only about 1,800 people, the MoH determined that the need for an ambulance is high as this facility is the axis of emergency medical service in the area, covering three neighboring BHUs and one sub-post which is the lower health facility than BHU-II.
24	Nanong BHU II	2	This facility is located in the mountainous northern area of Pemagatshel District. The population benefitting from this facility is about 2,800 people. However, there are no facilities with an ambulance and it takes three to four hours for ambulances to arrive after the emergency call and demand of ambulance services are increasing due to aging of the population in remote location. As it is important for the local residents to have an immediate emergency response, there is a high necessity of ambulance allocation.
25	Tongtongphey BHU I (to be upgraded from BHU-II)	2	The population benefitting from this facility is about 4,470 and it is being considered for an upgrade to a BHU-I, but it does not have an ambulance. There is also no facility in the vicinity that has an ambulance. Thus, it makes sense that this BHU is upgraded to a BHU-I with doctors that many patients rely upon and that ensures an emergency lifeline for almost 5,000 local residents.
26	Chhuzagang BHU I	2	The population benefitting from this BHU-I facility is about 6,800 people. Although it does not have any ambulances, an ambulance must be allocated to this facility according to the Guideline. As there are no facilities that have ambulances in the vicinity there is a high need and relevance for this facility to be allocated an ambulance.

27	Khaling BHU I	1, 2	The population benefitting from this facility is about 2,800 people. It does not have an ambulance though an ambulance needs to be allocated to this facility according to the Guideline. Further, as this facility is positioned at an important traffic location along a national road that connects Trashigang, where the border with India and there is no facility that has an ambulance in the vicinity, there is a high demand to bring patients to this facility.
28	Khatikha BHU I	2	The population benefitting from this facility is about 5,550 people. It is located in a mountainous area and takes an hour and thirty minutes on average to the main road between the capital and Phuentsholing. There are no facilities in the area that have an ambulance, and sometimes they have to request one from Phuentsholing, which takes the ambulance more than three hours to arrive at this facility. Additionally, as it is a BHU-I, it needs to have an ambulance according to the Guideline. Considering the speed and efficiency of the emergency medical service, an ambulance should immediately be allocated to this facility.
29	Sephu BHU II	1, 2	As this facility is located along a trekking route at an altitude higher than 3,000m, there are many patients with altitude sickness which most of cases require transferring to higher level medical facility. Further, many patients from traffic accidents are transported to this facility as it is located along a main road. The facility lies almost halfway between the Trongsa Hospital run by the government office and Eusa BHU-I (ambulance allocation scheduled) in the district. Although there are three ambulances allocated to a hospital in the district 80 km away, sometimes it takes more than three hours for the ambulance to arrive after the call, which does not satisfy swift ambulance response. Considering it is closer to the main road than Eusa BHU-I and has easy access to superior medical facilities, Sephu BHU-II located more near than Eusa BHU-I to Trongsa Hospital relevance in allocating an ambulance to Sephu BHU-II is high for quick response for the needs.

Source: Interview with the MoH

(2) Equipment plan

Before 2011, the medical facilities in each district and region decided dispatch of ambulances. Later, based on the concept that all citizens in Bhutan should be eligible to access and receive medical services equally, the HHC was formed in 2011 and all ambulances were placed under the control of the HHC to conduct emergency medical activities in accordance with the Guideline.

There are two types of ambulance services in Bhutan: care and transportation of emergency patients, and transportation of patients to superior medical facilities. 80% of emergency patients are pregnant or injured in traffic accidents, have a high fever or altitude sickness¹². To care for and transport patients to hospitals and to superior medical facilities, a round trip takes at least two hours, or two to four days for remote places. The Survey found that the number of ambulance call-outs at target facilities was four to six times per month, and the duration of ambulances in use for about half of the month since period of one dispatch is for several days.

Meanwhile, the Guideline regulates that an Emergency Medical Technician (EMT) rides in

¹² Based on interviews conducted during the outline design survey.

ambulances for treatment of IV drip, respiratory support, hemostat, and etc. during patients' transport. However, the total number of EMTs allocated in the entire country is 64¹³ among 107 ambulances. At facilities without EMTs, qualified medical personnel, such as doctors, nurses and health assistants (HA), who work in the medical facility takes care of the patient in the ambulances or drivers who are trained for basic emergency medical care substitute for EMTs. At the time of the Survey was conducted, for the transportation of critical patients, such as those bleeding heavily, a BHU's HA or nurse rides in ambulances based on the assessment and instructions of the HHC that received the call. The Team found that at one BHU where the Team visited, once or twice the aforementioned medical staff has to ride in the ambulance¹⁴ among seven to eleven emergency cases per month. As medical care is required to be given by medical staff during transportation of emergency patients, it is necessary that the seats of these staffs are positioned sideways (to face patients).

1) Specifications and grades of ambulances based on the current ambulance services

The Project shall plan ambulance grade and specifications as shown below based on the current situation of ambulance services and its operation in Bhutan;

Ambulance specifications and grades

a. Fuel-efficient Diesel engine vehicles

The Project plans to procure diesel engine vehicles since they are superior to gasoline engine vehicles in fuel efficiency and suitability for driving on mountain roads/trails. Additionally, the Project sets the emission standards of those vehicles as EURO III or higher standards although vehicles imported to Bhutan are required to meet EURO II at the time of survey in 2014. According to Road Safety and Transport Authority, vehicle emission standards regulated in Bhutan will be changed by January 2016 after the analysis of data collected from vehicle emission tests during the year 2014.¹⁵ The present vehicle emission standards were also introduced in January 2005¹⁶ from which almost ten years have passed; the Chief Officer in National Environment Commission in Bhutan mentioned a strong possibility to produce stricter regulations on vehicle emission standards around the time of vehicle procurement through the Project. Therefore, the Team concluded to apply EURO III or higher standards instead of EURO II for the ambulances to be procured in the Project in consideration with the current aforementioned situation in Bhutan.

b. Suitable for mud /off-road 4WD ambulance

As ambulances mostly operate in remote mountainous areas distant from hospitals, most roads are unpaved roads. Therefore, in the rainy season, road conditions are very poor due to floods and

¹³ This number of EMTs was confirmed during the Preparatory Survey in July, 2014.

¹⁴ Based on interviews conducted during the Survey.

¹⁵ Based on an interview conducted in November 2014.

¹⁶ Source: National Environment Commission, 2010, Strategy for Air Quality Assessment and Management in Bhutan.

mud. Hence, a 4WD ambulance is procured to get out if it gets bogged down.

c. Vehicles with seats for medical staff that face patients

According to the Guideline, one medical staff, such as an EMT, must ride in the ambulance during transporting patients. One attendant with the patient may also ride in the ambulance as mentioned in the Guideline. Since medical staff must constantly observe patients during the long transportation and give treatment and care, the seats should be sideways along with the stretcher for EMTs to work comfortably.

d. Vehicles that have a sufficient ceiling height of the patient compartment

In addition to the transportation of emergency patients, ambulances are also used to transport patients to superior medical facilities. As per the Guideline, an EMT/qualified health personnel provides standard emergency medical care to patients during transportation, the ceiling should preferably be high enough to ensure working space. There are also many patients with addictions, high fevers, and altitude sickness who need to be on a drip during emergency transportation. For an adequate drip, it is necessary to ensure a distance of more than 580mm from a surface of the stretcher on which the patient lays to an end of the drip bag hook attached on the compartment ceiling (from the end of the drip bag hook to its outlet: 230mm; from the drip bag outlet to an injection site: 200mm; from the injection site to the stretcher surface: approximately 150mm). Therefore, the patient compartment needs to have enough ceiling height for drip treatment.

2) Ambulance and on-board equipment allocation plan

Ambulances

The ambulances shall be procured as requested in consequence of review of the final request from the RGoB.

Table 2-5 Ambulance allocation list

• Facilities for Ambulance replaced

• Facilities for Ambulance Newly procured

No.	Name of Dzongkhag	Facility Name for Ambulance replaced	Quantities Requested	Quant.to be procured	Reason for procurement	No.	Name of Dzongkhag	Facility Name for New Ambulance procured	Quantities Requested	Quant.to be procured	Reason for procurement
1	Dagana	Drugyegang BHU II	1	1	Replacement	20	Wangduephodrang	Kamichu BHU II	1	1	Replenishment
2	Gasa	Gasa BHUI	1	1	Replacement	21	Tsirang	Burichu II	1	1	Replenishment
3	Haa	Bali BHU I	1	1	Replacement	22	Haa	Sombekha BHU II	1	1	Replenishment
4	Mongar	Mongar ERRH	1	1	Replacement	23	Chhukha	Bongo BHU II	1	1	Replenishment
5		Drematse BHU II	1	1	Replacement	24	Pemagatshel	Nanong BHU II	1	1	Replenishment
6		Gyelposhing BHUI	1	1	Replacement	25	Trongsa	Tongtongphey BHUI	1	1	Replenishment
7	Paro	Betekha BHU II	1	1	Replacement	26	Sarpang	Chhuzagang BHUI	1	1	Replenishment
8	Punakha	Punakha Hospital	1	1	Replacement	27	Tashigang	Khaling BHUI	1	1	Replenishment
9	Samdrup Jongkhar	Gomdar BHU-I	1	1	Replacement	28	Chukha	Khatikha BHUI	1	1	Replenishment
10		Jomotshangka BHUI	1	1	Replacement	29	Wangdi Phodrang	Sephu BHU II	1	1	Replenishment
11		Deothang hospital	1	1	Replacement	Total Quantity		29	29		
12	Samtse	Dorokha BHU II	1	1	Replacement						
13	Sarpang	Gelegphu CRRH	1	1	Replacement						
14			1	1	Replacement						
15	Zhemgang	Buli BHU II	1	1	Replacement						
16	Trashigang	Bartsham BHU II	1	1	Replacement						
17		Tsangpo BHU II	1	1	Replacement						
18		Tashigang Hospital	1	1	Replacement						
19	Tsirang	Damphu Hospital	1	1	Replacement						

Source: The Final request from the RGoB and outline design survey

On-board equipment

Only patients in stable condition are transported to superior medical facilities for advanced care, and patients in shock are not transported. Therefore, advanced medical equipment is not required to be on-board. Based on this situation, on-board ambulance equipment is set in the standard list of equipment in the Guideline (see Table 2-6 in page 17). These devices are used to check patient’s biological information (heartbeat, breathing, blood pressure, body temperature, and pupil reaction), ensure an airway, cardiac resuscitation, emergency childbirth, oxygen inhalation, wound treatment,

splint for injured long epiphysis, attachment of equipment to restrict spinal movement, care for vomiting and hemoptysis, assisting defecation and urination, and wound treatment, such as hemostasis and changing dressings, all of which is included in the EMT's range of duties. In particular, oxygen cylinders should have the same size and volume in specification as those generally used in Bhutan, and the oxygen filling bulb should also be compatible with the conventional specification of those used in Bhutan.

In this project, the on-board equipment mentioned above, availability of the procurement was considered in the following three aspects.

1. Equipment to be deployed as ambulance component.(BP machine, Oxygen cylinder, etc)
2. Equipment supplied as a set of similar products.(Respirator bag, Urinal pan, etc)
3. Equipment that are able to be procured in Bhutan side.(Scissors, Forceps, etc)

The procurement plan is summarized in Table 2-6 in the next page. This equipment is already used as on-board ambulance equipment in Bhutan, and service and maintenance systems are established already.

Although the following equipment is also described as standard equipment in the Guideline, they are not targeted for the Project because of the following reasons.

✧ **Glucometer**

Glucometers from certain manufacturers are commercially available in Bhutan. Because the unit cost of the equipment is as low as about 5,400 ngultrum (about 10,000 yen), it is more advantageous cost-wise to replace malfunctioning or damaged units than to repair them. For this reason, there are no local agents specializing in maintenance. In addition, when this equipment is used in procedures on-board an ambulance, it is customary that the personnel from medical facilities bring the units they have and use them. The exclusion of this equipment from the assistance project therefore will not have major impact on the medical services provided in ambulances.

On the other hand, glucometers from any manufacturer require test strips as a consumable. Because specifications dictate that a particular model must be used with particular test strips, an additional budget and expenditure will be needed on the Bhutanese side, if the glucometers provided in the Project are of a model different from the existing equipment. However, because it is impossible to procure this equipment specifying a particular model from the standpoint of ensuring competitiveness, there will be inevitable cost for the procurement of consumables on the Bhutanese side. It is therefore considered appropriate to exclude this equipment from the procurement in the Project.

✧ **Automated External Defibrillator (AED)**

AED is effective as life-saving procedures in ventricular fibrillation and other heart failure conditions, and can be used by an ordinary person. On the other hand, it requires periodical

replacement of batteries and electrode pads. Although this equipment requires this regular maintenance, there are no local agents that can provide periodically replaced parts and maintenance. The prevalence of AED is as low as 8 units in the country (including 2 or 3 in ambulances). Although we discussed with the Bhutanese side during planning of the Project on the possibility of establishing a maintenance system using the manufacturer's agent in India, we did not reach an agreement. The procurement of periodically replaced parts is an essential requirement for the use of this equipment. Specifically, it needs replacement of electrode pads at intervals of 1.5 years and batteries at intervals of 2 years. For this reason, AED is excluded from the procurement in the Project.

Table 2-6 On-board equipment recommended by the Guideline

No.	Name of Equipment	Standard quantity	Result of analysis	Quantities to be procured
1)	Scoop Stretcher	1	To be procured by Japanese side.	1
2)	Spine Board with Cervical Immobilizer	1	To be procured by Japanese side.	1
3)	Suction Apparatus (AC/DC, Manual)	1	To be procured by Japanese side.	1
4)	Pulse Oxymeter	1	To be procured by Japanese side.	1
5)	Pupillary Torch	1	To be procured by Japanese side.	1
6)	BP Apparatus (Aneroid)	1	Equipped with Ambulance.	1
7)	BP Cuff for Pediatric	1	Equipped with Ambulance.	1
8)	Short Spine Board	1	To be procured by Japanese side.	1
9)	Stethoscope	1	Equipped with Ambulance.	1
10)	Thermometer (Digital)	1	To be procured by Japanese side.	1
11)	Resuscitation Bag, Adult, silicon	1	To be procured by Japanese side. 11),12) will be set. (Face mask, canula Air way included)	1
12)	Resuscitation Bag, child	1		1
13)	Bed Pan, Stainless steel	1	To be procured by Japanese side.	1
14)	Kidney tray, Stainless steel	1	To be procured by Japanese side.	1
15)	Sputum Cup	1	To be procured by Bhutan side.	0
16)	Artery forceps, couved 6"	1	To be procured by Bhutan side.	0
17)	Dissecting Forceps, 6"	1	To be procured by Bhutan side.	0
18)	Urinal	1	This will be set with equipment 13)	1
19)	Bandage Scissors	1	To be procured by Japanese side.	1
20)	Splint and Traction	1	To be procured by Japanese side.	1
21)	Oxygen Cylinder with Stand	1	Equipped with Ambulance	1
22)	Oxygen regulator with flow meter	1	Equipped with Ambulance.	1
23)	Adjustable Cervical Collar	1	To be procured by Japanese side.	1
24)	Tourniquet	1	To be procured by Japanese side.	1
25)	Gulcometer with strips	1	Procurment of this item will be not considered.	0
26)	Scissors, Small, 7"	1	To be procured by Bhutan side.	0
27)	Automated External Defibrillator (AED)	1	Procurment of this item will be not considered.	0

(3) Major equipment

Table 2-7 and 2-8 shows the major equipment and Main On-Board Equipment to be procured by the Project.

Table 2-7 Main specifications of equipment to be procured and its purpose of use

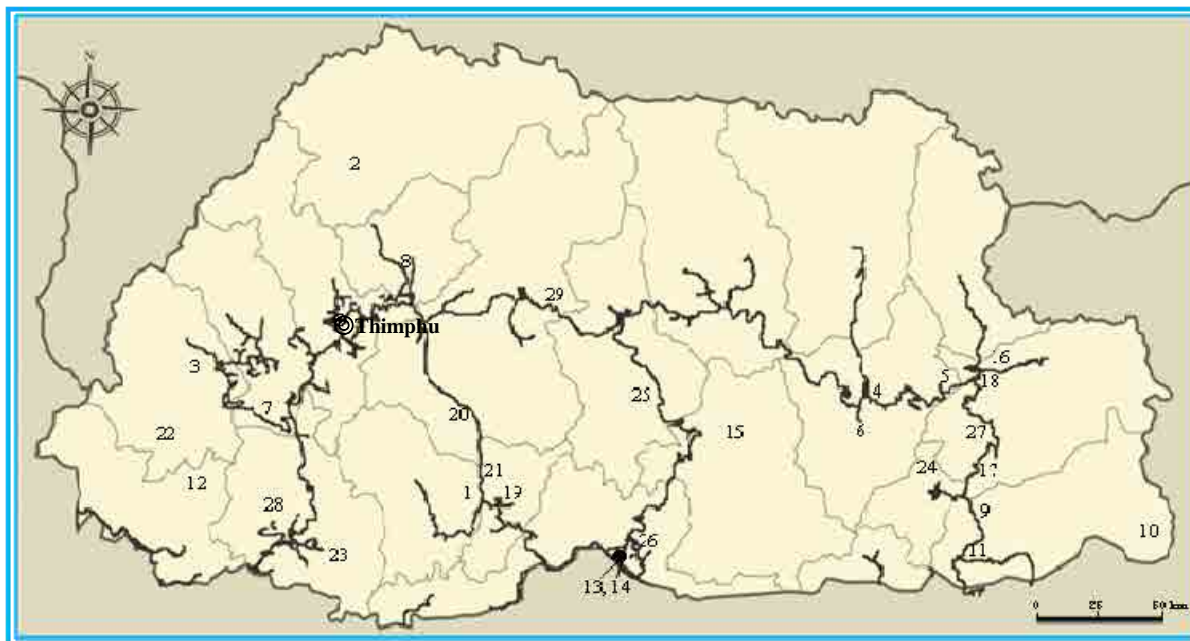
Equipment	Main Specification	Purpose for use	Quantity
Ambulance	2 box model, 4 wheel drive, diesel engine, right handle	For transportation of emergency patient to referral hospital.	29

Table2-8 Main On-Board Equipment

Name of Equipment	Quantity	Name of Equipment	Quantity
Scoop Stretcher	29	Thermometer	29
Spine Board with Cervical Immobilizer	29	Resuscitation Bag (Adult and Pediatric)	29
Suction Apparatus (Footpump type)	29	Tourniquet	29
Pulse Oxymeter	29	Splint and Traction	29
Short Spine Board	29	Adjustable Cervical Collar	29

2-2-3 Outline Design Drawing (Map of the target facilities)

Figure 2-1 in the next page shows the target site locations in the Project.



Ambulances to be replaced		Ambulances to be newly deployed	
1	Drugyegang BHU II	20	Kamichu BHU II
2	Gasa BHU I	21	Buricchu BHU II
3	Bali BHU I	22	Sombekha BHU II
4	Mongar ERRH*	23	Bongo BHU II
5	Drematse BHU II	24	Nanong BHU II
6	Gyelposing BHU I	25	Tongtongphey BHU I
7	Betekha BHU II	26	Chhuzagang BHU I
8	Punakha Hospital	27	Khaling BHU I
9	Gomdar BHU I	28	Khatikha BHU I
10	Jomotshangkha BHU I	29	Sephu BHU II
11	Deothang Hospital		
12	Dorokha BHU II		
13	Gelegphu CRRH**		
14	Gelegphu CRRH**		
15	Buli BHU II		
16	Bartsham BHU II		
17	Tsangpo BHU II		
18	Trashigang Hospital		
19	Damphu Hospital		

* Mongar Eastern Regional Referral Hospital
 ** Gelegphu Central Regional Referral Hospital
 © Thimphu

Figure 2-1 Site location map

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

As for the execution of work in the Project, the work plan is formulated with attention to the following items and to that the Project is implemented in accordance with the framework of the Grant Aid scheme of the Government of Japan.

- i The implementation plan is investigated among personnel in charge of the implementation institution of the RGoB, the Project consultants of Japanese side, and equipment supplier. Afterward, the range of work of the Japanese side and Bhutanese side, and the timing of commencement of each process are set. Each period of work of both sides is adjusted to be efficient for smooth implementation.
- ii To minimize the term of work, the supplier investigates delivery point, Jigme Dorgi Wanchuku National Referral Hospital (hereinafter “JDWNRH”) in Thimphu, by two months before the delivery of the equipment, checks the route of entry of ambulances, parking spaces, and ensures the security condition of facilities. In addition, it prepares the schedules for installation of and setting up the equipment, before starting the actual work.
- iii As for equipment requiring training/guidance for operation and maintenance, the manufacturer and/or his representative implements the initial operation guidance/training for equipment operators in Bhutan.

2-2-4-2 Implementation Conditions

In the selection of vehicle type, it is essential to procure the one made by a manufacturer that has its authorized agent in Bhutan since spare parts and consumables have to be stably procured when an ambulance needs to be repaired and changed its spare parts due to accidents and aging. Those parts are supposed to procure through the State Trading Cooperation of Bhutan Ltd. (STCB), which is the national procurement organization, as standard procurement procedure.

2-2-4-3 Scope of Works

The table in the following page shows the scope of works taken by both Japanese and Bhutan sides.

Table 2-9 Major undertakings to be taken by Japanese and Bhutan side.

	Item	Japanese Side	Bhutan Side
1	Commission of the Japanese Bank		
	(1) Advising Commission of A/P		●
	(2) Payment Commission		●
2	Procurement of materials and equipment, marine/air transportation, unloading, customs clearance, domestic transportation		
	(1) Procurement of planning equipment	●	
	(2) Transportation cost to Bhutan from third country or Japan by airplane or ship	●	
	(3) The measures of custom clearance of the materials and equipment at the port of disembarkation		●
	(4) Domestic transport to the equipment delivery site from the port of disembarkation	●	
	(5) Adjustment of vehicles, a test drive/ technical guidance of maintenance and inspection	●	
	(6) Domestic transport from the equipment delivery site to the Project site		●
3	Procedures and necessary budget allocation relating to the tax exemption and customs duties; the Green Tax are to be borne by the RGoB; customs duties and Sales Tax exemption will be processed by the MoH; other internal taxes are under the responsibility of the RGoB, if any.		●
4	Procedures for registrations of the ambulances procured in the Project		●
5	To accord Japanese physical persons and / or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
6	Ensure the proper use of equipment procured by Grant Aid		●
7	Bear other necessary expenses for implementation of the Project		●

In addition, the ambulances will be delivered at the capital, Thimphu, in Bhutan. To the target facilities in 28 sites, ambulances shall be delivered in the responsibility of the MoH.

2-2-4-4 Consultant Supervision

1) Implementation system

The project is implemented by the following four parties, from i. to iv.

i. Project Executing Agencies

The responsible agency is the MoH of Bhutan, and the implementation agency is Department of Medical Services, the MoH.

ii. Consultant

Since the Project is implemented through the Japanese Grant Aid, the Japanese consultant makes guidance, advice, and coordination throughout the stages of bidding/procuring on a fair basis, in accordance with the contracts with the implementation agency in Bhutan and performs necessary works to promote smooth implementation of the Project. Specific works are as follows.

- Confirmation of Tender documents

Checking tender documents for equipment procurement (tender conditions, equipment specifications, form of bidding price and etc.)

- Support of bidding/supplier's contracts

Decision of procuring contract system, preparation of procuring contract draft, confirmation of equipment supply work document, selection of supplier (tender announcement, bidding and bid evaluation, contract negotiation and contract witnessing)

- Examination and approval of manufacturing and delivery plans

Examination and approval of equipment specification and procurement plan submitted from the supplier

- Procurement progress report

Supervising and reporting of procurement progress to the MoH and related agencies

- Cooperation for payment approval procedure

Cooperation for related to payment to be made after shipping, i.e. content investigation and procedure of bills, and etc.

- Consultant works for procurement

Supervision of various operations from commencement to completion of the works

iii. Equipment Supplier

The equipment is procured by a Japanese equipment supplier selected through tendering. The equipment supplier is in charge of equipment manufacturing, supplying and delivering in accordance with the contract concluded with the Bhutan side, and giving guidance on initial operation and maintenance/management of the equipment to the Bhutan side before delivery.

iv. Japan International Cooperation Agency (JICA)

JICA gives advises the consultant to conduct the Project properly in accordance with the scheme of the Grant Aid. In addition, it would have discussions with the MoH, if necessary, to facilitate the implementation of the Project.

2) Personnel plan

Those who are engaged in the consulting work as to the implementation design and the procurement supervision are as follows:

- i. Project Manager (Procurement Supervision Engineer) (Japanese consultant): one person
- ii. Resident procurement supervision engineer (Japanese consultant): one person
- iii. Inspection engineer (Japanese consultant): one person

2-2-4-5 Quality Control Plan

The model of an ambulance will be selected in correspondence with the cold climate in Bhutan.

The equipment shall be the products comply with the international standards such as Japan Industrial Standard (JIS), British Standard (BS), Deutsches Institut für Normung (DIN), Food and Drug Administration (FDA) and etc.

The manufacturing plant of equipment to be installed ambulances shall be the product corresponding to the criteria in the ISO13485 of the medical equipment quality control standards or the Pharmaceutical Affairs Act of Japan, Good Manufacturing Practice (GMP) or Good Quality Practice (GQP), in case of Japanese made.

2-2-4-6 Procurement Plan

(1) Countries for the equipment procurement

In principle, the equipment will be Japanese or Bhutan origin. However, the procurement from third countries which meet a condition among i. to iv., shall be accepted.

- i. In case that the equipment supposed to be procured has not been manufactured in Japan;
- ii. In case fairness of tender may not be ensured due to the restriction of the procurement from Japan or Bhutan, even the equipment is manufactured in either country;
- iii. In case of no economic rationality due to an extreme price increase of the transportation costs, by limiting to Japanese products; or in case that the effect of the Project is reduced because of the absence of agents and/or difficulty of maintenance and;
- iv. In case there are unavoidable circumstances, including urgency of procurement.

(2) Suppliers of spare parts

It shall be planned that the Project is to procure products of manufacturers, whose distributing agents exist in Bhutan and periodical replacement parts can be easily obtained in the domestic market of Bhutan.

(3) Method of delivering equipment

The equipment will be transported to the delivery site of JDWNRH in Thimphu by land, after passing through the customs at Kolkata sea port in India, and through customs at Phuentsholing in

Bhutan. During ocean transportation, the equipment shall be kept in containers to prevent from damage.

(4) Initial operation guidance/ management guidance plan

The drivers and medical staffs of each target facility will be summoned to the delivery site of JDWNRH at the time of ambulance delivery, and the engineer from the equipment supplier shall conduct the initial operational and management guidance.

2-2-4-7 Soft Component (Technical Assistance) Plan

Including ambulances, all equipment planned for procurement in the Project is currently operated at medical facilities in Bhutan. There is no need for the provision of soft components such as management and maintenance in connection to the implementation of the Project.

2-2-4-8 Implementation Schedule

1) Implementation Schedule

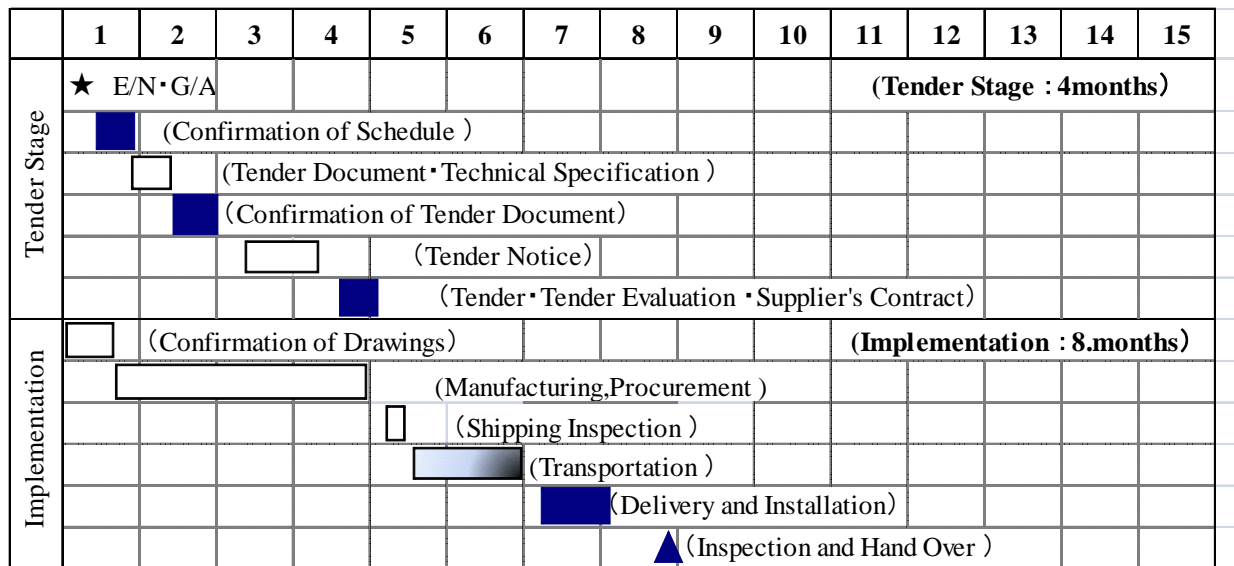
After the Cabinet Approval of the Government of Japan, the Project shall be conducted according to the following procedures:

1. Signing of the Exchange of Notes (E/N) between both governments, and conclusion of the Grant Agreement (G/A) between JICA and the RGoB.
2. Arrangements on payment of the Japanese Grant Aid for the Project between the responsible agency and a bank in Japan (Banking Arrangement; B/A).
3. Conclusion of consultancy agreement between the responsible agency and a consultant in Japan.
4. Issuance of the written Authorization to Pay (A/P) to the consultancy contract by the responsible agency.
5. Verification of the above contract in 4. by JICA.
6. Preparation of tender documents by the consultant.
7. Approval of the tender documents by the responsible agency and preparation for tendering by the consultant.
8. Implementation of tender, and evaluation of tender proposal.
9. Conclusion of equipment supply contract between the responsible agency and the Japanese equipment procurement supplier.
10. Verification of the equipment supply contract by JICA.
11. Guidance in issuing A/P by the consultant for contract between the responsible agency and the equipment supplier

12. Equipment inspection by the responsible agency (If necessary, the consultant that witnesses an inspection of the equipment before shipment from factory, approves as the acting responsible agency.).
13. Confirmation and adjustment of the schedule for equipment installation by the consultant.
14. Procurement management (Under the compliance with the contract, an inspection and approval of the equipment specification and the equipment, supervision and instruction of the inland-transport, and an oversight of the major undertakings by the recipient country are conducted by the consultant as a surrogate of responsible agency.)
15. Process management (The consultant manages the process to complete the procurement equipment contract within the period stated in the E/N, and gives necessary instructions to equipment suppliers.).
16. Commissioning and delivery inspection (The consultant conducts inspections of a commissioning and the equipment procurement to verify whether the quality described in the specifications is warranted, and submits a certificate of completion of inspection to the responsible agency.)
17. Complete and delivery of equipment.

2) Implementation period

Implementation schedule of the Project after the signing of the E/N is indicated in the figure 2-2.



■ Work in Bhutan

□ Work in Japan

Figure 2-2 Implementation Schedule

2-3 Obligations of Recipient country

Obligation of Bhutan side on the implementation of the Project is as follows.

- 1) To provide a site in the JDWNRH facility as a temporal office, during the implementation period of the Project,
- 2) To provide necessary convenience for prompt discharge, customs clearance, domestic transport of the equipment being imported in the Project,
- 3) To provide a temporal storage site for the ambulances to be procured in the Project,
- 4) To conduct promptly the procedure of vehicle registration for the ambulances to be procured in the Project,
- 5) To exempt the Japanese residence in Bhutan for the duty of the Project from the custom duties and other taxes,
- 6) To provide necessary convenience and ensure the safety to the Japanese nationals who work for the supply of the necessary equipment and services for the implementation of the Project,
- 7) To pay bank commissions for arrangement of payment such as A/P,
- 8) To maintain and manage the procured equipment by the Grant Aid adequately and effectively, and use them property. Also ensure the necessary budget, and enough personnel for the implementation of the Project,
- 9) To maintain and manage the equipment procured by the Grant Aid adequately and effectively. In addition, to report the situation of usage and maintenance condition of equipment to the Japanese government, periodically,
- 10) To bear all the expenditure including the customs duty, the sales taxes, the green taxes and etc. that cannot be covered by the Japanese Grant Aid for implementation of the Project.

2-4 Project Operation Plan

(1) Human resources

MoH has to allocate the necessary personnel for the Project. In regard to the ambulances to be replaced, complement of personnel is not necessary since those facilities have minimum required personnel to operate them. However, the facilities where there will be new ambulances will require array of the drivers by the Dzongkhags. Additionally, it is necessary to allocate EMTs or qualified health personnel to those facilities which have only minimum personnel for efficient use of the equipment, although the Team evaluated the newly deployed ambulances would be utilized properly with current number of personnel as other facilities already have ambulances.

The Team concluded that there are no problems on the supply of emergency services since health personal has already been deployed as planned to the facilities to which new ambulance are expected to be procured. The Team also determined that there are no problems that between the Ministry of Health and District Health offices which exercises jurisdiction over the targeted facilities, it has been confirmed that the implementation of an arrangement of driver deployment.

As of November, 2014, it is still under discussion who to offer pre-hospital care in the ambulances and the training to develop new EMTs has been postponed; EMTs as pre-hospital care professionals who finish higher level education on the basic life support while they are trained by the three-month courses; existing qualified health personnel such as doctors, nurses and HAs to be capable of pre-hospital care in the ambulances with necessary training. For further improvement of emergency medical services, it is necessary to consider developing human resources for pre-hospital care.

(2) Equipment maintenance/management plan

The maintenance of the ambulances to be procured through the Project will be conducted as contract basis as same as currently engaged with private workshops and MoH or Health Department of each district. It is the MoH which will select private workshops by tendering and make contract for ambulances placed in Regional Referral Hospitals and BHUs under control of them, and the department of health in each district will do the same for District Hospitals and BHUs. Those contract covers a periodic inspection and maintenance, a repair by breakdown and accidents, and etc.

(3) Ensure budget for the Project

The MoH and Dzongkhags receiving new ambulances are required to ensure operational budget for the Project. As being discussed precisely in the following chapter, initial costs as well as operation and maintenance (O&M) costs should be covered by the Bhutan side. In particular, O&M costs for the 10 new ambulances have to be listed as newly arising expenditure for the RGoB.

The initial costs for operating ambulances to be procured in the Project should be ensured by the MoH. It is also the responsibility of the MoH to keep the budget for the O&M of the ambulances to be procured for regional hospitals since these hospitals submit budget proposals by their own to the MoH.

Meanwhile, the budget for continuous O&M of ambulances to be procured to district hospitals and BHUs should be ensured by Dzongkhags. The procedure of budget proposal from each Dzongkhag starts from the District Planning Officer (DPO) submitting the proposal collected from sectorial officers in the Dzongkhag to the Public Accounts Section in Ministry of Finance (MoF); the MoH also receives its copy. Once approving the proposal, the Public Accounts Section tells the approval and the exact amount of the budget to the District Budget Officer (DBO). The DBO distributes the given budget to each sectorial officer; in the case of ambulance maintenance, the District Health Officer receives and manages its O&M costs.

Even though it is each Dzongkhag which is responsible for the ambulance O&M costs as explained above, it is the MoH that is required to monitor the aforementioned budgeting process as the responsible agency of the Project.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

A table shown below is a breakdown of the costs to be borne by the Bhutan side, estimated in accordance with condition for cost estimation in (2).

(1) Costs to be borne by the Bhutan side: Approximately 23,100,000 ngultrum

Table 2-10 The Project costs of Bhutan side

(Unit: Bhutan Ngultrum)

Subjects	Unit price	Quantity	Amount
(1) Vehicle insurance	1,500	29	43,500
(2) Vehicle registration	2,820	29	81,780
(3) cost for GPS	11,000	29	319,000
(4) On-board equipment supplied from the RGoB	1,542	29	44,718
(5) Green Tax	771,300	29	22,367,700
(6) Bank Commission			244,900
Total Cost			23,101,598

(2) Condition for Cost Estimation

1. Estimation as of: July, 2014

2. Exchange rate:

US Currency 1 dollar = 103.36 JPY

Bhutan Currency 1 Nu. = 1.87 JPY

3. Period of procurement:

Periods of the detailed design and equipment procurement are shown in the implementation schedule as Figure 2-2.

4. Other:

The Project is implemented in accordance with the Grant Aid scheme by the Government of Japan.

2-5-2 Operation and Maintenance Cost

(1) Operation and Maintenance (O&M) costs of the Project

The estimated annual maintenance cost for each target location, such as fuel costs necessary to operate procured ambulances, is shown in Table 2-11 in the next page.

Table 2-11 Estimate of O&M costs (fuel costs)

No.	Name of Dzongkhag	Facility Name for Ambulance replaced	Estimation cost of fuel / oil			No.	Name of Dzongkhag	Facility Name for New Ambulance procured	Estimation cost of fuel / oil		
			Milage per year (Km)	Consumption (litter)	Fee of fuel/oil per year (Nu)				Milage per year (Km)	Consumption (litter)	Fee of fuel/oil per year (Nu)
1	Dagana	Drugyegang BHU II	23,040	2,304	149,760	20	Wangduephodrang	Kamichu BHU II	11,640	1,164	75,660
2	Gasa	Gasa BHU I	15,480	1,548	100,620	21	Tsirang	Burichu II	13,656	1,366	88,790
3	Haa	Bali BHU I	14,472	1,447	94,055	22	Haa	Sombekha BHU II	10,080	1,008	65,520
4	Mongar	Mongar ERRH	18,480	1,848	120,120	23	Chhukha	Bongo BHU II	10,320	1,032	67,080
5		Drematse BHU II	13,272	1,327	86,255	24	Pemagatshel	Nanong BHU II	12,840	1,284	83,460
6		Gyelposhing BHU I	11,232	1,123	72,995	25	Trongsa	Tongtongphey BHU I	15,600	1,560	101,400
7	Paro	Betekha BHU II	13,824	1,382	89,830	26	Sarpang	Chhuzagang BHU I	12,000	1,200	78,000
8	Punakha	Punakha Hospital	15,240	1,524	99,060	27	Tashigang	Khaling BHU I	16,080	1,608	104,520
9	Samdrup Jongkhar	Gomdar BHU-I	15,120	1,512	98,280	28	Chukha	Khatikha BHU I	7,200	720	46,800
10		Jomotshangkha BHU I	27,600	2,760	179,400	29	Wangdi Phodrang	Sephu BHU II	9,000	900	58,500
11		Deothang hospital	18,720	1,872	121,680			Total		769,730	
12	Samtse	Dorokha BHU II	16,320	1,632	106,080						
13	Sarpang	Gelegphu CRRH	24,720	2,472	160,680						
14			39,120	3,912	254,280						
15	Zhemgang	Buli BHU II	22,320	2,232	145,080						
16	Trashigang	Bartsham BHU II	13,152	1,315	85,475						
17		Tsangpo BHU II	14,400	1,440	93,600						
18		Tashigang Hospital	13,656	1,366	88,790						
19	Tsirang	Damphu Hospital	18,120	1,812	117,780						
			Total		2,263,820	Operation and maintenance cost for procured ambulances		Total	Bhutan Nu.		
									3,033,550		

Estimated conditions base on the outline survey analysis:

- Non assumption of increase of the number of ambulance dispatch.
- Non assumption of price increasing.
- Price of fuel /oil :65Nu./L.

Table 2-12 Estimate of O&M costs (Labor and consumables)

(Unit: Bhutan ngultrum)

Description	Quantity	Amount
Drivers' salary for new ambulance per year	10	2,107,800
Expenditure of annual charges for Consumables for new ambulances	10	62,000
Total		2,169,800

The ambulances to be procured by the Project are mainly to replace the existing ones at the target facilities. Thus, no major problems are expected with O&M costs. However, as some ambulances will be allocated to locations that do not have any ambulances, management costs are expected to increase as emergency medical service activities expand. Therefore, Bhutan must secure a budget for ambulance O&M costs.

As shown in Tables 2-10 and 2-11 above, the estimated annual fuel costs for the ambulances to be procured by the Project is approximately 2.26 million ngultrum for the replacement and approximately 770,000 ngultrum for the new deployment: in total it is estimated at approximately 3.03 million ngultrum. In addition, the salary for new ambulance drivers is estimated at approximately 2.11 million ngultrum; the annual cost of consumables, such as filters and wheels, is approximately 62,000 ngultrum. The O&M cost for the new ambulances except for the replacement is approximately 2.94 million ngultrum. It is 0.094% of total budget of the health sector (2013-2014), which is approximately 3.14 billion ngultrum¹⁷. Therefore, it is considered that the cost can be covered by the current budget.

¹⁷ Source: National Budget Financial Year 2013-14, Ministry of Finance

Chapter 3 Project Evaluation

Chapter 3 Project Evaluation

3-1 Preconditions

The main preconditions for the implementation of the Project are as follows.

1. Bhutan shall promptly make arrangement for tax exemption concerning the importation of equipment and assist in customs clearance procedure and other various procedures at Kolkata Port in India and the customs offices at the India-Bhutan border.
2. While the Japanese side bears the cost for the transportation of ambulances and on-board equipment planned to be procured in the Project to the place of delivery in Thimphu, the Bhutanese side bears the cost for the transportation of the vehicles from Thimphu to the Project's target facilities, as well as vehicle registration, provision of insurance, and arrangement of drivers needed for transportation.
3. Drivers and medical workers needed for the operation of the ambulances planned to be replaced, in addition to the new ambulances planned to be procured, shall be employed.

3-2 Necessary Inputs by the Recipient Country

The purpose of the Project is to develop a nation-wide emergency medical service network and provide "an equal access to quality health services" for local inhabitants through the procurement of ambulances. Although the provision of ambulances will improve the system for emergency patient transport, medical facilities in remote areas are not supported sufficiently by a medical service system for diagnosing and treating transported patients. Because CT scanners, MRI, and other equipment that are effective in accurate diagnosis of emergency patients are available only in the capital city, patients who may or may not need treatment are transported to JDWNRH under the present circumstances. To establish a more effective system for emergency medical services, it is desirable to consider how the system should be developed to cover both testing and treatment in the capital and local areas.

In order to strengthen and expand the emergency medical service system in Bhutan in the face of a shortage of physicians and other medical workers, it is also necessary to train medical workers who can perform life-saving procedures, such as EMTs, and to maintain the function of HHC.

3-3 Important Assumptions

Important assumptions for effective and sustainable project effects are as follows.

1. Bhutan will continue to implement the present policy for emergency medical services.
2. The fuel for ambulances will be supplied stably at appropriate prices.
3. Efforts will be made to maintain the total number of ambulances deployed at the present and it will be possible to provide for the cost of replacement of vehicles which will become unusable due to oldness, accidents, etc.
4. There will be no extensive disruption of the road network due to a natural disaster or other cause.

3-4 Project Evaluation

3-4-1 Relevance

The Project is relevant to implementation as Japanese Grant Aid Project in points shown below.

- ① The MoH of Bhutan has established HHC, aiming to build a system that would allow 90% of people to receive specialized medical services within one hour irrespective of their locations of residence. However, many of the ambulances needed for patient transportation have become unusable due to mechanical failure resulting from oldness, accidents, etc., while the demand for emergency medical services is expanding as a result of factors such as the changes in the traffic environment. Urgent provision of ambulances is needed in this situation. Through provision of ambulances, the Project plans to help the establishment of the emergency medical service system, which HHC is intended to achieve.
- ② The Project does not include advanced equipment. As the types of equipment to be procured are already used in the country and the system for maintenance has been established, it can be operated and managed by a minimal addition of personnel and can be used effectively for a long time.
- ③ The beneficiary areas of the Project are 16 districts and the beneficiary population is approximately 130,000 who are living in the service coverage of the Project's target facilities. Beneficiary population is estimated based on the answers of interview survey at project sites. This means that the Project will benefit as many as approximately 18% of the total population.
- ④ The goal of the Project is to "provide equal access to quality health services" for the general public and in line with the aim of ensuring basic human needs through "improvement of health services" stipulated under the priority area "social development" in the assistance policy of Japan. In addition, the development of a nationwide emergency medical service network through the Project is expected to make possible the rapid provision of ambulance services to inhabitants in remote areas and contribute to the stabilization of the people's livelihood.

3-4-2 Effectiveness

The implementation of the Project is expected to enhance the emergency medical service system involving emergency patient transportation and exhibit the following quantitative and qualitative effects.

1. Quantitative Effects (outcome indicators showing the attainment of the purpose of the Project)

Indicator	Baseline value (performance in 2013)	Target value (2019) 【3 years after project completion】
Annual number of patients transported per replaced ambulance ¹⁸	43 patients	Increase
Annual number of repair days per replaced ambulance	81 days	Decrease

* Rationale for Estimation of Indicators

① Annual number of patients transported per replaced ambulance

The figure is the average number of dispatches per ambulance calculated from the number of dispatches during the past year as of October 2014 for the 19 ambulances that are planned to be replaced. However, 5 ambulances that are not in use at the time of survey due to oldness and other reasons were excluded from calculation.

② Annual number of repair days per replaced ambulance

The annual number of repair days per ambulance was calculated from the number of days out of service due to failure, repair, etc. during the past year as of October 2014 for the 18 ambulances out of the 19 planned to be replaced, excluding one that lacked records. The 3 vehicles that were out of service during the entire year due to oldness or other reason at the time of survey were included in calculation assigning 365 as the number of repair days.

2. Qualitative Effects

- ① The replacement of vehicles and on-board equipment is expected to improve the quality and increase the types of transport services that can be provided in ambulances.
- ② The shortening of time needed for patient reception will improve the trust of medical workers including the HHC staff in ambulance services.

¹⁸ The number of patients calculated from the annual number of ambulance dispatches provided by HHC. Because one patient is transported at a time in Bhutan, the annual number of dispatches is regarded the same as the annual number of patients transported.

Appendices :

- Appendix 1. Member List of the Study Team**
- Appendix 2. Study Schedule**
- Appendix 3. List of Parties Concerned in Recipient Country**
- Appendix 4. Minute of Discussion**

1. Member List of the Study Team

Appendix 1. Member List of the Study Team

(Basic Design Study)

	Name	Person in charge	Belong to
1	Mr. Hidetaka Sakabe	Representative, Team Leader	JICA Bhutan Office
2	Dr. Masayuki Suzukawa	Technical Adviser (Emergency Medical)	Proffessor, Emergency Center Jichi Medical University Hospital
3	Ms. Miharu Furukawa	Project Formulation Advisor	JICA Bhutan Office
4	Ms. Aya Kagota	Cooperation Planning	Health Division 4, Health Group 2, Human Resource Development Department, JICA Headquarters
5	Mr. Shinichi Kimura	Chief Consultant/ Planning of equipment	Binko International Ltd.
6	Ms. Yukiko Nishibari	Equipment Procurement Planner/ Cost Planner	Binko International Ltd.

(Draft Report Explanation)

	Name	Person in charge	Belong to
1	Ms. Yumiko Asakuma	Representative, Team Leader	JICA Bhutan Office
2	Dr. Masayuki Suzukawa	Technical Adviser (Emergency Medical)	Proffessor, Emergency Center Jichi Medical University Hospital
3	Ms. Tomoko Miyata	Project Formulation Advisor	JICA Bhutan Office
4	Ms. Aya Kagota	Cooperation Planning	Health Division 4, Health Group 2, Human Resource Development Department, JICA Headquarters
5	Mr. Shinichi Kimura	Chief Consultant/ Planning of equipment	Binko International Ltd.
6	Ms. Yukiko Nishibari	Equipment Procurement Planner/ Cost Planner	Binko International Ltd.

2. Study Schedule

Appendix 2. Study Schedule

The Project for Replacement of Ambulances Phase 2

NO	Date		JICA Team	Binko International Ltd.	Binko International Ltd.	Kyinghor Consultancy Services Local Consultant	
				Equipment Planning	Equipment Procurement Planner/Cost Planner		
1	02 July	Wed		Narita→Bangkok			
2	03 July	Thu		Bangkok→Paro (Bhutan) Paro→Thimphu (Vehicles) Courtesy call at MoH, Discussions, Meeting Courtesy Call at JICA Bhutan Office, Discussions, Meeting			
3	04 July	Fri		Survey for Health Help Centre Visit to JDWNRH, Survey for other donors WHO			
				Survey methods meeting (Kyinghor Consultancy Service and BINKO)			
4	05 July	Sat	Survey for Betekha BHU				
5	06 July	Sun	Narita→Bangkok	Data Filing Making Documents	Data Filing Making Documents	Thimphu→Samtse (Halt at Samtse)	Thimphu→Gaylegphu (Halt at Gaylegphu)
6	07 July	Mon	Bangkok→Paro (Bhutan)	Data Filing Making Documents	Thimphu→Jakar (Halt at Jakar)	Dorokha BHU (Halt at Samtse)	Thimphu→ Gaylegphu CRRH (Halt at Gaylegphu)
			Meeting, Making documents				
7	08 July	Tue	Meeting with at JICA Bhutan Office Courtesy Call at MoH Meeting with PPD, MoH		Jakar→Gyelposhing BHU→Mongar (Halt at Mongar)	Samtse→Samdropjongkhar (Halt at Samdropjongkhar)	Gaylegphu→ Samdropjongkhar (Halt at Samdropjongkhar)
8	09 July	Wed	Thimphu→Wangduephodrang BHU, Sephu BHU and Eusa BHU (Halt at Wangduephodrang)	Bajo	Demetse BHU Mongar ERRH (Halt at Mongar)	Samdropjongkhar→ Tashigang (Halt at Tashigang)	Gomdar BHU (Halt at Samdropjongkhar)
9	10 July	Thu	Wangduephodrang →Paro Paro Hospital Paro→Thimphu		Mongar→Jakar (Halt at Jakar)	Tashigang Hospital Bartsham BHU (Halt at Tashigang)	Samdropjongkhar→ Dampu (Halt at Phunt)
10	11 July	Fri	Survey for Health Help Center Visit to JDWNRH Meeting with MoH		Jakar→Zhemgang (Halt at Zhemang)	Tashigang→ Samdropjongkhar, Tsangpo BHU (Halt at Samdropjongkhar)	Dampu Hospital Drugyegang Grugyegang BHU (Halt at Dampu)
11	12 July	Sat	Thimphu→Bale BHU→Thimphu Team Meeting, Making Documents		Buli BHU Zhemgang (Halt at Zhemang)	Jomotshangkha BHU (Halt at Samdropjongkha)	Dampu→Thimphu
12	13 July	Sun	Team Meeting, Making Documents		Zhemgang→ Tongtongphay BHU→ Trongsa (Halt at Trongsa)	Samdropjongkha→ Phuntsholing (Halt at Phuntsholing)	
13	14 July	Mon	Thimphu→Gasa BHU→Punakha (Halt at Punakha)		Trongsa→Punakha (Halt at Punakha)	Phuntsholing→Thimphu	
14	15 July	Tue	Punakha hospital →Thimphu				
15	16 July	Wed	Survey for RIHS, Interim report for MoH, Interim report for JICA Bhutan Office				
16	17 July	Thu	Survey for Emergency Medical Training Centre, Minutes of Discussions				
17	18 July	Fri	Minutes of Discussions & Signing Interim report for JICA Bhutan Office				
18	19 July	Sat	Paro→Bangkok	Survey of vehicles agency			
19	20 July	Sun	→Narita	Meeting, Making documents			
20	21 July	Mon		Survey for medical equipment maintenance facility			
21	22 July	Tue		Survey for emergency medical care			
22	23 July	Wed		Survey of vehicles agency and market price			
23	24 July	Thu		Survey results reported to MoH Report for JICA Bhutan Office			
24	25 July	Fri		Paro→Bangkok			
25	26 July	Sat		→Narita			

Appendix 2. Study Schedule (Draft Report Explanation)

The Project for Replacement of Ambulances Phase 2

NO	Date		JICA Technical Advisor	JICA Project Coordinator	Binko International Ltd. Equipment Planning	Binko International Ltd. Equipment Procurement Planner/Cost Planner
1	11/15	Sat	Narita → Bangkok *stay in Bangkok		Narita → Bangkok *stay in Bangkok	
2	11/16	Sun		Haneda → Bangkok		
			Bangkok → Paro PM: Team Meeting	Paro → Timphu(Vehicle)		
3	11/17	Mon	Meeting with JICA Bhutan Office			
			Meeting with HHC			
			Meeting with JDWNRH			
4	11/18	Tue	Meeting with HHC			
			Meeting with DMS, MoH			
5	11/19	Wed	Meeting with Planning and Policy Division, MoH			
			Making document			
6	11/20	Thu	Making document			
			Team meeting			
			Meeting with HHC			
7	11/21	Fri	Making document			
			Signing and Exchanging of Minutes of Discussions			
8	11/22	Sat	Paro → Bangkok		Bangkok →	
9	11/23	Sun	Haneda		Narita	

3. List of Parties Concerned in the Recipient Country

Appendix 3. List of Parties Concerned in Recipient Country

Ministry of Health (MOH)		
Name	Title	Affiliation
Mr. Nima WANGDI	Secretary	Ministry of Health
Dr. Ugen DOPHU	Director General	Department of Medical Services (DMS)
Mr. Jamtsho,	Chief Program Officer	Department of Medical Services (DMS)
Mr. Rinchen NAMGYEL,	Deputy Chief Program Office	Department of Medical Services (DMS)
Mr. Jashi DNSU		Department of Medical Services (DMS)
Mr. Sonam PHUNTSO	Chief Program Officer,	Planning & Policy Division (PPD)
Mr. Rinchen Namgyel	Deputy Chief Program Officer	Planning & Policy Division (PPD)
Mr. Sonam DUBA	Emergency Program Officer	Planning & Policy Division (PPD)
Mr. Nado DUPKA	Chief Planning Officer	Planning & Policy Division (PPD)
Mr. Sonam PHUNTSO	Planning Officer	Planning & Policy Division (PPD)
Mr. Tashi Duba	Program Officer	Emergency Medical Services Section, (DMS)
Ms. Yangchen Chhoedon	Chief Human Resource Officer	Human Resource Division
Dr. Karma SANGAY	Chief Executive Officer	Health Help Centre (HHC), DMS
Mr. Tenzin NA	Program Officer	Health Help Centre (HHC), DMS
Mr. Karma DORGI	Chief of Call Centre	Health Help Centre (HHC), DMS
Mr. Yongteng CHOKI	Call Centre Staff	Health Help Centre (HHC), DMS
Ms. Dechen Wangmo	Chief Administrative Officer	Administrative and Finance Division (AFD)
Mr. Leki Norbu	Motor Transport Officer	Administrative and Finance Division (AFD)
Gross National Happiness Commission		
Mr. Rinchen Wangdi	Chief Program Coordinator	Development Cooperation Division
Jigme Dorji Wangchuck National Referral Hospital (JDWRH)		
Dr. Tashi TENZIN	Head	Emergency Department
Royal Institute of Health Services (RIHS) under University of Medical Sciences of Bhutan		
Dr. Chen Cho DORJEE	Director	
Dr. Kunzan DORJEE	Lecturer	
UNICEF		
Dr. Chandralal	Staff	
UNFPA Bhutan		
Mr. Yeshey DORJI	Assistant Resident Representative	
World Health Organization (WHO) Bhutan Office		
Dr. Frank PAULIN	Country Representative	
State Trading Corporation Bhutan Ltd. (STCBL)		
Ms. Kinley BHIDA	Head	
Mr. Chador ANGDI	Manager	
Japan International Cooperation Agency (JICA) Bhutan Office		
Ms. Yumiko ASAKUMA	Chief Representative	JICA
Mr. Hidetaka SAKABE	Representative	JICA
Ms. Miharu FURUKAWA	Project Formulation Advisor	JICA
Ms. Akemi ESSEN	Health Advisor	JICA
Ms. Tomoko MIYATA	Project Formulation Advisor	JICA
Mr. Kinley DORJI	Chief Program Officer	JICA

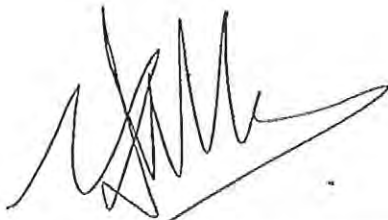
4. Minutes of Discussions

Appendix 4 Minute of Discussion

THE MINUTES OF MEETINGS
ON
THE PREPARATORY SURVEY TEAM
ON
THE PROJECT FOR REPLACEMENT OF AMBULANCES PHASE 2
IN
KINGDOM OF BHUTAN

AGREED UPON BETWEEN
THE ROYAL GOVERNMENT OF BHUTAN
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Thimphu, July 19, 2014



Dr. Ugen Dophu
Director General,
Department of Medical Services,
Ministry of Health,
The Royal Government of Bhutan



Mr. Hidetaka Sakabe
Leader,
Preparatory Survey Team,
Japan International Cooperation Agency



Mr. Rinchen Wangdi
Chief Program Coordinator,
Gross National Happiness Commission,
The Royal Government of Bhutan

SCOPE AND IMPLEMENTING ARRANGEMENTS OF THE PREPARATORY SURVEY

I. BACKGROUND AND OBJECTIVES OF THE PREPARATORY SURVEY

The Kingdom of Bhutan (hereinafter referred as "Bhutan") is entirely located in mountainous areas and has many rough roads including unpaved ones. This serious situation makes Bhutan put the priority on secure transport of the emergency patients and those to be referred to medical facilities. Under these circumstances, the Royal Government of Bhutan (hereinafter referred as "RGoB") formulated the Tenth Five Year Plan 2008-2013; it has emphasized the development of emergency-medical-service network as well as human resource development, strengthening organization capacity for better services and improvement of medical equipment and facilities. In order to realize the above plan, the RGoB requested a Grant Aid "The Project for Replacement of Ambulance (2011)" to the Government of Japan (hereinafter referred as "GoJ") for replacement of 26 ambulances. The Ministry of Health of the RGoB (hereinafter referred as "MoH") has also formulated Ambulance Service Guideline 2013 which stipulates allocation of ambulances and emergency medical technicians.

The mileage and dispatch number of ambulances are gradually increasing as the road condition in Bhutan has been improved or developed recently. Furthermore, some of the existed ambulances are getting older and unduly used. According to a survey conducted in preparation with the Eleventh Five Year Plan 2013-2018, 48 out of 111 all ambulances in Bhutan had been used more than 10 years and were required to be urgently renewed. However, the budgetary constraints allow Bhutan to replace 28 ambulances among 48. Under these situations, the RGoB requested a Grant Aid to the GoJ for The Project for Replacement of Old Ambulances Phase 2 (hereinafter referred to "the Project") which aims the renewal of the 20 ambulances.

In response to the request, Japan International Cooperation Agency (hereinafter referred to "JICA") decided to conduct a Preparatory Survey (hereinafter referred to as "the Survey") to examine the validity of the Project and dispatch the Preparatory Survey Team (hereinafter referred to as "the Team").

II. OBJECTIVES OF THE PROJECT

The objective of the Project is to improve accessibility to medical services by replacement of old ambulances along the line with the related laws and regulations in Bhutan.

III. ITEMS REQUESTED BY RGOB

After discussions with the Team, the items described in Annex 1 were requested by the RGoB. JICA will assess the appropriateness of the request. The final item, specifications and its quantity to be included in the Project will be further analyzed in Japan.

1. Project Site

The site of the Project is across the country. The facilities which would have the ambulance replacement and their location are shown in Annex 1.

2. Executing Agencies

2-1. The Responsible Agency is MoH.

2-2. Implementing Agency is Department of Medical Services, MoH.



IV. SCOPE OF THE PREPARATORY SURVEY

The Preparatory Survey shall cover the following items:

1. Reconfirmation of the Project's Relevance

The survey reconfirms the relevance of the Project through the studies on Bhutan's country development plans, health sector plans, emergency health care plans, and other related documents and interview. It also clarifies the current status and needs of the emergency health care services in Bhutan which contribute to the revalidation of the Project.

2. Reaffirmation of Possibility of the Project's Implementation

The Survey reaffirms the situation of operation and maintenance of equipment (including vehicle inspections, repairing costs and etc.) as well as staff deployment, skill level of health personnel, implementation and contents of trainings, related regulation on human resource for health and ambulance services, and budget plans for implementation of the Project. According to the result, the Team may suggest any measures to be taken by each party or points to be considered for implementation of the Project.

3. Confirmation of Effects of "The Project for Replacement of Ambulances (2011)"

The Team examines the effects of the previous "Project for Replacement of Ambulances (2011)" both quantitatively and qualitatively based on the indicators and the targets which were set in the above-mentioned project. This includes a survey on operation and maintenance of the ambulances procured in the project.

4. Scope of the Project

In consideration of the final request from the RGoB shown in Annex1, the results of the above mentioned 1. to 3., and other necessary information, the Team will examine possibility of procurement of equipment through the Project and its scope. The result of the assessment is to be explained to the Bhutan side by the draft final report which is described in VII. 2..

5. Consideration of Necessity of Technical Support

Necessity and possibility of technical support to improve sustainability or ensure smooth implementation of the Project is to be examined.

VII. REPORTS

JICA will prepare and submit following reports in English to the RGoB.

1. Inception Report:

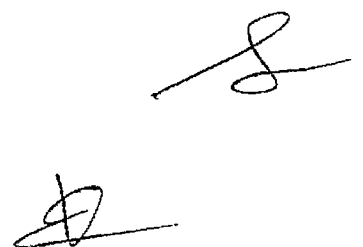
Inception Reports was submitted at the Survey in July 2014 in Bhutan. This report will cover the outline of the Survey.

2. Draft Final Report:

JICA will prepare the draft final report in English which describes the basic design of the Project, and will dispatch a survey team in order to explain its contents in late October.

3. Final Report:

The final report will be submitted to the Government of Japan for the Project appraisal. Through the appraisal, the Japanese Cabinet will make a final decision for the implementation of the Project. If the Project is approved by the Japanese Cabinet, the final report will be sent to the RGoB.



VIII. JAPAN'S GRANT AID SCHEME

The RGoB understands the Japan's Grant Aid Scheme explained by the Team as described in Annex 3.

IX. UNDERTAKINGS OF THE RGOB

The RGoB shall act as a counterpart agency to the Team and also as a coordinating body with other organizations concerned for the smooth implementation of the Preparatory Survey.

The RGoB shall, at its own expense, provide the Team with the following items in cooperation with other organizations concerned:

1. security-related information as well as measures to ensure the safety of the Team;
2. information as well as support in obtaining medical service;
3. data and information related to the Survey;
4. counterpart personnel;
5. credentials or identification cards;
6. entry permits necessary for the Team members to conduct field surveys;
7. support in making transportation arrangements; and
8. support in obtaining other privileges and benefits if necessary.

In addition to the points mentioned above, the RGoB shall:

- Assist the Team in custom clearance, exempt from any duties with respect to equipment, instruments, tools and other articles to be brought into and out of Bhutan in connection with the implementation of the Survey.
- Bear claims, if any arises, against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in implementation of the Survey, except when such claim arise from gross negligence or willful misconduct on the part of the member of the Team.

X. CONSULTATION

JICA and the RGoB shall consult with each other in respect of any matter that may arise from or in connection with the Survey.

END

Annex 1: Final Request from the RGoB
Annex 2: Schedule of the Outline design survey
Annex 3: Japan's Grant Aid Scheme



LIST OF AMBULANCES TO BE NEWLY DEPLOYED

No.	name of Dzongkhag	Facility Name for Ambulance Installation
1	Wangduephodrang	Kamichu BHU II
2	Tserang	Burichu II
3	Haa	Sombekha BHU II
4	Chhukha	Bongo BHU II
5	Pemagatshel	Nanong BHU II
6	Trongsa	Tongtongphey BHU I (to be upgraded from BHU II)
7	Sarpang	Chhuzagang BHU I
8	Tashigang	Khaling BHU I
9	Chukha	Khatikha BHU I
10	Wangdi Phodrang	Sephu BHU II





JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.



(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment

The bottom of the page features three handwritten signatures or initials. On the left is a large, stylized signature. In the center is a smaller, more compact signature. On the right is a signature that appears to be the letters 'AS' written in a cursive style.

THE MAIN POINTS DISCUSSED

1. The RGoB submitted request of ambulances and explained the replacement criteria with utilization of 10 years or more and/or repeated breakdown because of heavy accident and etc.. Moreover, new installment of ambulances is requested by the RGoB in consideration for the standard ambulance allocation, one ambulance for BHU-I, shown in the Ambulance Service Guideline, provided by the Emergency Medical Services Programme, Department of Medical Services, MoH, in 2013; the catchment area and location of BHU-II where it is remote or important place along the highway. The final request is shown in Annex 1 of Appendix 1.
2. The RGoB requested a specific brand of the ambulances considering utilization and maintenance. The Team explained that in principle procurement in Japanese grant aid requires competitiveness at tenders and rational reasons to specify a brand.
3. The RGoB agreed that the equipment for ambulances to be procured by the Project shall be examined based on the Standard List of Equipment for Ambulance annexed in the Ambulance Service Guideline.
4. Both sides agreed that it was appropriate to modify project title from the one indicated in the application "The Project for Replacement of Old Ambulances Phase 2" to "The Project for Replacement of Ambulances Phase 2" in consideration with the previous project name "The Project for Replacement of Ambulances".
5. Both the RGoB and the Team agreed that the RGoB shall secure and allocate sufficient staff, e.g. Emergency Medical Technicians and drivers, and budgets to operate and maintain the ambulances and the equipment procured by the Project properly and effectively, as a condition for the Project to be implemented. The RGoB will compile the necessary budget for the appropriate fiscal year according to the cost estimation in the Draft Final Report.
6. The RGoB understood that the medicines for ambulances would be procured by RGoB
7. Both side confirmed that the RGoB ensure the customs duties and the Green Tax for the Project are to be borne by RGoB and Sales Tax exemption will be processed by MoH. In addition, it is agreed by both side that other internal taxes, if any, are under the responsibility of RGoB.

END



Appendix 4 List of Attendants

Ministry of Health (MOH)		
Dr. Ugen Dophu	Director General	Department of Medical Services (DMS)
Mr. Jamtsho	Officiating Chief Program Officer	DMS
Dr. Karma Sangay	Chief Executive Officer	Health Help Centre (HHC), DMS
Mr. Nado Dukpa	Chief Planning Officer	Planning and Policy Division
Ms. Dechen Wangmo	Chief Administrative Officer	Administrative and Finance Division (AFD)
Ms. Yangchen Chhoedon	Chief Human Resource Officer	Human Resource Division
Mr. Rinchen Namgyel	Deputy Chief Program Officer	DMS
Mr. Tashi Duba	Program Officer	Emergency Medical Services Section, DMS
Mr. Leki Norbu	Motor Transport Officer	AFD
Mr. Tenzin	Senior Administrative Officer	HHC, DMS
Gross National Happiness Commission		
Mr. Rinchen Wangdi	Chief program Coordinator	Development Cooperation Division
Japan International Cooperation Agency (JICA) Preparatory Survey Team		
Mr. Hidetaka Sakabe	Representative, Team Leader	JICA Bhutan Office
Dr. Masayuki Suzukawa	Technical Advisor (Emergency Medical)	Professor, Emergency Center Jichi Medical University Hospital
Ms. Miharu Furukawa	Project Formulation Advisor	JICA Bhutan Office
Ms. Aya Kagota	Cooperation Planning	Health Division 4, Health Group 2, Human Resource Development Department, JICA Headquarters
Mr. Shinichi Kimura	Chief Consultant / Planning of Equipment	Binko International Ltd.
Ms. Yukiko Nishibari	Equipment Procurement Planner/ Cost Planner	Binko International Ltd.





THE MINUTES OF MEETINGS

ON

THE PREPARATORY SURVEY TEAM

ON

THE PROJECT FOR REPLACEMENT OF AMBULANCES PHASE 2

IN

KINGDOM OF BHUTAN

AGREED UPON BETWEEN

THE ROYAL GOVERNMENT OF BHUTAN

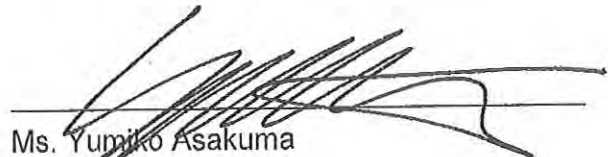
AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

Thimphu, November 21, 2014



Dr. Ugen Dophu
Director General,
Department of Medical Services,
Ministry of Health,
The Royal Government of Bhutan



Ms. Yumiko Asakuma
Leader,
Preparatory Survey Team,
Japan International Cooperation Agency



Mr. Rinchen Wangdi
Chief Program Coordinator,
Gross National Happiness Commission,
The Royal Government of Bhutan

In response to a request from the Royal Government of Bhutan (hereinafter referred to as "RGoB"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Replacement of Ambulances (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") to the Kingdom of Bhutan, which is headed by Ms. Yumiko Asakuma, Chief Representative, JICA Bhutan office, and is scheduled to stay in the country from November 16 to November 22, 2014.

The Team held discussions with the officials concerned of the RGoB, to explain and consult about the components of the draft report.

As a result of discussions, each party confirmed the main items described in the attached.

It should be noted that implementation of the Preparatory Survey does not imply any decision or commitment by JICA to extend its grant for the Project at this stage.

Appendix 1: Scope and Implementing Arrangements of the Project

Appendix 2: Main Points Discussed

Appendix 3: Final request from the RGoB

Appendix 4: Japan's Grant Aid Scheme

Appendix 5: Major Undertakings by each Government

Appendix 6: List of Equipment

Appendix 7: Project Cost Estimation

Appendix 8: Tentative Schedule of the Project

Appendix 9: List of Attendants



SCOPE AND IMPLEMENTING ARRANGEMENTS OF THE PROJECT

I. BACKGROUND AND OBJECTIVES OF THE PREPARATORY SURVEY

The Kingdom of Bhutan (hereinafter referred as "Bhutan") is entirely located in mountainous areas and has many rough roads including unpaved ones. This serious situation makes Bhutan put the priority on secure transport of the emergency patients and those to be referred to medical facilities. Under these circumstances, the Royal Government of Bhutan (hereinafter referred as "RGoB") formulated the Tenth Five Year Plan 2008-2013; it has emphasized the development of emergency-medical-service network as well as human resource development, strengthening organization capacity for better services and improvement of medical equipment and facilities. In order to realize the above plan, the RGoB requested a Grant Aid "The Project for Replacement of Ambulance (2011)" to the Government of Japan (hereinafter referred as "GoJ") for replacement of 26 ambulances. The Ministry of Health of the RGoB (hereinafter referred as "MoH") has also formulated Ambulance Service Guideline (hereinafter referred as "the Guideline") in 2013 which stipulates allocation of ambulances and emergency medical technicians.

The mileage and dispatch number of ambulances are gradually increasing as the road condition in Bhutan has been improved or developed recently. Furthermore, some of the existed ambulances are getting older and unduly used. According to a survey conducted in preparation with the Eleventh Five Year Plan 2013-2018, 48 out of 111 all ambulances in Bhutan had been used more than 10 years and were required to be urgently renewed. However, the budgetary constraints allow Bhutan to replace 28 ambulances among 48. Under these situations, the RGoB requested a Grant Aid to the GoJ for The Project for Replacement of Old Ambulances Phase 2 (hereinafter referred to "the Project") which aims the renewal of the 20 ambulances.

In response to the request, Japan International Cooperation Agency (hereinafter referred to "JICA") decided to conduct a Preparatory Survey (hereinafter referred to as "the Survey") to examine the validity of the Project and dispatch the Preparatory Survey Team (hereinafter referred to as "the Team").

II. OBJECTIVES OF THE PROJECT

The Project aims to enhance the emergency medical service system which leads to improve quality and accessibility of emergency medical services.

III. ITEMS REQUESTED BY THE RGOB

The final request is procurement of 29 ambulances with on-board equipment for the target facilities according to the Guideline as shown in Appendix 3: 19 for replacement and 10 for new deployment.

1. Project Site

The site of the Project is the whole country. The facilities which would have the ambulance replacement or new deployment, and their location are also shown in Appendix 3.

2. Executing Agencies

2-1. The Responsible Agency is MoH.

2-2. The Implementing Agency is Department of Medical Services, MoH.

IV. SCHEDULE OF THE PREPARATORY SURVEY

JICA will prepare the final report after the Survey. The final report will be submitted to the Government of Japan for the Project appraisal. Through the appraisal, the Japanese Cabinet will make a final decision for the implementation of the Project. If the Project is approved by the Japanese Cabinet, the final report will be sent to the RGoB by March, 2015.

VIII. JAPAN'S GRANT AID SCHEME

The RGoB understands the Japan's Grant Aid Scheme explained by the Team as described in Appendix 4.

IX. UNDERTAKINGS OF THE RGOB

Major undertakings of both Japanese and Bhutanese side are shown in Appendix 5.

X. CONSULTATION

JICA and the RGoB shall consult with each other in respect of any matters that may arise from or in connection with the Survey.

END



THE MAIN POINTS DISCUSSED

1. The RGoB agreed and accepted in principle the components of the Draft Final Report explained by the Team. The items targeted by the Project described in Appendix 6.
2. The Bhutanese side had shown full understanding of the Japan's Grant Aid Scheme and the necessary measures to be taken by the Bhutanese side as described in Appendix 4 and 5.
3. The RGoB agreed to ensure the Green Tax for the Project are to be borne by the MoH. The MoH will secure the budget for the Green Tax in the Bhutanese fiscal year 2015 based on Appendix 7. Project Cost Estimation. In addition, both side confirmed that the customs duties and Sales Tax exemption will be processed by the MoH and other internal taxes are under the responsibility of the RGoB, if any.
4. Both side confirmed that the MoH, Gross National Happiness Commission, and the Ministry of Finance will have discussions to consider the Green Tax to be exempted. The RGoB will inform the result to JICA by the end of December, 2014.
5. The RGoB agreed to take every necessary measure to conduct the undertakings in a timely manner, including allocation of staff, qualified health personnel and drivers, and the Project budget to operate and maintain the ambulances and the equipment procured by the Project properly and effectively, as a condition for the Project to be implemented. The RGoB will compile the necessary budget for the fiscal year 2015 and the MoH is in responsible to inform each Dzongkhag to secure necessary cost in their budget plan.
6. Both sides confirmed that all information related to the Project including detailed specifications of the equipment and other technical information shall not be disclosed to any outside parties before the conclusion of all the contracts for the Project.
7. The RGoB understood that the medicines for ambulances and some of the on-board equipment shown in Appendix 6 would be procured by the RGoB.
8. The Team explained the Project Cost Estimation as described in Appendix 7. Both sides agreed that the Project Cost Estimation should never be disclosed to any outside parties before the conclusion of all the contracts for the Project. The Bhutanese side understood that the Project Cost Estimation is not final and is subject to change.
9. Both side discussed on the importance of pre-hospital care which would be necessary for further improvement of service quality in emergency medicine.

END



Final request from the RGoB

1.Ambulance

Name of Equipment and Specifications	Quantity
4 wheel drive Ambulance, 2 Box Model, Diesel Engine, Right Handle	29

2.On board Equipment (listed as with the "Ambulance Service Guidline")

No.	Name of Equipment	Quantity
1)	Scoop Strecher	29
2)	Spine Board with Cervical Immobilizer	29
3)	Suction Apparatus (AC/DC, Manual)	29
4)	Pulse Oxymeter	29
5)	Pupillary Torch	29
6)	BP Apparatus (Aneroid)	29
7)	BP Cuff for Pediatric	29
8)	Short Spine Board	29
9)	Stethoscope	29
10)	Thermometer (Digital)	29
11)	Resuscitation Bag, Adult, silicon	29
12)	Resuscitation Bag, child	29
13)	Bed Pan, Stainless stel	29
14)	Kidney tray, Stainless steel	29
15)	Sputum Cup	29
16)	Artery forceps, curved 6"	29
17)	Dissecting Forceps, 6"	29
18)	Urinal	29
19)	Bandage Scissors	29
20)	Splint and Traction	29
21)	Oxygen Cylinder with Stand	29
22)	Oxygen regulator with flow meter	29
23)	Adjustable Cervical Collar	29
24)	Tourniquet	29
25)	Gulcometer with strips	29
26)	Scissors, Small, 7"	29
27)	Automated External Defibrillator (AED)	29

3. Location of Ambulances

No.	Name of Dzongkhag	Facility Name for Ambulance replaced	Quantities Requested
1	Dagana	Drugyegang BHU II	1
2	Gasa	Gasa BHU I	1
3	Haa	Bali BHU I	1
4	Mongar	Mongar Eastern Regional Refferal Hospital	1
5		Drematse BHU II	1
6		Gyelposhing BHU I	1
7	Paro	Betekha BHU II	1
8	Punakha	Punakha Hospital	1
9	Samdrup Jongkhar	Gomdar BHU I	1
10		Jomotshangkga BHU I	1
11		Deothang hospital	1
12	Samtse	Dorokha BHU II	1
13	Sarpang	Gelegphu Central Regional Referral Hospital	1
14			1
15	Zhemgang	Buli BHU II	1
16	Trashigang	Bartsham BHU II	1
17		Tsangpo BHU II	1
18		Tashigang Hospital	1
19	Tsirang	Damphu Hospital	1
20	Wangduephodrang	Kamichu BHU II	1
21	Tsirang	Burichu II	1
22	Haa	Sombekha BHU II	1
23	Chhukha	Bongo BHU II	1
24	Pemagatshel	Nanong BHU II	1
25	Trongsa	Tongtongphey BHU I	1
26	Sarpang	Chhuzagang BHU I	1
27	Tashigang	Khaling BHU I	1
28	Chukha	Khatikha BHU I	1
29	Wangdi Phodrang	Sephu BHU II	1

JAPAN'S GRANT AID SCHEME

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on the law and the decision of the Government of Japan (hereinafter referred to as "the GOJ"), JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is conducted as follows-

- Preparatory Survey (hereinafter referred to as "the Survey")
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by The GOJ and JICA, and Approval by the Japanese Cabinet
- Determination of Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide a basic document necessary for the appraisal of the Project by JICA and the GOJ. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the

Grant Aid Scheme from a technical, financial, social and economic point of view.

- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

The Report on the Survey is reviewed by JICA, and after the appropriateness of the Project is confirmed, JICA recommends the GOJ to appraise the implementation of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a plea for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

The consultant firm(s) used for the Survey will be recommended by JICA to the recipient country to also work on the Project's implementation after the E/N and the G/A, in order to maintain technical consistency.



(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.



(10) Social and Environmental Considerations

A recipient country must ensure the social and environmental considerations for the Project and must follow the environmental regulation of the recipient country and JICA socio-environmental guideline.



(End)

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Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To ensure prompt customs clearance of the products and to assist internal transportation of the products in the recipient country		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Internal transportation from the port of disembarkation to the project site	(●)	(●)
2	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted and be borne by the Authority without using the Grant		●
3	To accord Japanese physical persons and / or physical persons of third countries whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
4	To ensure that the products be maintained and used properly and effectively for the implementation of the Project		●
5	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
6	To bear the following commissions paid to the Japanese bank for banking services based upon the		
	1) Advising commission of A/P		●
	2) Payment commission		●
7	To give due environmental and social consideration in the implementation of the Project.		●

(B/A : Banking Arrangement, A/P : Authorization to pay)


List of Medical Equipment

1. Ambulance

Name of Equipment and Specifications	Notes	Quantities to be supplied
4 wheel drive Ambulance, 2 Box Model, Diesel Engine, Right Handle	To be procured by Japanese side.	29

2. On board Equipment (Listed as with the "Ambulance Service Guidline")

No.	Name of Equipment	Notes	Quantities to be supplied
1)	Scoop Stretcher	To be procured by Japanese side.	29
2)	Spine Board with Cervical Immobilizer	To be procured by Japanese side.	29
3)	Suction Apparatus (AC/DC, Manual)	To be procured by Japanese side.	29
4)	Pulse Oxymeter	To be procured by Japanese side.	29
5)	Pupillary Torch	To be procured by Japanese side.	29
6)	BP Apparatus (Aneroid)	Equipped with Ambulance.	-
7)	BP Cuff for Pediatric	Equipped with Ambulance.	-
8)	Short Spine Board	To be procured by Japanese side.	29
9)	Stethoscope	Equipped with Ambulance.	-
10)	Thermometer (Digital)	To be procured by Japanese side.	29
11)	Resuscitation Bag, Adult, silicon	To be procured by Japanese side.	29
12)	Resuscitation Bag, child	11) and 12) will be set. (Face mask, canula Air way Included)	-
13)	Bed Pan, Stainless steel	To be procured by Japanese side.	29
14)	Kidney tray, Stainless steel	To be procured by Japanese side.	29
15)	Sputum Cup	To be procured by Bhutan side.	0
16)	Artery forceps, curved 6"	To be procured by Bhutan side.	0
17)	Dissecting Forceps, 6"	To be procured by Bhutan side.	0
18)	Urinal	This will be set with 13)	-
19)	Bandage Scissors	To be procured by Japanese side.	29
20)	Splint and Traction	To be procured by Japanese side.	29
21)	Oxygen Cylinder with Stand	Equipped with Ambulance.	-
22)	Oxygen regulator with flow meter	Equipped with Ambulance.	-
23)	Adjustable Cervical Collar	To be procured by Japanese side.	29
24)	Tourniquet	To be procured by Japanese side.	29
25)	Gulcometer with strips	To be not considered	0
26)	Scissors, Small, 7"	To be procured by Bhutan side.	0
27)	Automated External Defibrillator (AED)	To be not considered	0

Tentative Schedule of the Project

	1	2	3	4	5	6	7	8	9	10	11	12	
Tender Stage	★ E/N*G/A												(Tender Stage : 4months)
	■ (Confirmation of Implimentation Schedule)												
	□ (Arrangement of Tender Document, Technical Specification)												
	■ (Confirmation of Tender Docume												
	□ (Tender Notice)												
Implementation	■ (Tender Opening, Tender Evaluation, Supplier's Contract)												
	□ (Confirmation of Drawings)												(Implementation : 8.months)
	□ (Manufacturing, and Procurement)												
	□ (Shipping Inspection)												
	■ (Sea Transportation)												
	■ (Land Transpotation)												
▲ (Inspection and Hand Over)													

■ Overseas Work

□ Domestic Work

Note
 * E/N: Exchange of Note
 * G/A: Grant Agreement

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List of Attendants**Ministry of Health (MOH)**

Dr. Ugen Dophu	Director General	Department of Medical Services (DMS)
Mr. Jamtsho	Officiating Chief Program Officer	DMS
Mr. Rinchen Namgyel	Deputy Chief Program Officer	DMS
Mr. Tashi Duba	Program Officer	Emergency Medical Services Section, DMS
Mr. Nado Dukpa	Chief Planning Officer	Planning and Policy Division
Ms. Tshering Dema	Officiating Chief Administrative Officer	Administrative and Finance Division (AFD)
Mr. Chador Wangdi	Program Officer	EMS Program, Health Care Diagnostic Division, DMS
Dr. Karma Sangay	Chief Executive Officer	Health Help Centre (HHC), DMS
Mr. Tenzin	Senior Administrative Officer	HHC, DMS

Gross National Happiness Commission (GNHC)

Mr. Rinchen Wangdi	Chief Program Coordinator	Development Cooperation Division
Mr. Kuenzang Sangey	Deputy Chief Program Coordinator	Development Cooperation Division

Japan International Cooperation Agency (JICA) Preparatory Survey Team

Ms. Yumiko Asakuma	Chief Representative, Team Leader	JICA Bhutan Office
Dr. Masayuki Suzukawa	Technical Adviser (Emergency Medicine)	Professor, Emergency Center Jichi Medical University Hospital
Ms. Aya Kagota	Cooperation Planning	Health Team 4, Health Group 2, Human Resource Development Department, JICA Headquarters
Mr. Shinichi Kimura	Chief Consultant / Planning of equipment	Binko International Ltd.
Ms. Yukiko Nishibari	Equipment Procurement Planner/ Cost Planner	Binko International Ltd.
Ms. Tomoko Miyata	Project Formulation Advisor	JICA Bhutan Office