The Ministry of Internal Affairs

The Republic of Moldova

PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR THE IMPROVEMENT OF FIRE FIGHTING EQUIPMENT IN REPUBLIC OF MOLDOVA

JANUARY 2022

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)
INGEROSEC CORPORATION
KATAHIRA & ENGINEERS INTERNATIONAL

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PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to Ingerosec (consist of Katahira & Engineering International).

The survey team held a series of discussions with the officials concerned of the Government of Moldova, and conducted a 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 Government of Moldova for their close cooperation extended to the survey team.

January 2022

Katsura Miyazaki
Director General,
Governance and Peace Building Department
Japan International Cooperation Agency

Summary

1. Overview of the Country

The Republic of Moldova (hereinafter referred to as "Moldova") is located at 45.28-48.21 degrees latitude and 26.30-30.05 degrees longitude with a land area of 34,000 km^2 (slightly smaller than Kyushu in Japan) that stretches 330 km from north to south and 150 km from east to west. It is a landlocked country in Eastern Europe that is surrounded on the west by Romania and on the other three sides by Ukraine. The population of the country is approximately 2.64 million (according to the Ministry of Foreign Affairs of Japan in 2020) with the capital, Chişinău, and the second largest city, Bălţi, accounting for approximately 50% of the total population.

Moldova's Gross Domestic Product (GDP) per capita in 2020 was approximately US$4,523 (according to the Ministry of Foreign Affairs of Japan), and it remains one of the poorest countries in Europe and of the former Soviet Union states. There was a conflict in the 1990s called the Transnistrian War between Moldova and the Pridnestrovian Moldavian Republic (hereinafter referred to as "Transnistria"), which is an area that is not governed by the Moldovan government.

The country's GDP was projected to grow by 3.5% in 2020 (IMF), which was less than half of previous growth rates due to the impact of COVID-19 on the economy. According to the 2020 statistics, the GDP per capital is US$3,527. In addition, the amount of remittances to Moldova by migrant workers outside of Moldova is said to constitute 20% to 30% of the GDP, which indicates lower stages of development in the domestic industries. Furthermore, Moldova has few underground resources and is dependent on imports of oil, gas and mineral resources from abroad. In particular, Russia, which is the main source of imports, has stepped up its efforts to eliminate preferential treatment for energy resource exports to former Soviet Union states in recent years.

2. Background and outline of the Project

In Moldova, there are about 1,700 fires per year, mainly in the capital and large cities, caused by accidents involving household appliances, cigarettes and other residential fires. Although the number of fires is not large in absolute terms, the scale of fires is large compared to other countries, and the number of fatalities per 100 fires is 2.38, which is much higher than the global average of 1.18. In addition, Moldova is on an expansive plain, which makes it vulnerable to natural disasters, such as floods and landslides in the rivers located at the foot of the mountains due to intensive heavy rains and melting snow from the mountains. As a result, the country suffers from flood events that have an average of about 70,000 victims and cause economic losses of about 1.5% of the GDP every year.

In response to these fires and disasters, Moldovan fire fighting equipment are used not only for fire fighting, but also for rescue operations in case of natural disasters and for emergency rescue in case of traffic accidents. However, the shortage of vehicles and the aging of the existing fleet hinders proper fire fighting and rescue operations and increases the scale of disaster damage. Specifically, half of the fire fighting vehicles owned by the Moldovan government were deployed during the Soviet era, and while the service life of a typical fire fighting vehicle is 15 to 20 years, more than 77% of the equipment

in operation in Moldova are more than 20 years old (about half of which are more than 30 years old). As a result, spare parts including some consumable parts are no longer manufactured, which makes it difficult to maintain the equipment.

In addition, even if spare parts are supplied for repairs, issues with the functions of the equipment (e.g., discharge performance of fire pumps) cannot be resolved, and in many cases the equipment is used in dangerous conditions.

In the EU Association Agreement signed in the process of Moldova's accession to the EU, the Government of Moldova explicitly stated the need to "strengthen the capacity to respond to natural and human-made disasters". The National Action Plan aims to achieve this goal, and "strengthening the mobilization capacity through the improvement of technology and equipment" is designated as a priority goal.

However, the budget of the Moldovan government, which is in a difficult financial situation, does not allow for the renewal of aging fire fighting vehicles and equipment, and although there is support from other development partners , appropriate equipment has not been deployed, so fire fighting and rescue activities are not sufficiently carried out.

Due to the considerable damage and wear of the existing fire fighting equipment, the replacement of these items and improvement of the fire fighting system are urgent matters.

Under these circumstances, the General Inspectorate for Emergency Situations (hereinafter referred to as “GIES”) of the Ministry of Interior of Moldova has requested Japan for grant assistance to solve the problem of fire fighting and rescue operations by providing new fire fighting equipment.

This project aims to improve fire fighting and rescue operations in Chișinău, Bălți, Orhei, Ungeni and Cahul by equipping the implementing agency, GIES, with these fire fighting equipment to protect the lives and properties of the residents of the target areas from fires and to ensure the safety and security of these areas.

As a top-level plan for this project, the National Assembly approved the "Ensuring Safety in the Event of Fire" on November 9, 1994[1], and enacted the "Management System in Emergency Situations" in 2007 to make disaster preparedness a national priority. The framework for disaster preparedness is seen as an issue related to the governance of the country that directly affects the protection of the people, economic goals, and the protection of the country's assets by strengthening local disaster prevention measures. In addition, the 2014 Decree on Civil Protection and Emergencies set a target of 15 minutes or less for fire fighting equipment to arrive at a scene, and the National Action Plan (Maia SANDU), which came into effect in 2016, is coordinated with the EU and other countries.

The National Action Plan for the fire and rescue sector is as follows

① Strengthening fire risk reduction

② Strengthening fire and rescue in rural areas

③ Strengthening organizational capacity of fire departments

④ Strengthen fire fighting and rescue capacity of GIES by upgrading its equipment and

[1] Fire Services Act No.267-VIII and No.271-VIII

improving fire fighting and rescue techniques

3. Summary of the Survey Results and Outline of the Project

In response to a request from the Government of Moldova, the Government of Japan has decided to conduct a Preparatory Survey for the Project for the Improvement of “Firefighting Equipment” procurement on firefighting equipment for the GIES as the implementing agency.

Through the preparatory survey for this project (hereinafter referred to as "the Survey"), the necessity and appropriateness of implementing the requested project were confirmed.

In addition, the number of equipment initially requested was reconsidered, and the final request and deployment destination were finally decided as shown in the table.

And then, through the Survey, the appropriateness of the components of this project and confirmed the items to be borne by the recipient country.

After that conclusion of study, a continuation Survey was conducted in Japan for the purpose of making an appropriate outline design as a Grant Aid and estimating the project cost based on the project plan (quantity, specifications of procurement of equipment, etc.) and maintenance plan of the equipment.

The initial request for this project was for all of the fire departments at a national level. However, taking into account the extent of support that can be provided by this project, the Moldovan stakeholders prioritized and designated 5 target areas where the highest efficiency and viability for fire fighting and rescue activities could be expected. In addition, when compared with the initial request made in 2017, the domestic analysis and Survey of this project identified changes in the heights of buildings and social conditions in Moldova, so the deployment plan was examined based on the following conditions.

- Fire fighting and rescue operations in response to the increasing height of buildings.
- The dispatch of Fire Trucks usually has two Fire Trucks moving in a single formation.
- In case of small fires, the 2 Fire Trucks perform the extinguishing activity simultaneously after the necessary water resources have been secured.
- In case of medium-sized fires, one of the vehicles performs the extinguishing activity while the other acts as a water relay to supply water.

Based on these conditions, the deployment of 10 Ladder Trucks and 9 Fire Trucks to each fire department in 5 regions is considered highly appropriate and necessary for realizing fire fighting and rescue activities quickly, efficiently, and safely.

Table 1 and Table 2 below show the locations and specifications of the equipment.

Table-1 Equipment and its deployment destination in the final request

Place / Region	No.	Implementation destination (fire department)	Number of units				
			Ladder Truck		Fire Truck		
			30m	50m	3,000L	4,000L	10,000L
Chisinau	1	FD Ciocana	1	—	1	—	—
	2	FD Buiucani	1	—	—	—	1
	3	FD Botanica	1	1	—	—	—
	4	FD Rîscan	1	—	1	—	—
	5	Fire brigade post of the Republican intervention center	—	—	1	—	—
Balți	6	Search and rescue detachment No1	1	1	—	1	1
Cahul	7	FD Cahul	1	—	—	—	—
	8	FD Giurgiulești	—	—	—	1	—
Ungeni	9	FD Ungheni	1	—	—	1	—
Orhei	10	FD Orhei	1	—	—	1	—
Total			8	2	3	4	2

Table-2 Equipment Specifications

No.	Vehicle type	Main specifications or configurations			Qty
1	Ladder Truck (30m)	Rescue height Ladder type Basket Chassis GVW Drive sysem Cabin Equipments	: : : : : : :	more than 30m straight type Maximum load capacity 360 kg or more 16～20tons 4×2 Single cabin, maximum crew number 2, left-hand drive Basket, manual monitoring nozzle, equipment cabinet, in vehicle radio	8
2	Ladder Truck (50m)	Rescue height Ladder type Basket Chassis GVW Drive system Cabin Equipments	: : : : : : :	more than 50m straight type (lifting device installed) Maximum load capacity 270 kg or more (450 kg including lifting device) 30～35tons 6×4 Single cabin, maximum crew number 2, left-hand drive Basket, lifting device, electrical monitoring nozzles, equipment cabinet, fire pump, vehicle radio	2
3	Fire Truck (3,000 liters)	Tank volume Fire engine Equipments Chassis GVW Drive system Cabin On board equipment	: : : : : : :	volume （3,000 l), material (FRP), polypropylene or stainless steel) Standard water discharge (2,700 liters / min or more) (at 1.0MPa pressure) PTO type, rear-mounted pump Vehicle platform monitoring nozzle, chemical coating, projector, equipment cabinet, hose reel with monitoring nozzle, in vehicle radio 13～18tons 4×2 Double cabin, Maximum crew of 6, left-hand drive, air breather mounting device Fire hose, variable gun type nozzle, triple ladder, distributor, portable radio, stretcher, generator	3
4	Fire Truck (4,000 liters)	Tank volume Fire engine Equipments Chassis GVW Drive system Cabin On board equipment	: : : : : : :	volume （4,000 l), material (FRP), polypropylene or stainless steel) Standard water discharge （2,700lit / min or more) pressure Vehicle platform monitoring nozzle, chemical coating, reflector, equipment cabinet, monitoring drum hose with monitoring nozzle, in vehicle radio 16～20tons 4×4 Double cabin, Maximum crew of 6, left-hand drive, air breather mounting device Fire hose, variable gun type nozzle, triple ladder, distributor, portable radio, stretcher, generator	4
5	Fire Truck (10,000 liters)	Tank volume Fire engine Equipments Chassis GVW Drive system Cabin On board equipment	: : : : : : :	volume （10,000 l）, material (FRP, polypropylene or stainless steel) Standard water discharge （2,700lit / min or more) pressure （1.0MPa）, PTO type, rear mounted pump Vehicle platform monitoring nozzle, chemical coating, reflector, equipment cabinet, monitoring drum hose with monitoring nozzle, in vehicle radio 30～35tons 6×4 Single cabin, Maximum number of crew members 2, left-hand drive Fire hose, variable gun type nozzle, triple ladder, distributor, portable radio, stretcher, generator	2

【Soft Component (Technical Assistance) Plan】

(1) Necessity of Soft Component (technical assistance)

In this Project, the manufacturer's engineers will provide initial operational and operational guidance on the handling and maintenance of the equipment, but more technical guidance is required for firefighters to be able to extinguish fires and carry out rescue operations safely and effectively.

Therefore, technical guidance by experts who are familiar with fire fighting and rescue tactics is indispensable. Especially in the case of a Ladder Trucks, there is a high possibility that the vehicle will fall over and cause a serious accident if the operation method is incorrect.

Therefore, the transfer of skills to the firefighters of the fire department in the target area of this Project will be carried out by personnel who are familiar with fire fighting tactics from Japan.

(2) Contents of required Soft Component (Technical Assistance)

Approximately 90% of the existing fire fighting equipment deployed in the target area are old items that have been manufactured for more than 25 years ago, so their usage is significantly different from fire fighting equipment scheduled for maintenance by this Project. In particular, operational skills for Ladder Truck are different from existing equipment, because basket and safety device operating procedures are required. Therefore, in order to enable the safe and effective use of newly procured equipment, the following Soft Component (technical assistance) will be provided separately from the initial operation and operation guidance.

- Creation of manuals and teaching materials related to fire fighting and rescue activities using Fire Truck and Ladder Truck
- Effective fire fighting skills using Fire Trucks and Ladder Trucks to be maintained and technical guidance related to rescue activities
- Effective fire fighting skills for maintenance of fire fighting vehicles and technical guidance for rescue activities

4. Project Evaluation

4.1 Relevance

Implementation of the Project as a Japanese Grant Aid Project is considered to have a high level of relevance for the following reasons.

- As a top-level plan for this project, the National Assembly approved the "Ensuring Safety in the Event of Fire" on November 9, 1994[2,] and enacted the "Management System in Emergency Situations" in 2007 to make disaster preparedness a national priority. The framework for disaster preparedness is seen as an issue related to the governance of the country that directly affects the protection of the people, economic goals, and the protection of the country's assets by strengthening local disaster prevention measures. In addition, the 2014 Decree on Civil Protection and Emergencies set a target of 15 minutes or less for fire fighting equipment to arrive

[2] Fire Services Act No.267-VIII and No.271-VIII

at a scene, and the National Action Plan (Maia SANDU), which came into effect in 2016, is coordinated with the EU and other countries.

The National Action Plan for the fire and rescue sector is as follows

① Strengthening fire risk reduction
② Strengthening fire and rescue in rural areas
③ Strengthening organizational capacity of fire departments
④ Strengthen fire fighting and rescue capacity of GIES by upgrading its equipment and improving fire fighting and rescue techniques

This project contributes directly to the above plan and is highly appropriate for implementation.

- Due to the deterioration and malfunctions of fire fighting equipment deployed in the capital city of Chișinău, the second city of Bălți, followed by Cahul, Ungheni, and Orhei, it has become difficult to respond to disasters, including fires, that occur in these regions. The purpose of the Project is to provide a means of protecting the lives, and property of citizens, making it is a Project with a high level of urgency.
- Due to an influx of residents from rural areas, population growth and urbanization, the construction of medium-rise and high-rise buildings is accelerating in the target areas. The aging of most Fire Trucks and Ladder Trucks in the areas has made it even more difficult to carry out fire fighting and rescue operations. It is a highly relevant Project that enables fire fighting and lifesaving activities in such medium-rise and high-rise buildings, and leads to a dramatic improvement in the fire fighting system capacity in those areas.
- It is a highly relevant Project that conforms to the grid of the fire fighting and rescue fields of the "National Action Plan" that was enforced by the Republic of Moldova in 2016, and is in accordance with the national policy of the country.

4.2 Effectiveness

4.2.1 Quantitative effects

Table-3 shows the quantitative effects expected from the implementation of this Project in the target areas of Chișinău, Bălți, Ungheni, Cahul, and Orhei.

The baseline values for this indicator are not based on data for the whole of Moldova, but for the five regions planned for the project, and the target value (2026) is for the 10 fire stations that will be equipped with the equipment.

Table-3 Quantitative effects

Index		Reference value [Current status in 2020]	Target value (2026) [3 years after the completion of the Project]
Average preparation time from the issuance of the dispatch command to the dispatch of the Fire Truck		More than 3 minutes	Within 1 minute
Presence or absence of a Fire Truck that can be dispatched within 1 minute after the dispatch order		0%	100%
Average time required from the dispatch of the Fire Truck to the arrival at the site	Chișinău and Bălți	More than 15 minutes	Less than 13 minutes
	Cahul, Ungheni, Orhei	More than 18 minutes	
Average time required from arrival at the site to the start of fire extinguishing and rescue activities using a Ladder Truck		About 230 seconds	Less than 90 seconds

4.2.2 Qualitative effects

The qualitative effects expected from the implementation of this Project are as follows.

- Realization of safe, effective and efficient fire fighting activities

Contents

Preface
Summary
Contents
Location Map
List of Figures & Tables
Abbreviations

1. Overview of the Country i
2. Background and outline of the Project i
3. Summary of the Survey Results and Outline of the Project iii
4. Project Evaluation vi
4.1 Relevance vi
4.2 Effectiveness vii
4.2.1 Quantitative effects vii
4.2.2 Qualitative effects viii
Chapter 1 Background of the Project 1
Chapter 2 Contents of the Project 3
2-1 Basic Concept of the Project 3
2.1.1 Overall goal and project goals 3
2.1.2 Overview of project 3
2-2 Outline Design of the Japanese Assistance 3
2.2.1 Design Policy 3
2.2.2 Basic Plan (Equipment Plan) 4
2.2.2.1 Overall Plan 4
2.2.2.2 Equipment Plan 4
2.2.2.3 Procurement Equipment 11
2.2.3 Outline Design Drawings 12
2.2.3.1 Ladder Truck (30m class) 13
2.2.3.2 Ladder Truck (50m class) 14
2.2.3.3 Fire Truck (3,000 liters) 15
2.2.3.4 Fire Truck (4,000 liters) 16
2.2.3.5 Fire Truck (10,000 liters) 17
2.2.4 Implementation Plan 18
2.2.4.1 Implementation Policy 18

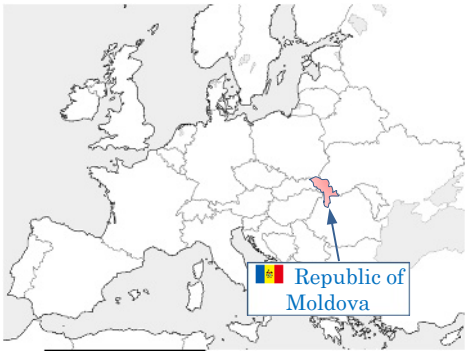
2.2.4.2 Implementation Considerations 19
2.2.4.3 Scope of Works 19
2.2.4.4 Consultant Supervision 20
2.2.4.5 Quality Control Plan 22
2.2.4.6 Procurement Plan 22
2.2.4.7 Operation Guidance Plan 25
2.2.4.8 Soft Component (Technical Assistance) Plan 25
2.2.4.9 Implementation Schedule 29
2-3 Obligations of Recipient country 30
2.3.1 Bank arrangement and issuance of payment authorization 30
2.3.2 Convenience Provision 30
2.3.3 Tax Exemption 30
2.3.4 Vehicle Registration 30
2.3.5 Expenses for fuel oils and fats, fire extinguishing agents, etc. during technical guidance and travel expenses for GIES, etc. 30
2.3.6 Transportation to each fire station 30
2.3.7 Securing land and storage space 31
2.3.8 Proper maintenance and management of equipment 31
2.3.9 Submission of Project Monitoring Report 31
2.3.10 Securing a parking lot for parking Fire Trucks 31
2.3.11 Others 31
2-4 Project Operation Plan 31
2-5 Project Cost Estimation 32
2.5.1 Initial Cost Estimation 32
2.5.2 Operation and Maintenance Cost 33
2.5.2.1 Overview 33
2.5.2.2 Concept of calculation of maintenance cost 33
2.5.3 Maintenance costs required for 10 years 34
Chapter 3 Project Evaluation 36
3-1 Preconditions 36
3-2 Necessary Inputs by Recipient Country 36
3-3 Important Assumptions 36
3-4 Project Evaluation 37
3.4.1 Relevance 37
3.4.2 Effectiveness 38
3.4.2.1 Quantitative effects 38
3.4.2.2 Qualitative effects 38

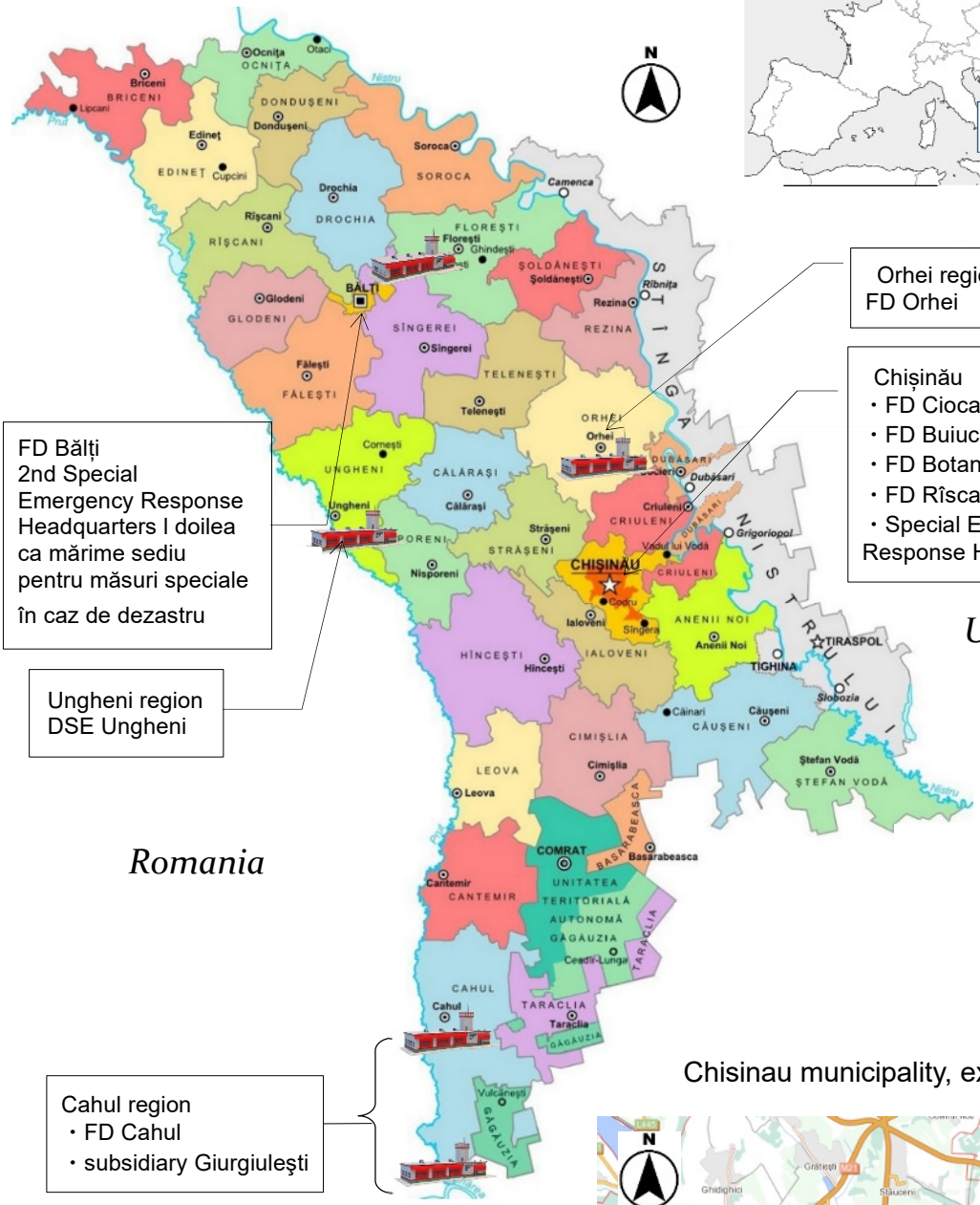
［Appendices］

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
5. Soft Component (Technical Assistance) Plan

Republic of Moldova

Republic of Moldova





Orhei region
FD Orhei

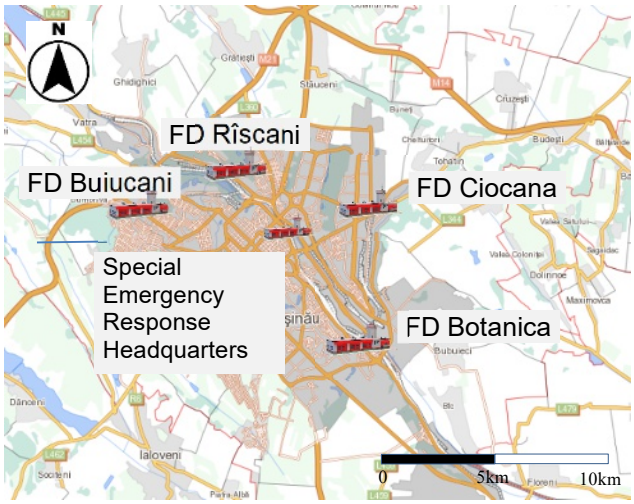
Chișinău
- FD Ciocana
- FD Buiucani
- FD Botanica
- FD Rîscani
- Special Emergency Response Headquarters

FD Bălți
2nd Special Emergency Response Headquarters I doilea ca mărime sediu pentru măsuri speciale în caz de dezastru

Ungheni region
DSE Ungheni

Cahul region
- FD Cahul
- subsidiary Giurgiuleşti

Chisinau municipality, extended map



Location map

List of Figures & Tables

■ Figures

Figure 2-1 (Sliding-ladder type) Lifter that can be installed on a truck with a ladder (lifting device).... 6
Figure 2-2 Project implementation relationship diagram 18
Figure 2-3 Transportation route 23
Figure 2-4 Transportation route from the port of Chornomorsk to Chişinău (port of unloading to final destination) 24
Figure 2-5 Maintenance costs (including fuel and oil) required for Fire Fighting Equipment (19 units in total) required for 10 years 35

■ Tables

Table 1-1 Equipment and its deployment destination in the final request 2
Table 2-2 List of fire fighting equipment and deployment destination in the final request 5
Table 2-3 Fire pump general specifications 8
Table 2-4 Chassis partial replacement parts and consumables (common to all equipment) 10
Table 2-5 Fire fighting equipment first moving parts and consumables 10
Table 2-6 Equipment Specifications 11
Table 2-7 Burden sharing between the two countries 20
Table 2-8 Equipment procurement classification 22
Table 2-9 Shipping plan 23
Table 2-10 Implementation schedule 29
Table 2-11 GIES annual budget 32
Table 2-12 Expenses borne by Republic of Moldova 33
Table 2-13 Concept of replacement timing of replacement parts 34
Table 3-14 External conditions 36
Table 3-15 Quantitative effects 38

■ Photos

Photo 2-1 Water discharge nozzle, feeding pipe installed in the body, and water discharged from the basket 6
Photo 2-2 Adapter to convert the shape of the base to maintain compatibility between GOST standard and Storz standard (owned by GIES) 7
Photo 2-3 Lockers and aluminium shutters for storage on existing Fire Trucks 9
Photo 2-4 The new site of the training centre 25

Abbreviations

International Organizations・State Organ・Donor Organizations・Development Plan・Legislation	
EU	European Union
FD	Fire Department
GIES	General Inspectorate for Emergency Situations
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
Maia SANDU	Maia SANDU
RFD	Rescues and Firefighters Directorate
UNDP	United Nations Development Programme
Administrative Unit	
Region	Regional area
Unit Symbol	
kg	Kilogram
km	kilometer
l	litter
lit	litter
m	meter
m/s	meter per second
Mpa	Megapascal
ton	tons
USD	United States Dollar
Yen	Japanese Yen
%	percentage
Others	
A/P	Authorization to Pay
DIN or Storz	Deutsches Institut für Normung
E	East longitude in degree
EU standards	European Union standards
E/N	Exchange of Note
FRP	Fibber Reinforced Plastics
G/A	Grant Agreement
GDP	Gross Domestic Product
GOST	GOsudarstvennyy Standart
GVW	Gross Vehicle Weight Rating
M/D	Minutes of Discussions
MDL	Moldovan leu
N	the north latitude
PTO	Power Take Off
Year 1st	First Year
Year 2st	Second Year
Year 3st	Third Year
Year 4st	Fourth Year
Year 5st	Fifth Tear
Year 6st	Sixth Year
4 x 2	Rear-wheel drive vehicle
4 x 4	Four-wheel drive vehicle

Chapter 1 Background of the Project

The Government of the Republic of Moldova issued a decree on civil protection in case of emergencies. According to this decree, rescue services shall be provided such that they arrive at an emergency scene within 15 minutes from a request for deployment. Due to the current state of current use of fire equipment in 2018, it took about 20 minutes on average for rescue services to respond to requests for deployment, which is an issue for rescue operations and rapid extinguishing of fires. Furthermore, the rescue operations in cases of fire could not be performed properly. This problem is gradually getting worse because the rescue equipment is deteriorating and the population is increasing, especially in Chișinău.

In order to find a solution, the Government of the Republic of Moldova requested the Government of Japan for a Grant Aid for fire fighting equipment for the following regions: the capital of Chișinău , the second largest city of Bălți, Orhei, Ungheni and Cahul[3].

In response to a request from the Government of Moldova, the Government of Japan has decided to conduct a Preparatory Survey for the Project for the Improvement of “Firefighting Equipment” procurement on firefighting equipment for the General Inspectorate for Emergency Situations (hereinafter referred to as "GIES") as the implementing agency.

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- Fire fighting and rescue operations in response to the increasing height of buildings.
- The dispatch of Fire Trucks usually has two Fire Trucks moving in a single formation.

[3] This project was initiated in Chisinau, Balti, Orhei, Ungheni, Cahul, which are FD of the firefighting. It should be noted that the country's territory is divided into 10 territorial units regarding the provision of FD coverage area of firefighting.

- In case of small fires, the 2 Fire Trucks perform the extinguishing activity simultaneously after the necessary water resources have been secured.
- In case of medium-sized fires, one of the vehicles performs the extinguishing activity while the other acts as a water relay to supply water.

Based on these conditions, the deployment of 10 Ladder Trucks and 9 Fire Trucks to each fire department in 5 regions is considered highly appropriate and necessary for realizing fire fighting and rescue activities quickly, efficiently, and safely.

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	3	FD Botanica	1	1	—	—	—
	4	FD Rîscan	1	—	1	—	—
	5	Fire brigade post of the Republican intervention center	—	—	1	—	—
Balți	6	Search and rescue detachment No1	1	1	—	1	1
Cahul	7	FD Cahul	1	—	—	—	—
	8	FD Giurgiulești	—	—	—	1	—
Ungeni	9	FD Ungheni	1	—	—	1	—
Orhei	10	FD Orhei	1	—	—	1	—
Total			8	2	3	4	2

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

2.1.1 Overall goal and project goals

The overall goal of this project is "fire fighting /disaster prevention strategy" in the "Development Plan".

In order to achieve this overall goal, the Government of Moldova has provided guidelines for strengthening the fire fighting and rescue sector in its "Medium-term Expenditure Plan," which is the basic policy of the national budget, but the fire fighting and rescue capabilities are not sufficient.

In addition, time required from the dispatch request to the arrival at a scene stipulated in the "Government Decision on Emergency Citizen Services" (Law on Citizen Protection and Emergency Situations) enacted in 2014 is "within 15 minutes". In contrast to this target value, the average dispatch time in 2018 was about 20 minutes, because the aging fire fighting equipment hinder rescue operations and rapid fire extinguishing .

This project is in line with the policy goals of Moldova and will be implemented in the fire departments in the fire and rescue jurisdictions of Chișinău, Bălți, Cahul, Ungeni and Orhei, which the government has designated as priority areas. The purpose of this project is to protect the lives and property of the residents of the target areas from fire and to ensure the safety and security of the area by replacement of fire fighting equipment and improving the fire fighting and rescue system.

2.1.2 Overview of project

This project will achieve the above goals by procuring fire fighting equipment and promoting effective operation techniques for fire fighting equipment based on the current situation of fire departments in the target areas. It is expected that this will establish reliable fire fighting / rescue systems in the target areas.

Specifically, the project will include the provision of 9 Fire Trucks and 10 Ladder Trucks for 10 fire stations in the target areas, as well as the creation of manuals for effective operation of fire fighting equipment and manuals for fire fighting and rescue operations. This project will implement a Soft Component (technical cooperation) with the purpose of providing technical guidance on fire fighting and maintenance skills.

2-2 Outline Design of the Japanese Assistance

2.2.1 Design Policy

Based on the fire fighting guideline for the number of Fire Trucks deployed per population in Moldova, this project will target fire fighting equipment that are malfunctioning or are not equipped with essential functions for safe fire extinguishing and rescue operations.

In addition, the specifications of the equipment were determined with consideration of the natural

conditions of the target areas of this project.

As a result, the final request was for the procurement of 9 Fire Trucks and 10 Ladder Trucks for 10 fire departments in Chișinău, Bălți, Cahul, Ungheni and Orhei, and provision of materials and training to improve the fire fighting and rescue operations in the five target areas.

In the event of a large-scale fire, fire fighting operations are carried out with the support of nearby fire departments outside the jurisdiction.

2.2.2 Basic Plan (Equipment Plan)

2.2.2.1 Overall Plan

The initial request for this project was for all of the fire departments at a national level. However, taking into account the extent of support that can be provided by this project, the Moldovan stakeholders prioritized and designated 5 target areas where the highest efficiency and viability for fire fighting and rescue activities could be expected. In addition, when compared with the initial request made in 2017, the domestic analysis and field survey of this project identified changes in the heights of buildings and social conditions in the Republic of Moldova, so the deployment plan was examined based on the following conditions.

- Fire fighting and rescue operations in response to the increasing height of buildings.
- The dispatch of Fire Trucks usually has two Fire Truck moving in a single formation.
- In case of small fires, the 2 Fire Trucks perform the extinguishing activity simultaneously after the necessary water resources have been secured.
- In case of medium-sized fires, one of the vehicles performs the extinguishing activity while the other acts as a water relay to supply water.

Based on these conditions, the deployment of 10 Ladder Truck and 9 Fire Trucks to each fire department in 5 regions is considered highly appropriate and necessary for realizing fire fighting and rescue activities quickly, efficiently and safely.

2.2.2.2 Equipment Plan

(1) Equipment quantities

Table 2-2 shows the List of fire fighting equipment deployment destination based on the above examination results.

Table 2-2 List of fire fighting equipment and deployment destination in the final request

Place / Region	No.	Implementation destination (fire department)	Number of units				
			Ladder Truck		Fire Truck		
			30m	50m	3,000L	4,000L	10,000L
Chisinau	1	FD Ciocana	1	—	1	—	—
	2	FD Buiucani	1	—	—	—	1
	3	FD Botanica	1	1	—	—	—
	4	FD Rîscan	1	—	1	—	—
	5	Fire brigade post of the Republican intervention center	—	—	1	—	—
Bałți	6	Search and rescue detachment No1	1	1	—	1	1
Cahul	7	FD Cahul	1	—	—	—	—
	8	FD Giurgiulești	—	—	—	1	—
Ungeni	9	FD Ungheni	1	—	—	1	—
Orhei	10	FD Orhei	1	—	—	1	—
Total			8	2	3	4	2

(2) Equipment specifications

1） Examination of Ladder Truck specifications

① About rescue height

a. About Ladder Trucks in big cities (capital Chișinău, second capital Bălți)

The fire departments in the capital city of Chișinău and the second city of Bălți shall be provided with Ladder Truck with a rescue height of 50 m, which are suitable for fire extinguishing and rescue activities in buildings up to 17 stories high.

b. About Ladder Trucks in local cities (Cahul, Ungheni, Orhei)

The fire departments in the three local cities of Cahul, Ungheni, and Orhei shall be provided with Ladder Truck with a rescue height of 30 m, which are suitable for fire extinguishing and rescue activities in buildings with less than 9 floors and which have excellent mobility.

② Extendable ladder / Shrinkage method (lifter)

The body of the Ladder Truck shall be equipped with a lifting device called a "lifter", which can quickly transport the people requiring rescue from the upper floors. Therefore, the 50m class Ladder Trucks shall be equipped with lifters.

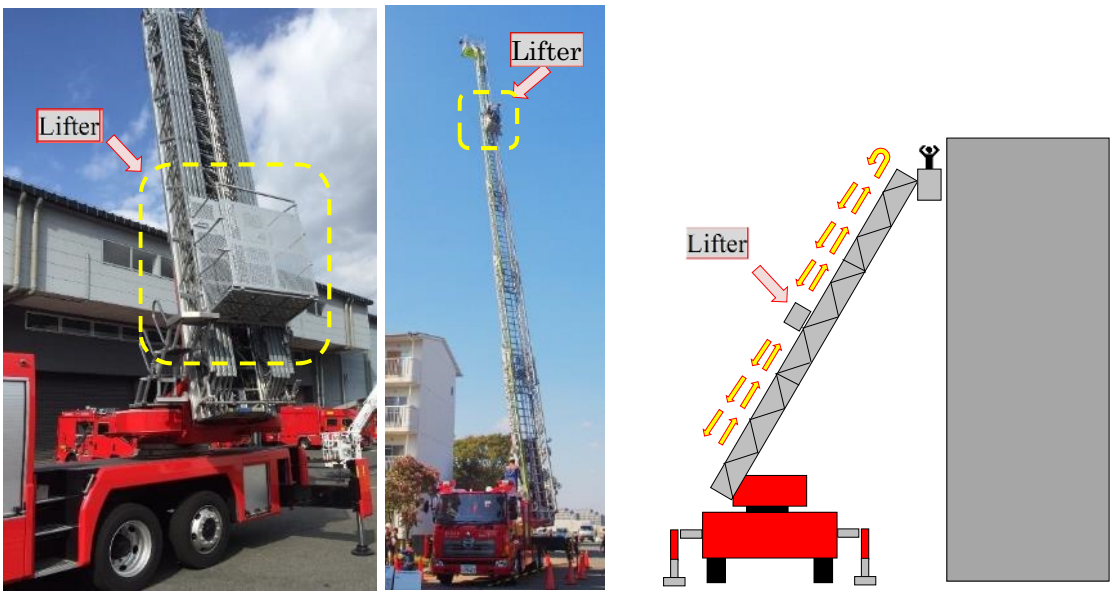


Figure 2-1 (Sliding-ladder type) Lifter that can be installed on a truck with a ladder (lifting device)

③ About baskets and feeding pipe / water discharge nozzle

The existing Ladder Trucks are not equipped with a rescue basket and a water discharge nozzle, which are important for ensuring the safety of firefighters. Therefore, Ladder Truck shall be equipped with both.

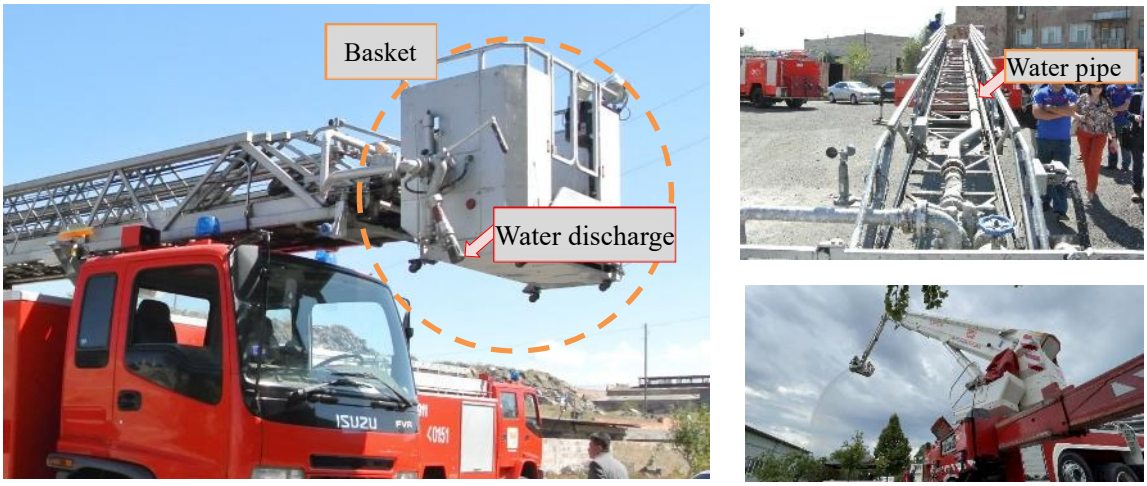


Figure 2-1 Water discharge nozzle, feeding pipe installed in the body, and water discharged from the basket

④ About the fire pump to be installed in the Ladder Truck

The 50m class Ladder Truck shall be equipped with a fire pump similar to that of a Fire Truck in order to reduce the loss in water pressure.

⑤ **About fitting sections (joints)**

Storz (DIN standard) will be adopted for the sections (joints) of fire fighting trucks to be provided by this project in order to ensure compatibility with the existing equipment.

⑥ **About on-board equipment.**

The main on-board products will be products that comply with EU standards.

Photo 2-2 Adapter to convert the shape of the base to maintain compatibility between GOST standard and Storz standard (owned by GIES)

⑦ **About cabin format**

When dispatching firefighters, the cabin format will take into account the number of crew members.

⑧ **About the drive system**

The axle of the 30m class Ladder Truck will be a 2-axels system and a 4x2 arrangement of the wheels will be adopted.

The axle of the 50m class Ladder Truck will be a 3-axis system, due to the weight of the body part, and a 6x4 arrangement of the wheels with the four rear wheels as the driving wheels will be adopted in order to reliably convey the traction of the wheels to the road surface.

⑨ **About the cold region specifications of the Ladder Truck**

The specifications are standard to the manufacturer.

⑩ **About emission regulations of Ladder Trucks**

Euro emission regulations will be adopted in the Republic of Moldova. At least three of the chassis manufacturers[4] (Volvo, MAN, and Mercedes) have authorized distributors in the capital, Chișinău, so there should be no problem with maintenance.

2） Examination of Fire Truck specifications

① **About water tank capacity**

It is necessary to have a sufficient water tank capacity to continue fire extinguishing activities by the time the supporting fire engine arrives. This project determined the water tank capacity based on estimates for the time of arrival. A tank capacity of at least 3,000 liters would be required until support Fire Trucks arrive. This project will provide Fire Truck equipped with large-capacity 10,000-litre water tanks that can supply water for about 20 minutes. Although large-capacity Fire

[4] In the case of a large vehicles, the part that combines the cab part, the frame part, the engine part and the power transmission part is called the chassis. These parts are produced collectively by the chassis manufacturer.

Truck have inferior mobility, they will facilitate the extinguishing of large-scale fires and complement the activities of smaller Fire Truck (3,000 to 4,000 liters).

② About fire pump

After consideration of the water supply from the river, Japan's "A-2 class pump" will be selected to ensure the performance exceeding the capacity of the current equipment as shown in the table 2-3. The fire pumps will be installed at the rear of the vehicles for convenience and in consideration of the fire fighting tactics of the Republic of Moldova.

Table 2-3 Fire pump general specifications

		General specifications	
		Fire pump of the Project	**※Existing fire pump**
Water cannon		2,700 litters/m(1.0MPa)	2,500 litters/m(1.0MPa)
Continuous operating time (standard test)		More than 8 hours	Indefinite time
Impeller	Format	2 stages	Single stage
	Material	Bronze casting	Bronze casting
Pump shaft		Stainless steel	Stainless steel
Power type		PTO	PTO
Installation of fire pump		Rear mount	Rear mount
Priming pump		Vane (rotating blade) type.	Piston type

※Existing Fire Trucks: In this table, it refers to the latest existing Fire Truck procured under the Austrian loan.

③ About fitting sections (joints)

Similar to a Ladder Truck.

④ About equipment

The Fire Truck will be equipped with equipment for efficient and safe fire fighting activities in addition to the minimum equipment that are generally attached to the body of the fire engines, such as water tanks, fire pumps, pipes, lockers for storing on-board equipment, search lights, flashlights, beacons, loudspeakers, etc..

⑤ **About the locker for storing on-board items**

Lockers (Photo 2-3) for storing loaded items will be installed on the left and right sides of the vehicle to mount materials and equipment.

Photo 2-3 Lockers and aluminium shutters for storage on existing fire trucks

⑥ **About on-board products**

Therefore, in addition to the necessary equipment for the fire engine to be maintained in this project, rescue equipment will also be installed.

⑦ **About cabin format**

As with the Ladder Truck, the cabin format will take into account the number of crew members when dispatching firefighters.

⑧ **About the drive system of the Fire Truck**

Table 2-6 takes into consideration the road conditions.

⑨ **About the cold region specifications of the Fire Truck**

Same as for a Ladder Truck.

⑩ **About exhaust gas regulation of Fire Truck**

Same as for a Ladder Truck.

(3) Design of replacement parts and consumables

1） **Design of replacement parts and consumables**

The plan of replacement parts and consumable items is shown below separately for the chassis part and body part of the Fire Fighting Equipment.

2） **Chassis part**

This project will provide replacement parts and consumables for the chassis part as shown in Table 2-4.

Table 2-4 Chassis partial replacement parts and consumables (common to all equipment)

List of articles	Quantity
Fuel filters and related parts	Manufacturer recommended quantity
Air filters and related parts	Manufacturer recommended quantity
Engine oil filters and related parts	Manufacturer recommended quantity
Emission regulation related equipment replacement parts	Manufacturer recommended quantity

3） Body part

This project will provide replacement parts and consumables for the body part as shown in Table 2-5, in the same way as for the chassis part.

Table 2-5 Fire fighting equipment first moving parts and consumables

Equipment	Replacement parts	Quantity
Ladder Truck (30m & 50m class）	Attitude control related parts (sensors, packing, etc.)	Item and quantities proposal by manufacturer → Survey Team and manufacturers will discuss and determine the minimum quantity according to the circumstances of the Republic of Moldova
	Proximity sensor related parts	
	Wind speed measurement related sensors	
	Foot switches	
	Operation switches	
	Lights	
	Electrical replacement parts (buzzers, speakers, relay switches, etc.)	
	Portable radio spare batteries	
	Radio spare microphones	
Fire Truck (3000, 4000 & 10000 litters)	Electrical replacement parts (lighting, lighting, fuses, bulb sets, relay switches, etc.)	
	Various valve related replacement parts	
	Replacement of hoses and nozzles	
	Replacement batteries for hydraulic rescue equipment	
	Portable radio replacement batteries	
	In-vehicle radio replacement microphones	
	Fire fighting pump packings	

2.2.2.3 Procurement Equipment

Based on the above, the outline specifications are as shown in Table 2-6.

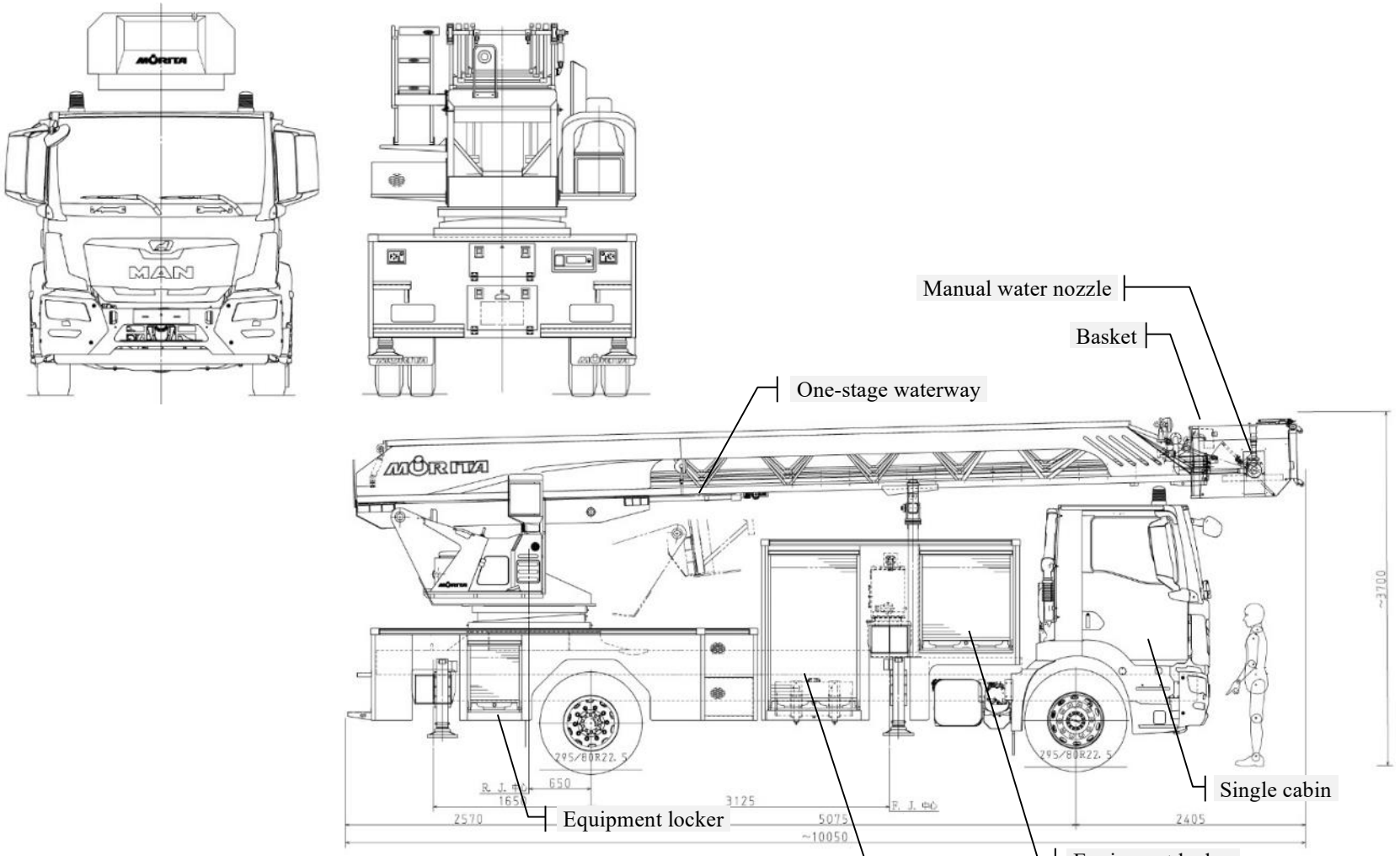
Table 2-6 Equipment Specifications

No.	Vehicle type	Main specifications or configurations		Qty
1	Ladder truck (30m)	Rescue height	: more than 30m	8
		Ladder type	: straight type	
		Basket	: Maximum load capacity 360 kg or more	
		Chassis GVW	: 16～20tons	
		Drive sysem	: 4×2	
		Cabin	: Single cabin, maximum crew number 2, left-hand drive	
		Equipments	: Basket, manual monitoring nozzle, equipment cabinet, in vehicle radio	
2	Ladder truck (50m)	Rescue height	: more than 50m	2
		Ladder type	: straight type (lifting device installed)	
		Basket	: Maximum load capacity 270 kg or more (450 kg including lifting device)	
		Chassis GVW	: 30～35tons	
		Drive system	: 6×4	
		Cabin	: Single cabin, maximum crew number 2, left-hand drive	
		Equipments	: Basket, lifting device, electrical monitoring nozzles, equipment cabinet, fire pump, vehicle radio	
3	Fire truck (3,000 liters)	Tank volume	: volume （3,000 l), material (FRP), polypropylene or stainless steel)	3
		Fire engine	: Standard water discharge (2,700 liters / min or more) (at 1.0MPa pressure) PTO type, rear-mounted pump	
		Equipments	: Vehicle platform monitoring nozzle, chemical coating, projector, equipment cabinet, hose reel with monitoring nozzle, in vehicle radio	
		Chassis GVW	: 13～18tons	
		Drive system	: 4×2	
		Cabin	: Double cabin, Maximum crew of 6, left-hand drive, air breather mounting device	
		On board equipment	: Fire hose, variable gun type nozzle, triple ladder, distributor, portable radio, stretcher, generator	
4	Fire truck (4,000 liters)	Tank volume	: volume （4,000 l), material (FRP), polypropylene or stainless steel)	4
		Fire engine	: Standard water discharge （2,700lit / min or more) pressure	
		Equipments	: Vehicle platform monitoring nozzle, chemical coating, reflector, equipment cabinet, monitoring drum hose with monitoring nozzle, in vehicle radio	
		Chassis GVW	: 16～20tons	
		Drive system	: 4×4	
		Cabin	: Double cabin, Maximum crew of 6, left-hand drive, air breather mounting device	
		On board equipment	: Fire hose, variable gun type nozzle, triple ladder, distributor, portable radio, stretcher, generator	
5	Fire truck (10,000 liters)	Tank volume	: volume （10,000 l）, material (FRP, polypropylene or stainless steel)	2
		Fire engine	: Standard water discharge （2,700lit / min or more) pressure （1.0MPa）, PTO type, rear mounted pump	
		Equipments	: Vehicle platform monitoring nozzle, chemical coating, reflector, equipment cabinet, monitoring drum hose with monitoring nozzle, in vehicle radio	
		Chassis GVW	: 30～35tons	
		Drive system	: 6×4	
		Cabin	: Single cabin, Maximum number of crew members 2, left-hand drive	
		On board equipment	: Fire hose, variable gun type nozzle, triple ladder, distributor, portable radio, stretcher, generator	

2.2.3 Outline Design Drawings

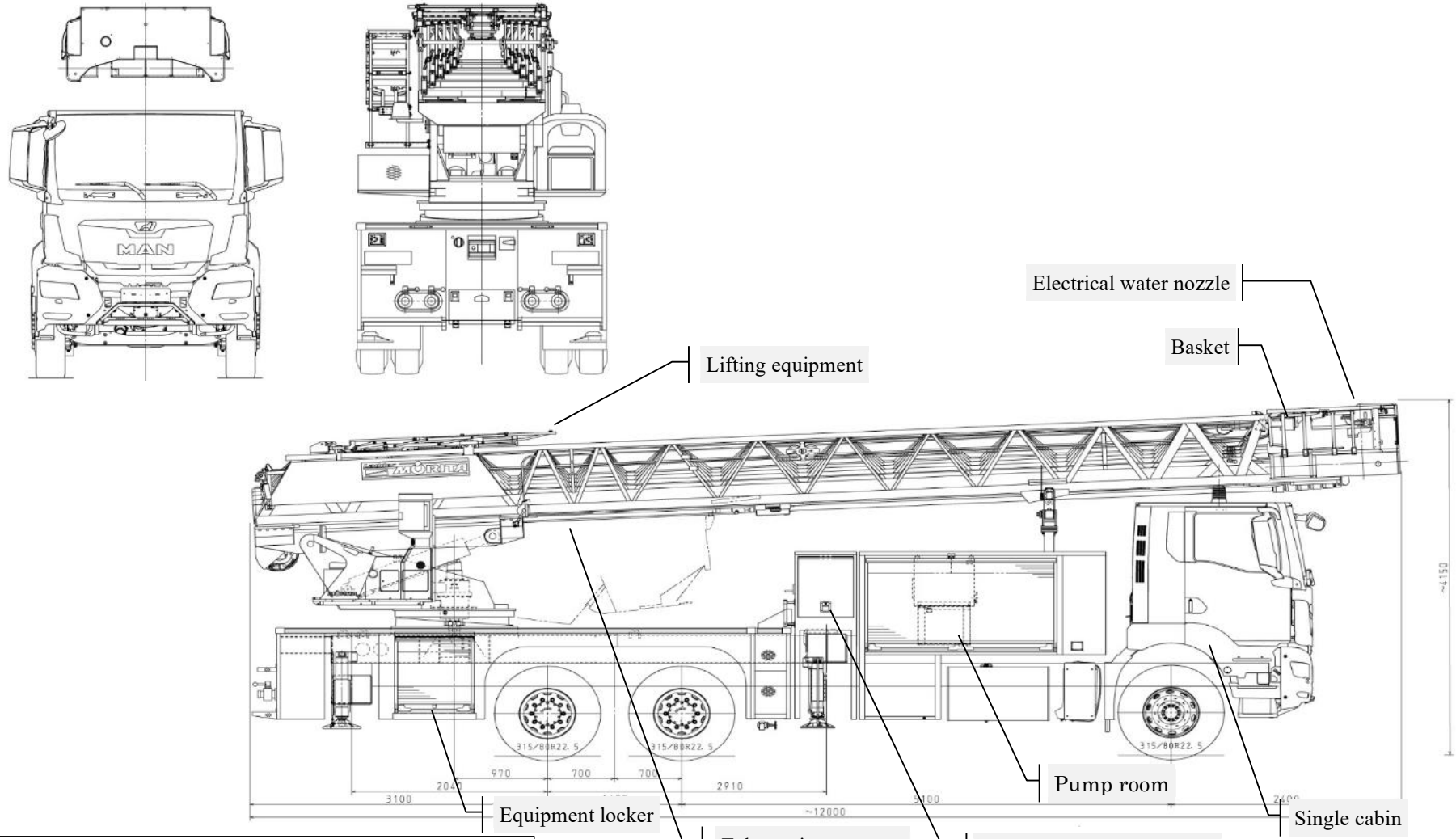
Schematic diagrams of fire fighting equipment to be deployed in this project are shown on the following pages.

2.2.3.1 Ladder Truck (30m class)



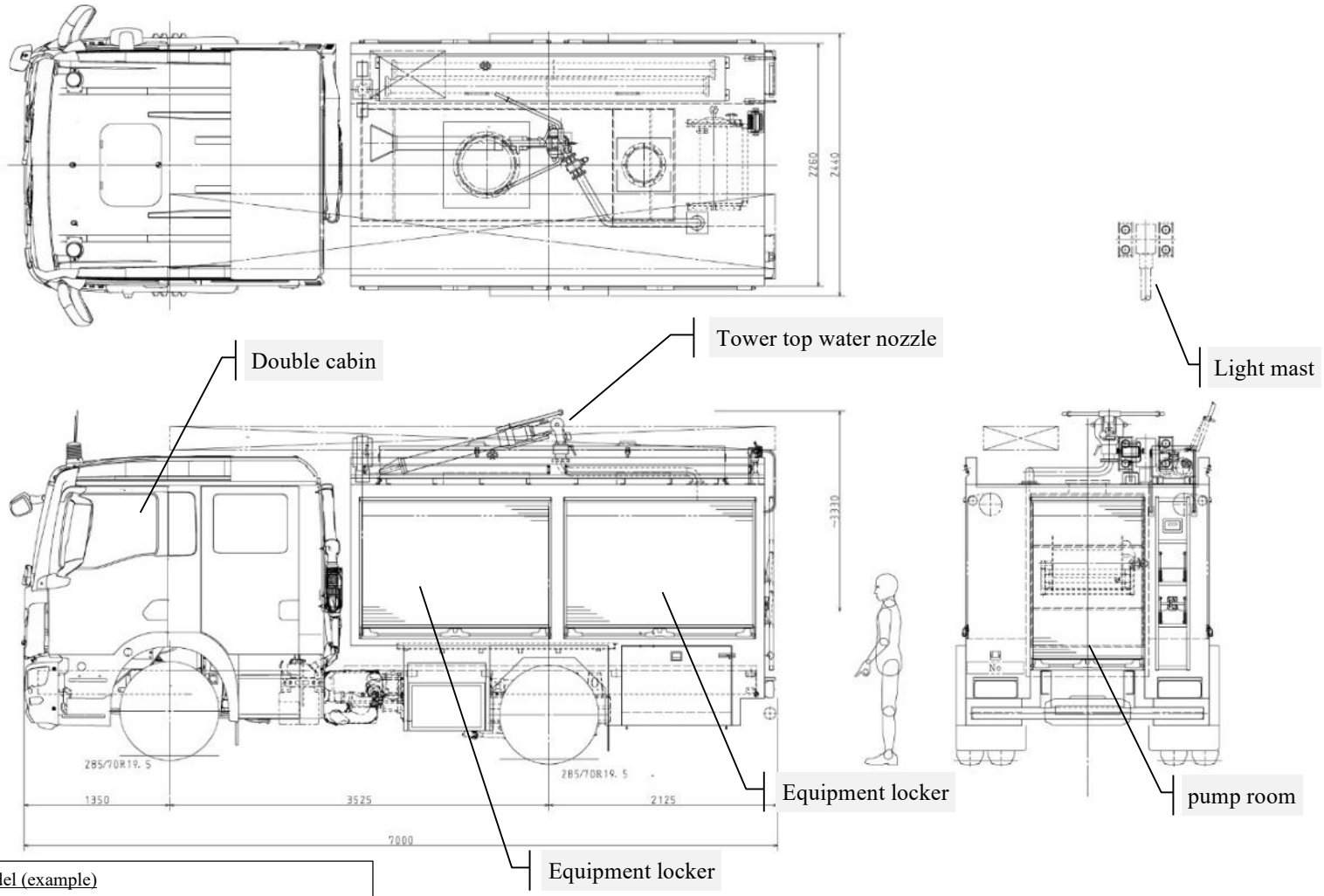
Preparatory survey design model (example)
Chassis: MAN SE (Germany)
Fire extinguishing equipment: MORITA HOLDINGS CORPORATION (Japan)

2.2.3.2 Ladder Truck (50m class)



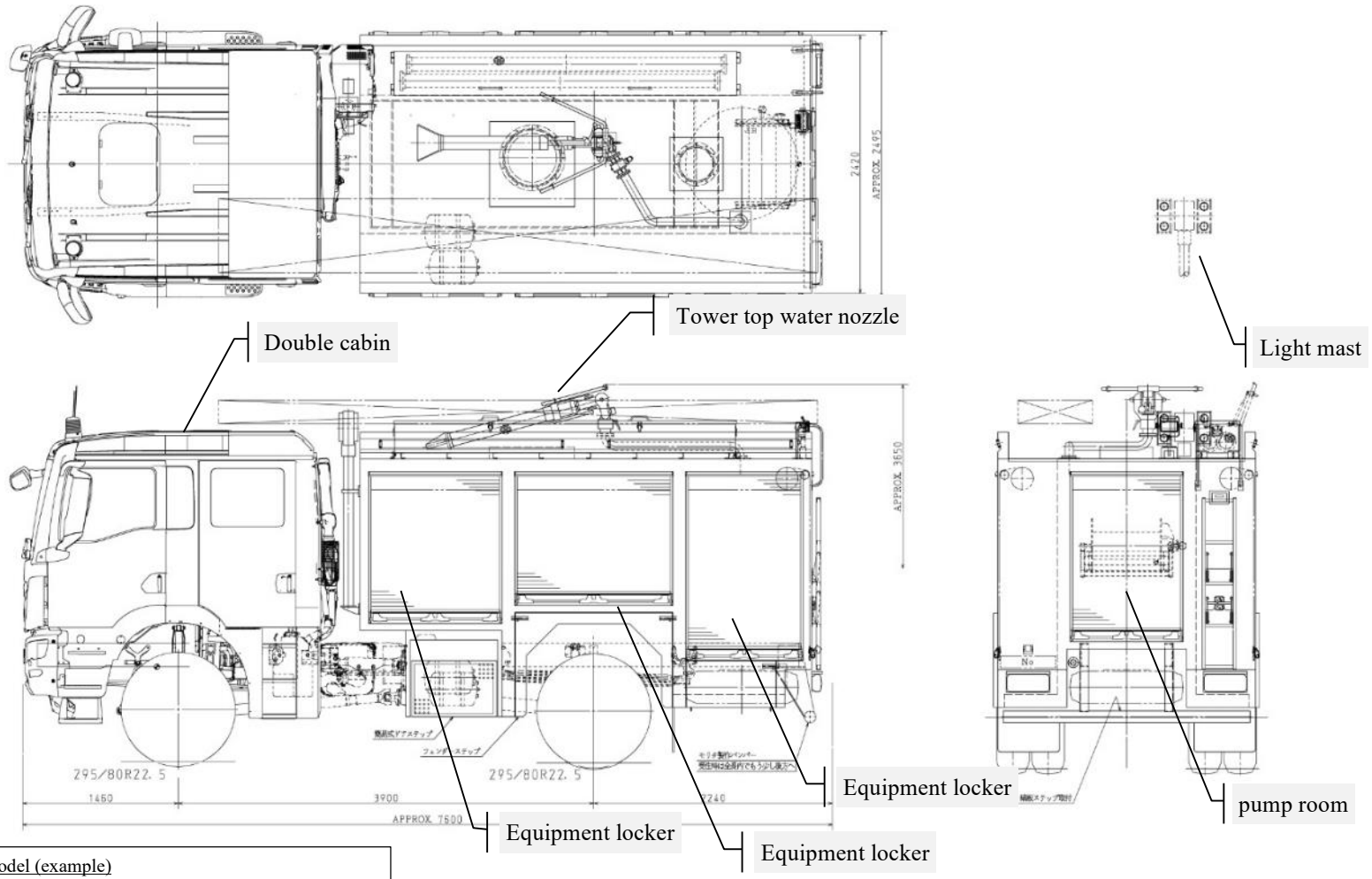
Preparatory survey design model (example)
Chassis: MAN SE (Germany)
Fire extinguishing equipment: MORITA HOLDINGS CORPORATION (Japan)

2.2.3.3 Fire Truck (3,000 liters)



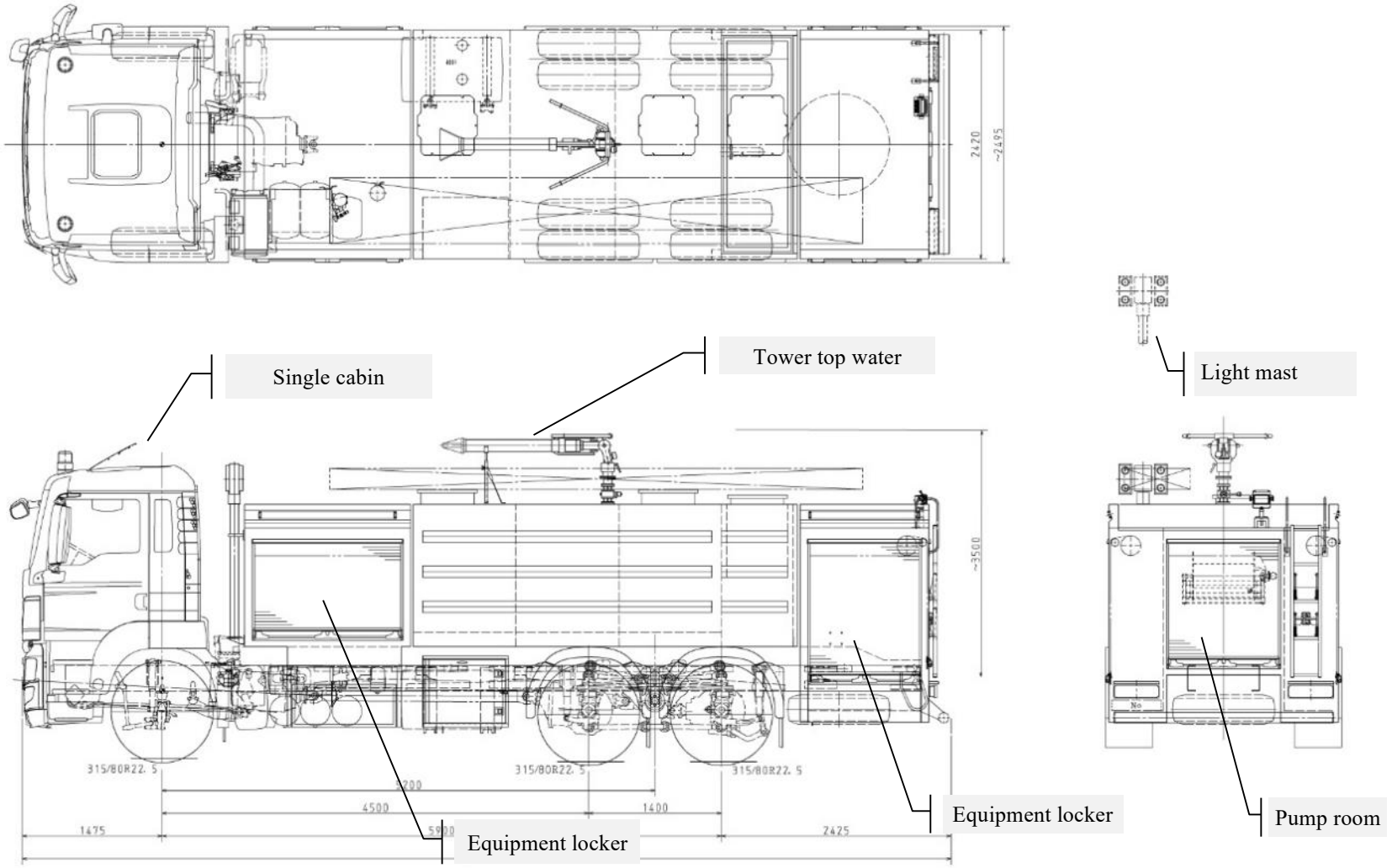
Preparatory survey design model (example)
Chassis: MAN SE (Germany)
Fire extinguishing equipment: MORITA HOLDINGS CORPORATION (Japan)

2.2.3.4 Fire Truck (4,000 liters)



Preparatory survey design model (example)
Chassis: MAN SE (Germany)
Fire extinguishing equipment: MORITA HOLDINGS CORPORATION (Japan)

2.2.3.5 Fire Truck (10,000 liters)



Preparatory survey design model (example)
Chassis: MAN SE (Germany)
Fire extinguishing equipment: MORITA HOLDINGS CORPORATION (Japan)

2.2.4 Implementation Plan

2.2.4.1 Implementation Policy

This project will be implemented in accordance with the framework of Japanese Grant Aid to ensure proper implementation schedule, accuracy and quality.

After the survey, this project approved by the Japanese Government and will be implemented after the both Governments sign an Exchange of Notes (E/N) and a Grant Agreement (G/A). The following is Japanese Grant Aid scheme for the implementation of this project.

(1) Project implementation entity

This project is implemented with Grant Aid from the Government of Japan. Figure 2-2 shows the systems of related organizations in both countries.

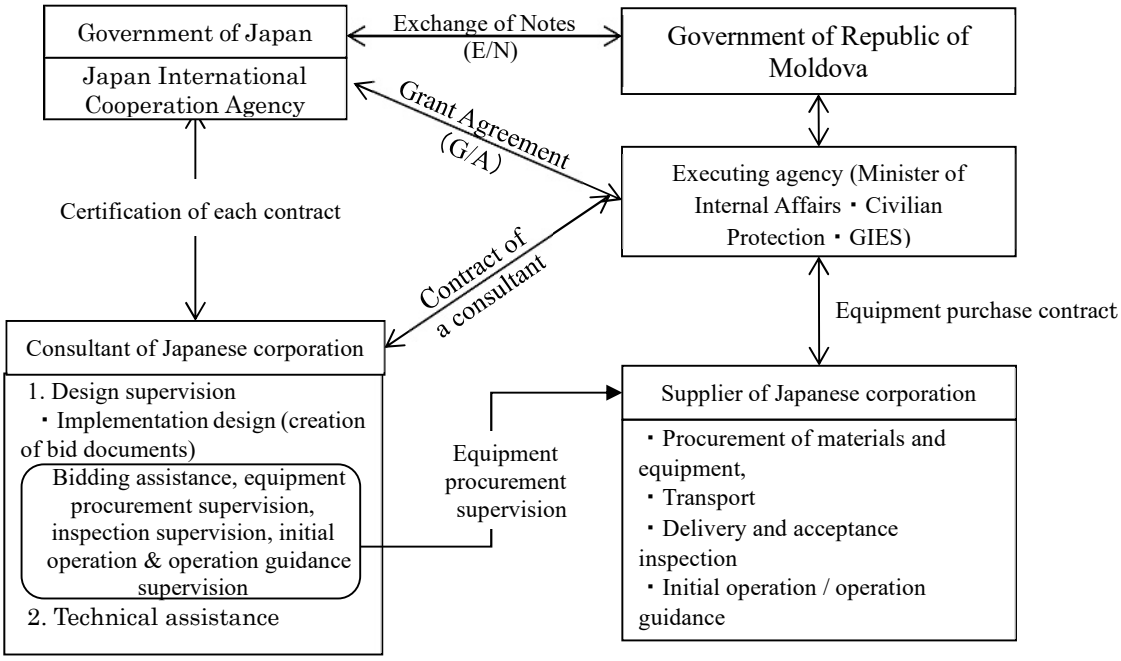


Figure 2-2 Project implementation relationship diagram

(2) Government of the Republic of Moldova

The operation and maintenance of Fire Trucks shall be carried out at the 10 headquarters of the fire departments in Chișinău, Bălți, Cahul, Ungheni and Orhei. The implementing agency, GIES, shall secure the necessary budget for operation and maintenance.

(3) Consultation

After the conclusion of the E/ N and G/ A, GIES shall promptly conclude a service contract (consultant contract) with a Japanese consultant. The contracted consultant shall be responsible for engineering services for the implementation design of this project, bid document creation, bid execution assistance and procurement supervision work, support components, and will be responsible for the delivery of equipment and completion of support components for this project.

(4) Equipment supplier

The supplier shall be decided by open bidding.

The bidding method shall be a one-step, two-ticket method. First, the technical bill will be opened, and the consultant will conduct a technical examination of the quality, specifications and quantities. At a later date, the bid price of the suppliers who passed this technical examination will be opened, and the consultant will examine the bid price following the technical examination and decide the final successful bidder. A contract will be signed between the Republic of Moldova stakeholders and the successful bidder, as the supplier of the equipment.

(5) Japan International Cooperation Agency (JICA)

In accordance with the Grant Aid, JICA, as the implementing agency of the Japanese Government for this cooperation, will perform the tasks necessary to promote the implementation of this project.

2.2.4.2 Implementation Considerations

(1) About the Grant Aid system

Because GIES, as the implementing agency, does not have an experience of equipment procurement through Grant Aid from Japan, it is necessary to fully explain and discuss the implementation procedure at each stage of implementation to prevent delays and non-compliance.

(2) About liability for defects in the transportation period

The final destination for the equipment purchased from Japan will be the new training centre that GIES plans to build in Razeni, where it will be presented to the Republic of Moldova. The equipment supplier shall be careful not to cause problems with the Moldovan stakeholders in terms of liability for defects caused by damage, theft, etc., which may occur during shipping, inland transport or unloading.

In particular, land transport from the new training centre to 10 fire stations after delivery will be borne by the Republic of Moldova, so the supplier must be careful not to cause problems with liability for defects caused by damage, theft, etc., during this transportation.

2.2.4.3 Scope of Works

The matters that are usually agreed to be the responsibility of the Moldovan stakeholders as a condition of a Grant Aid project includes support for customs clearance procedures and tax exemption procedures, personnel costs such as during initial operation guidance, and the cost of fuel used during training. Table 2-7 shows the “burden sharing between the two countries” agreed in the M / D consultation.

Table 2-7 Burden sharing between the two countries

Item	Contents	Burden classification		Remarks
		Japan	Moldova	
Equipment procurement	Equipment procurement	●		
	Sea / land transportation	●		To the customs clearance place
	Customs clearance		●	Including tax exemption
	Inland transportation	●	●	After unloading, Japan shall bear the cost to the designated site of GIES in Chișinău city. Transportation (self-propelled) from Chișinău to each fire station shall be borne by the R. of Moldova
	Vehicle registration fee		●	Vehicle registration fee and procedure for driving on public roads
Initial operation	Operation guidance	●	●	Personnel expenses and travel expenses for GIES staff who participate in the training shall be borne by the R. of Moldova
Operational guidance and training for support components, etc.	Inspection and maintenance guidance	●	●	Fuel, oil and water training exercises shall be borne by R. of Moldova Equipment unpacking location and training venue shall be provided by R. of Moldova Instructor dispatch costs (personnel costs, travel costs, etc.) shall be borne by Japan
Maintenance work	Secure storage space		●	Repair work for each fire station (fire stations that need repairs)
	Equipment maintenance		●	
	Daily training		●	

2.2.4.4 Consultant Supervision

(1) Basic policy

After concluding the E / N (Exchange Notes) and G / A (Grant Agreement), the Japanese consultant shall conclude a consulting business contract with the government of the Republic of Moldova and implements design and procurement supervision within the scope of business indicated in the E / N based on the framework of Grant Aid.

It is important for the consultant to fully understand the background of the implementation of this project and the background and purpose of the overview design related to the formulation of the content of cooperation before starting the work.

The expertise required of procurement supervisors will be knowledge of the details and operation methods of the equipment, and experience of operation guidance and inspection and maintenance guidance. In particular, guidance on daily inspection and maintenance is important to ensure the effective and long-term use of the procured equipment by the Republic of Moldova's stakeholders, so procurement supervisors will be required to provide maintenance guidance based on knowledge and experience of the equipment.

(2) Implementation design work

The main contents of the implementation design work are as follows.

- Discussions and on-site confirmation
- Review of equipment specifications
- Bid document creation
- Explanation and approval of bid documents
- Bidding assistance (public announcement, distribution of bid documents, implementation of bidding procedures and bid evaluation)
- Contract promotion assistance (contract negotiation, contract witnessing and contract certification procedures)

(3) Procurement supervision work

The main contents of procurement supervision work are as follows.

- Confirmation of issuance of equipment purchase order
- Confirmation of production drawings, factory product inspection and pre-factory inspection
- Coordination of pre-shipment inspection (consignment to a third party) and issuance of inspection report
- Pre-meeting at the site (delivery schedule, confirmation of tax exemption measures, and initial operation and operation guidance implementation procedure)
- Assembly, initial operation and operation guidance, and witnessing
- Acceptance and delivery witnessing
- Implementation of support components

2.2.4.5 Quality Control Plan

In order to confirm that the equipment to be procured meets the quality and specifications specified in the contract, the following inspections will be carried out at each stage of the procurement works.

- Confirmation of contents of equipment purchase order issued by supplier
- Confirmation of production drawings, factory inspection at equipment manufacturing factory, pre-shipment inspection
- Pre-shipment inspection
- Inspection at the time of equipment delivery

2.2.4.6 Procurement Plan

(1) Procurement supplier

A survey by the study team determined that the procurement source of fire fighting equipment for the Republic of Moldova will be Japan. Although the finished vehicles will be assembled in Japan, the components will be made overseas, so the maintenance situation in is shown in Table 2-8.

Table 2-8 Equipment procurement classification

Equipment	Country of origin of chassis	Fire vehicle Country of manufacture (assembly)	Country of origin[5] and the country of procurement
Ladder Truck (30m & 50m class)	➢ Japan[6] ➢ Germany ➢ Sweden	Japan	Japan
Fire Truck (3,000, 4,000 & 10,000 litters)			

(2) Procurement route

1） Transportation range

As mentioned above, all equipment procured under this Project is planned to be purchased in Japan. The scope of transportation that will be borne by Japanese stakeholders will be from the factory where the fire fighting equipment will be manufactured, to the site where the equipment will be handed over, inspected and the initial operation and training will take place. Therefore, the GIES training centre in Răzeni, 35 km from Chișinău, will be the final destination for transportation provided by the Japanese stakeholders.

It will be transported to each fire station by the Republic of Moldova. After receiving and accepting the equipment and the initial operation and the operational guidance, the firefighters who have completed the training will drive the Fire Trucks and will transport them to each fire department.

[5] The country where the firefighting vehicles are finally assembled.
[6] At the time of estimation of this Project, it is not possible to procure a chassis made in Japan that meets the required specifications due to technical issues.

2） Transport route

The transport route is shown in figure 2-3. There are only a small river ports in Republic of Moldova, and roll-on/roll-off ships do not operate. In addition, container vessels are operated irregularly to the Moldavian national ports. Therefore, the equipment will be unloaded in the port of Chornomorsk in the neighboring country of Ukraine. After the temporary customs clearance, the trailer will be transported through the city of Bilhorod-Dnistrovskyi, on the border of Ukraine, and then the main customs clearance will be carried out in Chișinău, after which the equipment will be transported to the new training center in Razeni. Figure 2-4 shows the route to the new training center at the final destination after unloading in the port of Ukraine.

The transportation period will be about 2 months.

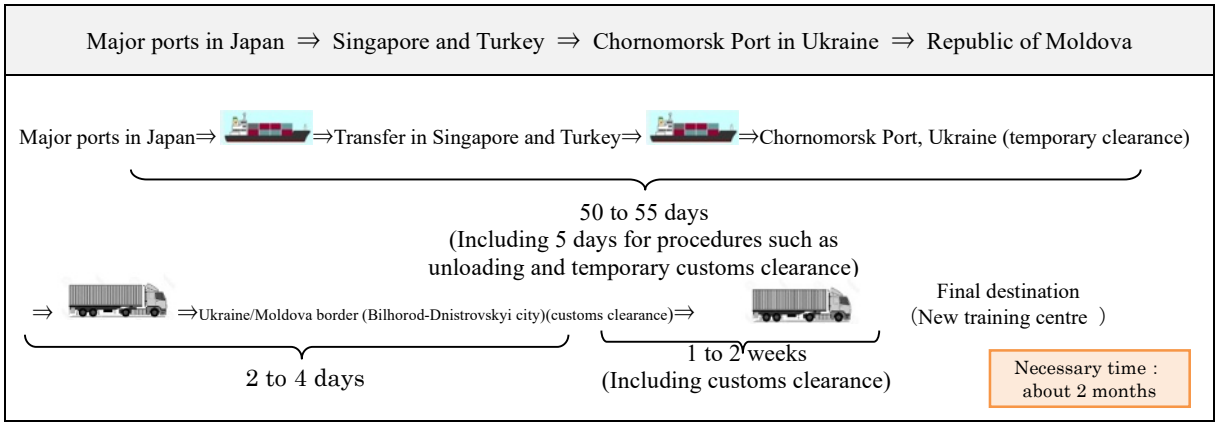


Figure 2-3 Transportation route

3） Marine transportation

① Shipping plan

As the equipment purchased under this Project are emergency service vehicles on which someone's life may depend, it is necessary to procure them as soon as possible. Once manufactured, they will be exported and shipped in two batches.

Table 2-9 Shipping plan

Shipping	Equipment
Shipping lot 1	Ladder Truck 30m class: 4 units, Ladder Truck 50m class: 2 units Fire Truck 3,000 litters L: 3 units, Fire Truck 4,000 litters: 4 units, Fire Truck 10,000 litters: 2 units
Shipping lot 2	Ladder Truck 30m class: 4 units

② Marine transportation

The shipping route, according to Figure 2-3, from major Japanese ports to the Ukrainian port of Chornomorsk, will take about 45-50 days. As for transport ships, the vehicles are planned to be

transported by roll-on/roll-off ships, and some items and spare parts will be transported by containers.

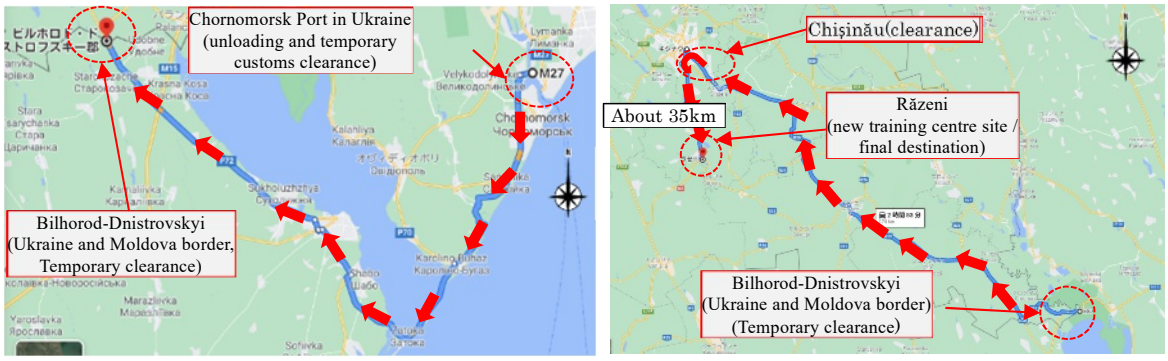
③ Temporary customs clearance at the port of unloading

In the port of Chornomorsk in Ukraine, which is the port planned for unloading, it will take about 5 days for various procedures, such as unloading and temporary customs clearance.

4） Inland transportation

① Overview of inland transportation

From the port of Chornomorsk in Ukraine, the equipment will be transported on the mainland to the new training center at the final destination by trailer. As shown in Figure 2-4, the actual customs clearance will be done in Chişinău, and the transportation will be as far as to the new training center in Razeni, the final destination, about 35 km from Chişinău.



(Chornomorsk to Bilhorod-Dnistrovskyi：about 95km)　(Bilhorod-Dnistrovskyi to Chişinău: about 175km

Figure 2-4 Transportation route from the port of Chornomorsk to Chişinău (port of unloading to final destination)

It is about 95 km from Chornomorsk Port to the city of Bilhorod-Dnistrovskyi on the border between Ukraine and Republic of Moldova, and the road conditions of highways and general roads are good (paved conditions, narrow vehicle width, steep road alignment). There is no problem as a transport route. The waiting time at the border between Ukraine and Moldova is estimated to be 1-2 days.

② Land transportation in Moldova

The customs clearance procedure will be carried out from Bilhorod-Dnistrovskyi to Chişinău, and the distance is about 175km to the new training center. The road conditions on the main roads and general roads from Chornomorsk to the new training center are also good (paved condition, narrow vehicle width, steep road alignment), and there is no problem as a transport route. The required number of days is about 1 to 2 days.

From main customs clearance in Chişinău to the final destination in Chişinău

The actual customs clearance will take place in Chișinău. As a tax exemption procedure, the Japanese supplier shall submit an Invoice, Packing List, Certificate of Origin, and Insurance Policy (original) for each shipment to GIES before the equipment arrives.

GIES shall prepare the Application for Import Duty Exemption based on these documents and submits it to the Department of Revenue and Customs of the Ministry of Finance together with the E / N and G / A. After customs clearance, fire fighting equipment will be transported by land to the new training centre in Razeni, the final destination.

It would take 1-2 weeks for these procedures and transportation.

5) Temporary storage of equipment (final destination)

The new training center at the final destination of the equipment will be used as a temporary storage place for the equipment, and equipment will be unpacked, adjustment test run, initial operation / operation guidance, and acceptance inspection will be carried out at this location. The mainland has already been acquired as GIES land, and the new training center is scheduled to be completed in December 2023. Even if training facilities are under construction, a vast land can be secured, so there would not be problem to use it as a temporary storage site. In addition, the width of the approach road to the main site is sufficient, and there is no problem in bringing in fire fighting equipment that are planned to be procured in this Project.

Photo 2-4 The new site of the training centre Used as a temporary storage place for equipment (Răzeni town)

2.2.4.7 Operation Guidance Plan

The Japanese supplier will carry out the adjustment / test run, the equipment delivery / acceptance, and the initial operation / operation guidance at the new training center in Razeni. Initial operation / operation guidance shall be carried out by engineers of the fire engine manufacturers under the control of the Japanese supplier, and the participants will the Ladder Truck engineers, fire brigade staff and mechanics in the target areas.

The consultant shall assign procurement supervision personnel to check whether the contents of initial operation and operation guidance have been implemented according to the contract, and coordinate with GIES and related organizations, including process and safety supervision.

2.2.4.8 Soft Component (Technical Assistance) Plan

(1) Necessity of Soft Component (technical assistance)

In this Project, the manufacturer's engineers will provide initial operational and operational guidance on the handling and maintenance of the equipment, but more technical guidance is required for firefighters to be able to extinguish fires and carry out rescue operations safely and effectively.

Therefore, technical guidance by experts who are familiar with fire fighting and rescue tactics is

indispensable. Especially in the case of a Ladder Trucks, there is a high possibility that the vehicle will fall over and cause a serious accident if the operation method is incorrect.

Therefore, the transfer of skills to the firefighters of the fire department in the target area of this Project will be carried out by personnel who are familiar with fire fighting tactics from Japan.

(2) Contents of required Soft Component (Technical Assistance)

Approximately 90% of the existing fire fighting equipment deployed in the target area are old items that have been manufactured for more than 25 years ago, so their usage is significantly different from fire fighting equipment scheduled for maintenance by this Project. In particular, operational skills for Ladder Truck are different from existing equipment, because basket and safety device operating procedures are required. Therefore, in order to enable the safe and effective use of newly procured equipment, the following Soft Component (technical assistance) will be provided separately from the initial operation and operation guidance.

- Creation of manuals and teaching materials related to fire fighting and rescue activities using Fire Truck and Ladder Truck
- Effective fire fighting skills using Fire Trucks and Ladder Trucks to be maintained and technical guidance related to rescue activities
- Effective fire fighting skills for maintenance of fire fighting vehicles and technical guidance for rescue activities

(3) Target of Soft Component (Technical Assistance)

The skills transfer to firefighters in the target area of this Project shall be carried out by conducting a baseline survey to check the level of proficiency, and then setting a target level with the aim of improving to that level of ability. In addition, the target personnel for the skills transfer will be firefighters assigned to the target areas, which will be about 60 people.

Specifically, the goals to be achieved are the following five points.

- Manuals and teaching materials will be prepared and will be used continuously.
- Firefighters will be able to carry out fast and efficient fire fighting activities with a Fire Truck.
- Firefighters will be able to carry out efficient fire fighting and rescue operations at high altitudes with Ladder Truck.
- Maintenance capability of fire fighting vehicles will be improved.
- Leverage GIES resources for instructors

(4) Achievements of Soft Component (Technical Assistance)

1） Creation of a maintenance manual for sustainable fire fighting and rescue activities

Since the fire fighting vehicles maintained by this Project have new functions compared to existing fire fighting equipment, revisions and supplements to manuals and teaching materials related to safety management and fire fighting activities shall be made that reflect the new functions. At the same time, it is important to be able to establish and pass on operational skills among firefighters through operational guidance.

2） Improvement of Fire Truck operation skills and fire extinguishing skills

① Operational skills

Firefighters will learn the daily maintenance and inspection methods required for continuous operation of the fire engines.

② Fire extinguishing skills

As a series of activities at fire scenes, firefighters will learn safe and efficient fire fighting tactics such as evacuation guidance for the general public, coordination with Ladder Trucks, and vehicle placement to secure water for fire fighting.

3） Improvement of Ladder Truck operation skills

① Operational skills

Lectures and practical training will be conducted with the aim of learning the daily maintenance and inspection methods required for sustainable operation of Ladder Trucks. In particular, if the inspection of the body and outriggers are neglected, it may cause serious accidents, so these instructions are a key part of technical guidance.

② Fire extinguishing skills

As a series of activities at fire scenes, firefighters will learn how to relay fire extinguishing water from a fire engine and how to use a Ladder Truck for fire fighting and rescue tactics. In particular, there are many functional differences from the old Ladder Trucks, such as ensuring the stability of the vehicle body when extending the ladder and a series of operations up to the ladder, and the incorrect operation of Ladder Trucks can lead to major accidents involving firefighters and the general public. Therefore, it is necessary for firefighter to learn the skills for effective use of these functions to ensure safety when operating a ladder.

(5) Soft Component (Technical Assistance) activities

1） Preparation of manuals for sustainable fire fighting and rescue activities

Manuals will be created by incorporating new functions for fire fighting equipment procured in this Project. In addition, GIES will take the lead in creating manuals and consultants will provide technical support to foster ownership and make the manuals more suitable for the local conditions.

2） Fire Truck operation skills and fire extinguishing skills (including connected water supply)

The Fire Truck procured in this Project can discharge water at high pressure, and water can be smoothly supplied to other Fire Trucks.

In addition, the equipment installed in the Fire Truck has not only improved performance but also improved functionality, which is different from the equipment owned by GIES. As a premise, technical guidance will be given so that the equipment can be used safely and effectively

3） Ladder Truck operation skills (including basic operation of the Ladder Truck, etc.)

Many of the Ladder Trucks owned by GIES have malfunctioning body stabilizers, safety devices, and outriggers. In addition, many vehicles are not equipped with a basket at the top of the ladder, so fire extinguishing and rescue activities cannot be carried out safely.

Furthermore, even if the basket is equipped, many vehicles do not have a monitor nozzle (water cannon), so firefighters carry fire hoses themselves and devise water discharge equipment to extinguish the fire. Therefore, firefighters are always in danger of falling due to the recoil of the hose during water supply. The Ladder Trucks maintained in this Project are equipped with a basket with a monitor nozzle, and it is expected that the safety assurance of firefighters will be greatly improved. However, it is necessary to plan technical guidance on the correct operation method.

(6) Target trainees of Soft Component Work (technical assistance)

1） Firefighters of the target fire station

Soft Component Work (technical assistance) will be provided for target trainees (about 60 people are assumed at the moment) who will be selected from the 10 fire departments in Chișinău, Bălți, Cahul, Ungheni and Orhei.

The trainees to be selected will comprise a team of captains engaged in actual fire fighting and rescue activities, Fire Truck drivers, Ladder truck drivers, and l firefighters.

Japanese engineers will provide technical guidance to GIES instructors regarding manuals and will provide support during the practical exercises to ensure the independence of the GIES.

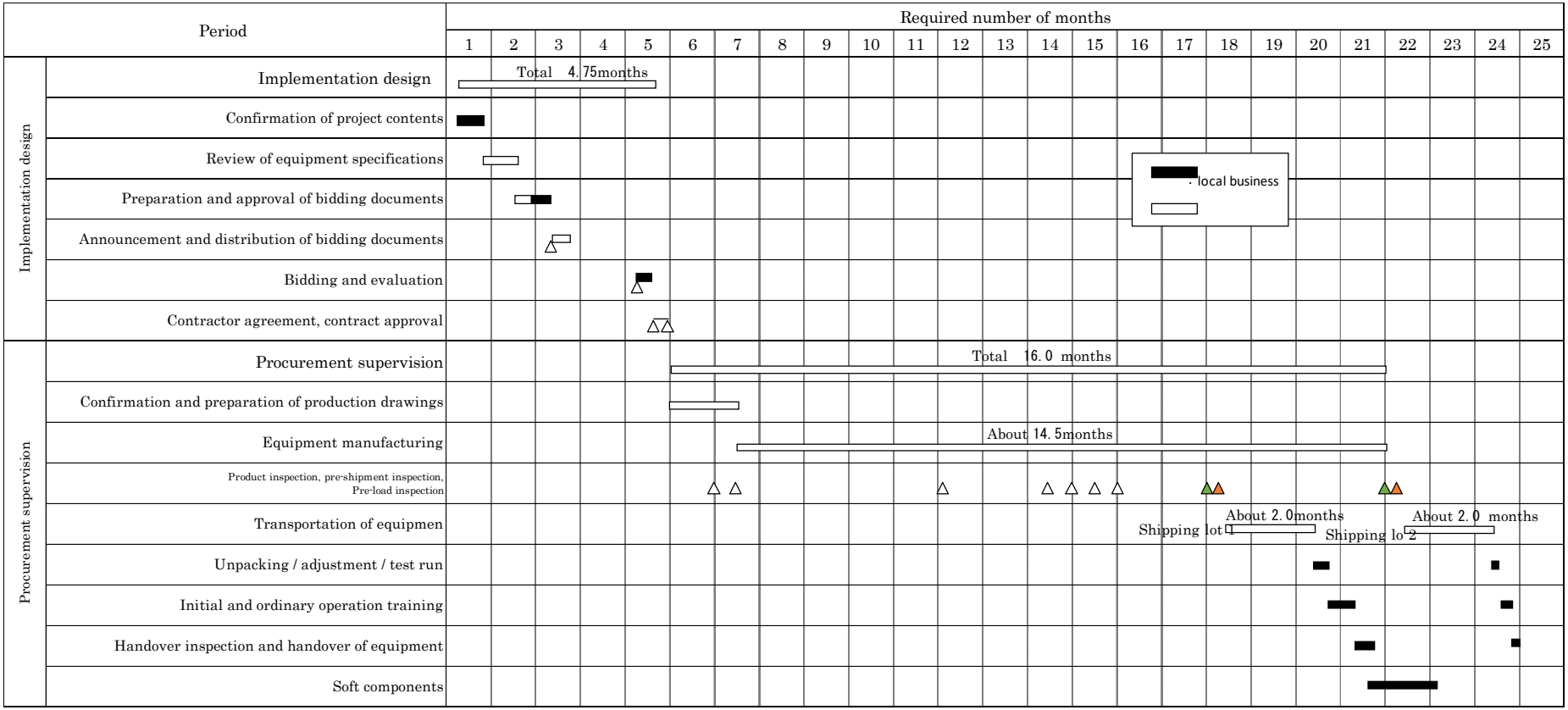
2） GIES headquarters staff and training center staff

Priority will be given to the selection of GIES headquarters staff and training center executives (a few) who are involved in fire fighting education in Moldova.

2.2.4.9 Implementation Schedule

This Project will be implemented on the basis of Grant Aid from Japan. The process is shown in Table 2-10.

Table 2-10 Implementation schedule



2-3 Obligations of Recipient country

When this Project is implemented with Japan's Grant Aid, the items to be shared by the Republic of Moldova are as follows.

2.3.1 Bank arrangement and issuance of payment authorization

An account will be opened in the name of the Republic of Moldova at a bank in Japan and Moldovan stakeholders shall issue a payment authorization to the bank. Moldovan stakeholders will also be responsible for paying the notification fee and the payment fee of the payment authorization form in accordance with the banking agreement.

2.3.2 Convenience Provision

Moldovan stakeholders will facilitate Japanese nationals engaged in this Project during their entry and stay in the Republic of Moldova and their visits to government-affiliated organizations in order to carry out their work.

2.3.3 Tax Exemption

Moldovan stakeholders will ensure exemption from customs duties and other domestic taxes for Japanese nationals and Japanese corporations engaged in this Project. In addition, Moldovan stakeholders will prepare the documents necessary for tax exemption and facilitate the customs clearance for procured equipment related to this Project.

2.3.4 Vehicle Registration

Moldovan stakeholders will promptly carry out vehicle registration procedures so that Fire fighting Equipment, except loaded equipment can operate in the Republic of Moldova.

2.3.5 Expenses for fuel oils and fats, fire extinguishing agents, etc. during technical guidance and travel expenses for GIES, etc.

Moldovan stakeholders will bear the cost of travel expenses, such as daily allowances and accommodation expenses, for GIES members related to initial operation / operation guidance and Soft Component Work (technical assistance), and the cost of fuel, oil and fire extinguishing agents required during these technical guidance activities.

2.3.6 Transportation to each fire station

The Japanese stakeholders will bear the cost of transporting the equipment to the GIES equipment

storage area. After the delivery is completed, Moldovan stakeholders will be responsible for transporting the equipment to the 10 fire stations in each region and the associated transportation costs.

2.3.7 Securing land and storage space

Moldovan stakeholders will secure an appropriate parking space for fire fighting equipment after they have been deployed to each fire station.

2.3.8 Proper maintenance and management of equipment

Moldovan stakeholders will properly maintain and manage fire fighting equipment and secure the budget required for continued maintenance. Moldovan stakeholders will also secure personnel and maintain the necessary technical level so that fire fighting equipment can be operated safely and appropriately.

2.3.9 Submission of Project Monitoring Report

Moldovan stakeholders will submit the Project monitoring reports at the required timing (4 times in total).

2.3.10 Securing a parking lot for parking Fire Trucks

This preparatory survey found that some garages of the target fire departments need to be repaired in order to park the fire fighting equipment to be procured. The study team consulted with stakeholders in the Republic of Moldova and Moldovan stakeholders agreed to carry out repairs before the arrival of the equipment.

2.3.11 Others

Regarding this Project, all other expenses will be borne by the Republic of Moldova, except for those incurred by the Japanese stakeholders as Grant Aid.

2-4 Project Operation Plan

GIES will carry out daily maintenance of Fire fighting Equipment at each fire station, and in the event that a fire station is unable to carry out repairs on its own, GIES will request a repair from the manufacturer's agency, because GIES does not have a maintenance shop. The budget required for the maintenance of these equipment shall be included in the GIES budget every year as shown in Table 2-11.

The fire fighting equipment to be maintained in this Project will be maintained and managed under the same system.

The study team estimated that the annual maintenance costs and fuel/ oil costs required for 10 Ladder Truck and 9 Fire Truck would average 11,699 USD/year in the first and second years, and average 24,055 USD/year in the 3rd to 10th years (see Fig. 2-5). This is less than 1% of the GIES annual budget of 4,048,112 USD for maintenance in 2020 (see Table 2-11). Therefore, it is assumed that there will be no budgetary problems.

Since this Project will replace some of the existing equipment, it is expected that maintenance costs will be significantly reduced compared to the existing equipment that are frequently repaired due to breakdowns. As for fuel and oil, it is also expected that the consumption will be reduced due to improved fuel efficiency.

Table 2-11 GIES annual budget

（unit：american dollar）

	2015	2016	2017	2018	2019	2020
Total budget (actual)	12,108,141	12,925,038	16,731,189	18,238,244	18,929,506	20,660,780
Budget breakdown						
Labor costs	10,256,999	10,360,115	13,305,340	14,257,784	13,145,519	15,770,644
Maintenance costs, etc.	1,561,266	2,188,626	2,354,967	3,294,113	2,503,109	4,048,112
Utility bills, etc.	242,504	300,481	515,959	329,089	1,438,714	186,999
facilities	47,372	75,816	554,923	357,258	1,842,164	655,025
total	12,108,141	12,925,038	16,731,189	18,238,244	18,929,506	20,660,780

Source: Created by a survey team from GIES materials

2-5 Project Cost Estimation

2.5.1 Initial Cost Estimation

Expenses borne by Republic of Moldova

Table 2-12 Expenses borne by Republic of Moldova

Expenses			Approximate Project cost (One million yen)
Before bidding	Bank arrangement fee		0.05 million yen
Before the supplier contract	Bank arrangement fee		0.05 million yen
Before April 2022	Parking lot maintenance cost for parking fire fighting vehicles		2.0 million yen
Before receiving the Fire Fighting Equipment	Fuel oils and fats in initial operation / operation guidance, travel expenses for GIES staff, etc.		0.1 million yen
	Fuel oils and fats for Soft Component Work (technical assistance), travel expenses for GIES staff, etc.		0.2 million yen
Until the equipment is received	Vehicle registration (license plate acquisition)		0.5 million yen
Immediately after receiving the Fire Fighting Equipment	Maintenance costs (Including fuel and oils and fats)	1-2 years (total period)	2.6 million yen
		3 to 10 years (total period)	21.4 million yen
Total			27 million yen

※The amount of each expense item is calculated including the decimal point. The total amount is stated in millions of Japanese-yen.

2.5.2 Operation and Maintenance Cost

2.5.2.1 Overview

After the fire fighting equipment are deployed, the Republic of Moldova will bear the cost of maintaining the fire fighting equipment with the GIES budget.

2.5.2.2 Concept of calculation of maintenance cost

Maintenance costs are classified and calculated on the basis of the following principles: (1) spare parts costs, (2) maintenance costs, (3) fuel / oil costs and (4) environmental measures costs.

(1) Costs for spare parts

Since the cost of replacement parts differs for each model, the cost of replacement parts for each model is included. In addition, since the required replacement parts differ from year to year, the cost was calculated according to the policy shown in Table 2-13.

Table 2-13 Concept of replacement timing of replacement parts

Period	Necessary spare parts
Immediately after maintenance until year 1	Parts originally built into the car body
Year1st	Use replacement parts borne by Grant Aid
Year2nd	Usually, the necessary parts cost is recorded in the second year.
Year3rd	Usually, the necessary parts cost is recorded in the third year.
Year4th	Usually, the necessary parts cost is recorded in the first year.
Year 5th	Usually, the necessary parts cost is recorded in the second year.
Year 6th	Usually, the necessary parts cost is recorded in the third year.
Below, repeated up to the 10th year	

(2) Maintenance costs required by local distributors

The cost required for the installation work of the above replacement parts was included in the maintenance cost estimation.

(3) Fuel and oil costs

Since the average fuel consumption performance differs for each vehicle, the cost of fuel and oil was calculated in consideration of the different fuel consumption performance for each vehicle type.

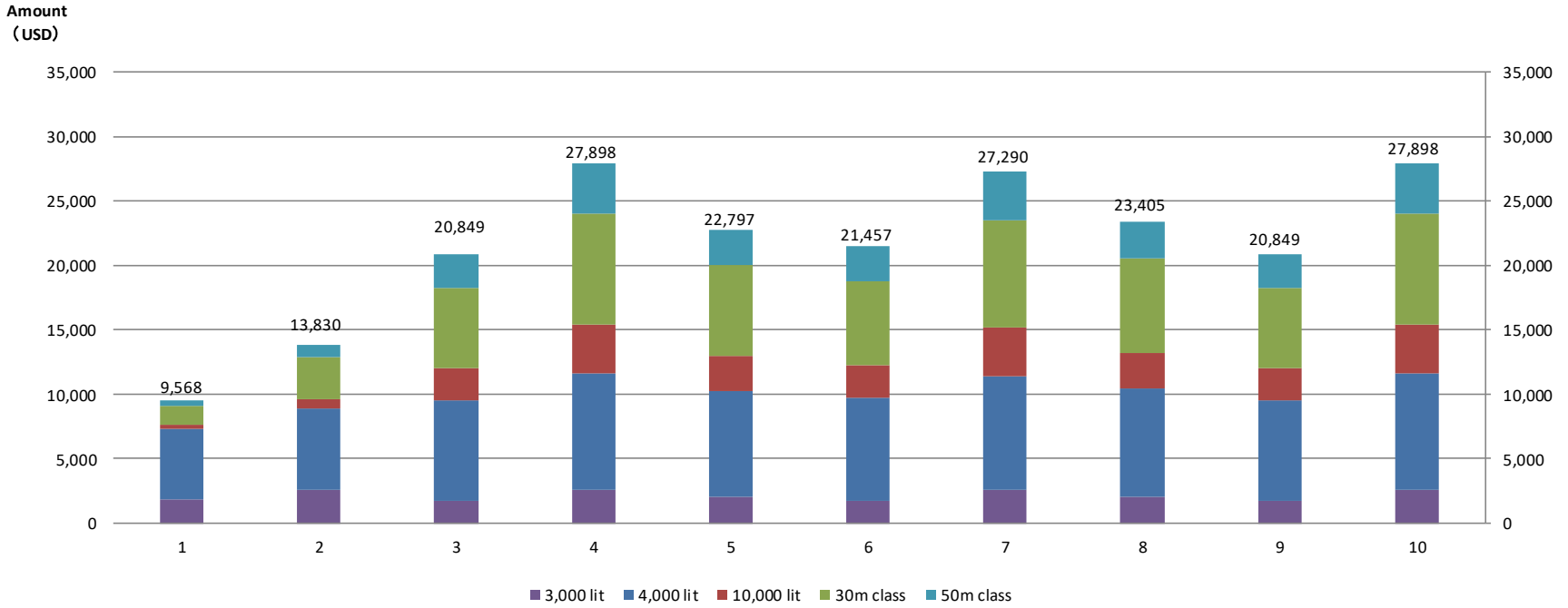
(4) Environmental measures costs

This Project plans to provide fire fighting equipment on the premise that the chassis will comply with the Euro emission regulations.

Chassis that comply with this environmental standard use a selective catalytic reduction (SCR) system to purify exhaust gas. In calculating the maintenance cost, the cost of SCR system maintenance was included in the maintenance cost estimation.

2.5.3 Maintenance costs required for 10 years

Figure 2-5 shows the maintenance required for 10 years.



Unit: USD

Type of Vehicle	Currency unit	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
3,000 lit	USD	1,881	2,553	1,790	2,601	2,098	1,790	2,601	2,098	1,790	2,601
4,000 lit	USD	5,387	6,284	7,773	9,006	8,183	7,925	8,854	8,335	7,773	9,006
10,000 lit	USD	387	836	2,494	3,763	2,699	2,570	3,687	2,775	2,494	3,763
30m class	USD	1,435	3,230	6,207	8,674	7,027	6,511	8,370	7,331	6,207	8,674
50m class	USD	478	927	2,585	3,854	2,790	2,661	3,778	2,866	2,585	3,854
Total	USD	9,568	13,830	20,849	27,898	22,797	21,457	27,290	23,405	20,849	27,898
Period average	USD	11,699		24,055							
Period total	USD	23,398		192,443							

Figure 2-5　Maintenance costs (including fuel and oil) required for Fire Fighting Equipment (19 units in total) required for 10 years

Chapter 3 Project Evaluation

3-1 Preconditions

As a prerequisite for the implementation of the Project, GIES must implement the matters described in "2-3 Obligation of Recipient country". In particular, securing a garage for Fire Fighting Equipment is important, but the procedures for securing a garage are in progress within GIES, and it is assumed that there will be no problem with other burdens.

3-2 Necessary Inputs by Recipient Country

The following shows the necessary items to be inputted (burdened) by the Moldovan stakeholders to effectively utilize the equipment to be maintained by this Project and to achieve the overall goal of the Project.

- Securing skills, human resources, and budget to maintain and manage fire fighting equipment
- Securing human resources such as firefighters necessary for safe fire fighting activities and securing the technical level of GIES (members)
- Securing a maintenance budget necessary for maintenance
- Securing costs for fuel, oil and fire extinguishing materials necessary for fire fighting activities
- Continuous fire fighting skill training

3-3 Important Assumptions

Table 3-14 shows the external conditions for the manifestation and sustainability of the effects of this Project.

Table 3-14 External conditions

Item	Content	External conditions
Objectives	To improve the safety and security of the inhabitants of Chișinău, Bălți, Cahul, Ungheni and Orhei	There will be no change in the disaster prevention strategy, fire fighting and disaster prevention plans of the Republic of Moldova
Achievement	To improve fire fighting and rescue operations capabilities	Fire fighting and rescue activities by GIES continue
Activities	➢ Implementation of education and training for the succession of fire fighting and rescue techniques using fire fighting equipment developed through this Project ➢ Implementation of fire fighting equipment maintenance ➢ Maintenance of fire fighting equipment	➢ Education and training in the field of fire fighting and rescue at GIES will continue ➢ The budget required for GIES will be secured

3-4 Project Evaluation

3.4.1 Relevance

Implementation of the Project as a Japanese Grant Aid Project is considered to have a high level of relevance for the following reasons.

- As a top-level plan for this project, the National Assembly approved the "Ensuring Safety in the Event of Fire" on November 9, 1994[7], and enacted the "Management System in Emergency Situations" in 2007 to make disaster preparedness a national priority. The framework for disaster preparedness is seen as an issue related to the governance of the country that directly affects the protection of the people, economic goals, and the protection of the country's assets by strengthening local disaster prevention measures. In addition, the 2014 Decree on Civil Protection and Emergencies set a target of 15 minutes or less for fire fighting equipment to arrive at a scene, and the National Action Plan (Maia SANDU), which came into effect in 2016, is coordinated with the EU and other countries.

  The National Action Plan for the fire and rescue sector is as follows

  ① Strengthening fire risk reduction
  ② Strengthening fire and rescue in rural areas
  ③ Strengthening organizational capacity of fire departments
  ④ Strengthen fire fighting and rescue capacity of GIES by upgrading its equipment and improving fire fighting and rescue techniques

  This project contributes directly to the above plan and is highly appropriate for implementation.
- Due to the deterioration and malfunctions of fire fighting equipment deployed in the capital city of Chișinău, the second city of Bălți, followed by Cahul, Ungheni, and Orhei, it has become difficult to respond to disasters, including fires, that occur in these regions. The purpose of the Project is to provide a means of protecting the lives, and property of citizens, making it is a Project with a high level of urgency.
- Due to an influx of residents from rural areas, population growth and urbanization, the construction of medium-rise and high-rise buildings is accelerating in the target areas. The aging of most Fire Trucks and Ladder Trucks in the areas has made it even more difficult to carry out fire fighting and rescue operations. It is a highly relevant Project that enables fire fighting and lifesaving activities in such medium-rise and high-rise buildings, and leads to a dramatic improvement in the fire fighting system capacity in those areas.
- It is a highly relevant Project that conforms to the grid of the fire fighting and rescue fields of

[7] Fire Services Act No.267-VIII and No.271-VIII

the "National Action Plan" that was enforced by the Republic of Moldova in 2016, and is in accordance with the national policy of the country.

3.4.2 Effectiveness

3.4.2.1 Quantitative effects

Table 3-15 shows the quantitative effects expected from the implementation of this Project in the target areas of Chișinău, Bălți, Ungheni, Cahul, and Orhei.

The baseline values for this indicator are not based on data for the whole of Moldova, but for the five regions planned for the project, and the target value (2026) is for the 10 fire stations that will be equipped with the equipment.

Table 3-15 Quantitative effects

Index		Reference value [Current status in 2020]	Target value (2026) [3 years after the completion of the Project]
Average preparation time from the issuance of the dispatch command to the dispatch of the Fire Truck		More than 3 minutes	Within 1 minute
Presence or absence of a Fire Truck that can be dispatched within 1 minute after the dispatch order		0%	100%
Average time required from the dispatch of the Fire Truck to the arrival at the site	Chișinău and Bălți	More than 15 minutes	Less than 13 minutes
	Cahul, Ungheni, Orhei	More than 18 minutes	
Average time required from arrival at the site to the start of fire extinguishing and rescue activities using a Ladder Truck		About 230 seconds	Less than 90 seconds

3.4.2.2 Qualitative effects

The qualitative effects expected from the implementation of this Project are as follows.

- Realization of safe, effective and efficient fire fighting activities

［Appendices］

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
5. Soft Component (Technical Assistance) Plan

1. Member List of the Study Team

Name	Responsibilities	Organizations
(1) JICA		
Mr. Seiichi NEGISHI	Team Leader:	JICA Public Governance and Financial Management Team Governance Group
Mr. Suguru TAKAHASHI	Team Leader (Acting):	JICA Public Governance and Financial Management Team Governance Group
Mr. Masatoshi OKANO	Staff	JICA Public Governance and Financial Management Team Governance Group
(2) Consultant		
Mr. Takefumi MAYUMI	Project Manager/ Fire Fighting System	INGEROSEC Corporation
Mr. Makoto WAKAMATSU	Fire Fighting System	INGEROSEC Corporation
Mr. Nobuyuki KAMIHASHI	Fire Fighting Equipment Planner/ Equipment Maintenance Planning / Cost Estimation 2	INGEROSEC Corporation
Mr. Hidehiko HORIE	Procurement Planner / Cost Estimation 1	Katahira & Engineers International
Mr. Shigehito SHIGA	Interpreter	INGEROSEC Corporation
Mr. Masato NISHIKAWA	Local Interpreter	INGEROSEC Corporation

2. Preparatory Study Schedule

2.1 Survey Schedule (November 27 to December 4, 2020)

Schedule			JICA	Consultant				
			(1)	(1)	(2)	(3)	(4)	(5)
No.	Date	Day	Team Leader (Acting) Mr. Suguru TAKAHASHI	Project Manager/ Fire Fighting System Mr. Takefumi MAYUMI	Fire Fighting System Mr. Makoto WAKAMATSU	Fire Fighting Equipment Planner/ Equipment Maintenance Planning / Cost Estimation 2 Mr. Nobuyuki KAMIHASHI	Procurement Planner / Cost Estimation 1 Mr. Hidehiko HORIE	Interpreter Mr. Shigehito SHIGA
1	27-Nov	Fri.		16:00～17:00GIES Discussion on equipment specifications				
			17:00～18:00 GIES Explanation of kick-off meeting, Inception Report, and Questionnaire					
2	28-Nov	Sat.		Data Processing				
3	29-Nov	Sun.		Data Processing				
4	30-Nov	Mon.		20:00～22:00 GIES Prior explanation of M/D discussion by consultant and collection of questionnaires				
5	1-Dec	Tue.	GIES Discussion on M/D （Explanation of the project, equipment configuration, implementation schedule, project results, ex-post evaluation, tax exemption, soft components, PMR, etc.）					
6	2-Dec	Wed.						
7	3-Dec	Thu.		20:00～22:00 GIES Supplemental explanation from the consultant on the contents of December 1 - December 3				
8	4-Dec	Fri.	20:00～22:00 GIES M/D signature					

2.2 Supplemental Survey schedule (July 31 to August 29, 2021)

Schedule			JICA	Consultant					Accommodation
			(1)	(1)	(2)	(3)	(4)	(5)	
No.	Date	Day	Team Leader (Acting) Mr. Suguru TAKAHASHI	Project Manager/ Fire Fighting System Mr. Takefumi MAYUMI	Fire Fighting System Mr. Makoto WAKAMATSU	Fire Fighting Equipment Planner/ Equipment Maintenance Planning / Cost Estimation 2 Mr. Nobuyuki KAMIHASHI	Procurement Planner / Cost Estimation 1 Mr. Hidehiko HORIE	Local Interpreter Mr. Masato NISHIKAWA	
1	31-Jul	Sat.		Haneda (08:05) SU263→Moscow (12:20), Moscow (22:45) SU1844→					On a plane
2	1-Aug	Sun.		Chişinău (01:55), Final confirmation of the survey arrangements by the survey team					Chişinău
3	2-Aug	Mon.		Courtesy visit to GIES、Discussion on GIES, Investigation of the Central Command Headquarters, Courtesy visit to the Embassy of Japan				Accompanying (2) to (5)	ditto
4	3-Aug	Tue.		Chişinău Survey of the current status of the fire station and area under jurisdiction (1st Regional Directorate of search rescue, FD Buiucani)				Accompanying (2) to (5)	ditto
5	4-Aug	Wed.		Chişinău Survey of the current status of the fire station and area under jurisdiction (Fire Station of Republican Center of Operative Intervention, FD Ciocana, FD Botanica)				Accompanying (2) to (5)	ditto
6	5-Aug	Thu.		Chişinău Survey of the current status of the fire station and area under jurisdiction(FD Riscani), Training Center Survey, Survey of local agencies contracted by GIES				Accompanying (2) to (5)	ditto
7	6-Aug	Fri.		Chisinau→Move to Orhei region, Survey of the current status of the fire station and area under jurisdiction(FD Orhei)				Accompanying (2) to (5)	ditto
8	7-Aug	Sat.		Data Processing & Analysis, Preparation of interim report					ditto
9	8-Aug	Sun.		Data Processing & Analysis, Internal Meeting					ditto
10	9-Aug	Mon.		Chisinau→Move to Ungheni region, Survey of the current status of the fire station and area under jurisdiction (FD Ungheni)				Accompanying (2) to (5)	ditto
11	10-Aug	Tue.		Chisinau→Move to Cahul, Survey of the current status of the fire station and area under jurisdiction (FD Giurgiuleşti and FDCahul), Transport route survey				Accompanying (2) to (5)	ditto
12	11-Aug	Wed.		Local agents contracted by GIES, Interview with the Department of Telecommunications Equipment at the Ministry of the Interior				Accompanying (2) to (5)	ditto
13	12-Aug	Thu.		Chisinau→Move to Balti region, Survey of the current status of the fire station and area under jurisdiction (2nd Regional Directorate of search rescue)				Accompanying (2) to (5)	ditto
14	13-Aug	Fri.	Online meeting with JICA H.Q., Survey of the proposed site for the Training Center, Discussed with GIES, Chişinău City Survey					Accompanying (2) to (5)	ditto
15	14-Aug	Sat.		Data Processing & Analysis, Preparation of interim report, Create a list of garages that need to be renovated.					ditto
16	15-Aug	Sun.		Data Processing & Analysis, Internal Meeting, Interim report to JICA headquarters					ditto
17	16-Aug	Mon.		Discussed with GIES,Survey of high-rise apartments in Chişinău City				Accompanying (2) to (5)	ditto
18	17-Aug	Tue.		Local agency survey, Compilation of indicators				Accompanying (2) to (5)	ditto
19	18-Aug	Wed.		Survey of the current status of the fire station and area under jurisdiction (FD Orhei)				Accompanying (2) to (5)	ditto
20	19-Aug	Thu.		Discussed with GIES				Accompanying (2) to (5)	ditto
21	20-Aug	Fri.		Survey of fire prevention equipment in a shopping mall in Chişinău City				Accompanying (2) to (5)	ditto
22	21-Aug	Sat.	22:50Haneda	Data Processing & Analysis, Internal Meeting					ditto
23	22-Aug	Sun.	8:45Chişinău, Internal Meeting	Data Processing & Analysis, Internal Meeting					ditto
24	23-Aug	Mon.	Courtesy visit to the Japanese Embassy, Courtesy visit to the GIES, Discussion on M/D with GIES					Accompanying (1) to (5)	ditto
25	24-Aug	Tue.	Chişinău Survey of the current status of the fire station and area under jurisdiction(1st Regional Directorate of search rescue, FD Ciocana), Discussion on M/D with GIES					Accompanying (1) to (5)	ditto
26	25-Aug	Wed.	Chisinau→Move to Balti, Survey of the current status of the fire station and area under jurisdiction(2nd Regional Directorate of search rescue)					Accompanying (1) to (5)	ditto
27	26-Aug	Thu.	Discussion on M/D with GIES, Internal Meeting					Accompanying (1) to (5)	ditto
28	27-Aug	Fri.	PCR test, , Internal Meeting, Chişinău21:30	PCR test, Internal Meeting				Accompanying (2) to (5)	ditto
29	28-Aug	Sat.	Haneda 19:20	Chişinău（02:55)SU1845→Moscow(06:00)					On a plane
30	29-Aug	Sun.		Moscow(01:15)→Haneda(16:40)					

※1 GIES : General Inspectorate for Emergency Situations

3. List of Parties Concerned in the Recipient Country

Organization & Name	Position
(1) GIES Head Quarter	
	Director
Sergia Golovaci	Deputy Director
Alexei Lavrienco	Head of International cooperate
Svetrana Dorobot	Director of International cooperate
Alexandr Tatarov	Deputy director of rescue
Eugan Duca	Staff of Finance and accounting
Gozca Victor	Staff of Radio communication
(2) 1st Search and Rescue Detachment (Chisinau)	
Ghorge Bivol	Head of organization preparing the intervntions division
(3) Detachment of rescuers and firefighters of Botanica district (Chisinau)	
Mircea Racila	Commander
(4) Fire station of Republican Center of Operative Intervention (Chişinău)	
Stroosa Roman	Commander
(5) Detachment of rescuers and firefighters of Ciocana district (Chisinau)	
Corunesuko Leonid	Commander
(6) Detachment of rescuers and firefighters of Botanica district (Chisinau)	
Vitalie Palaro	Deputy Commander
(7) Detachment of rescuers and firefighters of Buiucani district (Chisinau)	
Mircea Racila	Commander
(8) Station of rescuers and firefighters Orhei (Orhei)	
Albu Dumitru	Commander
Singereanu Julian	Deputy Commander
(9) Station of rescuers and firefighters Ungheni (Ungheni)	
Postolaclu Serjin	Commander
(10) Detachment of rescuers and firefighters Cahul (Cahul)	
Caraja Ion	Commander
Andrei Madjar	Commander (Giurgiulesti Station)
(11) 2nd Search and Rescue Detachment (Balti)	
Iovdii Vasile	Commander
Cazacu Sergiu	Deputy Commander
Lungu Igor	Supervision Director
(12) Orhei Municipal Office	
Cojocari Cristina	Deputy Mayor
(13) Ministry of Interior	
Elas Valeria	Director of Radio Communication
(14) Autoforta S.R.L. (Distributor of MAN Truck in Moldova)	
Miron Naiduh	Director
(15) Premium Truck S.R.L (Distributor of VOLVO Truck in Moldova)	
Andrain Sandu	Manager of customer service
(16) Atrium Distactie Business Building	
Valsile Ciurari	Manager of security
Heriton Teregan	Manager of fire prevention

4. Minutes of Discussions

4.1 Signed on December 4, 2020

Minutes of Discussions
on the Preparatory Survey for the Project for
the Improvement of Fire Fighting Equipment
(Explanation of Outline Design)

In response to the request from the Government of the Republic of Moldova (hereinafter referred to as "Moldova"), the Japan International Cooperation Agency (hereinafter referred to as "JICA") conducted the Preparatory Survey Team for the Outline Design (hereinafter referred to as "the Team") of the Project for the Improvement of Fire Fighting Equipment (hereinafter referred to as "the Project") to Moldova. The Team held the online meetings with the officials of the Government of Moldova.

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

4th December, 2020

Seiichi NEGISHI
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Mihail Harabagiu
Head
General Inspectorate for Emergency Situations
Moldova

ATTACHEMENT

1. Objective of the Project

The objective of the Project is to improve the rescue performances for the scenes of emergency by procurement of the fire-rescue equipment, thereby contributing to improvement of the people's security in the Project sites.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for the Improvement of Fire Fighting Equipment".

3. Project site

Both sides confirmed that the sites of the Project are in Chisinau, Balti, Cahul, Ungheni and Orhei, which is shown in Annex 1.

4. Responsible authority for the Project

Both sides confirmed the authorities responsible for the Project are as follows:

4-1. The General Inspectorate for Emergency Situations will be the executing agency for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agency shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be taken care by relevant authorities properly and on time. The organization charts are shown in Annex 2.

4-2. The line ministry of the Executing Agency is the Ministry of Internal Affairs . The Ministry of Internal Affairs shall be responsible for supervising the Executing Agency on behalf of the Government of Moldova.

5. Contents of the Draft Preparatory Survey Report

5-1. As a result of discussions, both sides confirmed that the items requested by the Government of Moldova is as follows, of which details are provided in Annex 7:

(1) 9 fire trucks and 10 ladder trucks,

(2) spare parts, and

(3) other equipment.

Moreover, both sides confirmed that the items mentioned above is included in the contents of the Draft Preparatory Survey Report which will be finalized after the upcoming field survey.

5-2. The number of the fire trucks and ladder trucks to be provided by the Government of Japan will be examined through technical and financial analysis by the Japanese side and will be proposed to the Moldova side.

6. Cost estimate

Both sides confirmed that the cost estimate explained by the Team is provisional and will be examined further by the Government of Japan for its approval.

7. Confidentiality of the cost estimate and technical specifications

Both sides confirmed that the cost estimate and technical specifications of the Project should never be disclosed to any third parties until all the contracts under the Project are concluded.

8. Procedures and Basic Principles of Japanese Grant

The Moldova side agreed that the procedures and basic principles of Japanese Grant (hereinafter referred to as "the Grant") as described in Annex 3 shall be applied to the Project. In addition, the Moldova side agreed to take necessary measures according to the procedures.

9. Timeline for the project implementation

The Team explained to the Moldova side that the expected timeline for the project implementation is as attached in Annex 4.

10. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Moldova side will be responsible for the achievement of agreed key indicators targeted in year 2026 and shall monitor the progress for Ex-Post Evaluation based on those indicators. Moreover, both sides agreed that the validity of those indicators and the numerical value of those indicators will be finalized after the upcoming field survey.

[Quantitative indicators]

Indicators	Baseline 【actual performance in 2020】	Target (2026) 【3 years after project completion】
Average preparation time from issuance of dispatch order to dispatch of fire vehicles (in minutes)	More than 10 minutes	Below one minute
Availability of fire vehicles that can be dispatched within one minute from issuance of dispatch order (%)	53%	100%
Average time required from arrival on the site to beginning of the fire fighting operation by fire vehicle (in minutes)	More than 5 minutes	Below 5 minutes
Average time required from arrival on the site to beginning of the fire fighting and rescue operations by ladder truck (in second)	Approximately 180 second (depend on type of ladder truck)	Below 100 second

[Qualitative indicators]

- Enabling safe, effective and efficient firefighting operations

11. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Moldova side is required to provide necessary support for the data collection.

12. Technical assistance ("Soft Component" of the Project)

Considering the sustainable operation and maintenance of the products and services granted through the Project, technical assistance is planned under the Project. The Moldova side confirmed to deploy necessary number of counterparts who are appropriate and competent in terms of its purpose of the technical assistance as

described in the Draft Preparatory Survey Report which will be finalized after the upcoming field survey.

13. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 5. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in Annex 5, both sides confirmed that such customs duties, internal taxes and other fiscal levies, which shall be clarified in the bid documents by Executing Agency during the implementation stage of the Project.

The Moldova side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Both sides also confirmed that the Annex 5 will be used as an attachment of G/A.

14. Monitoring during the implementation

The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 6. The timing of submission of the PMR is described in Annex 5.

15. Project completion

Both sides confirmed that the Project completes when all the facilities constructed and equipment procured by the Grant are in operation. The completion of the Project will be reported to JICA promptly, but in any event not later than six months after completion of the Project.

16. Environmental and Social Considerations

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as C because the Project is likely to have minimal adverse impact on the environment under the Guidelines.

17. Other Relevant Issues

17-1. Disclosure of Information

Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey.

The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

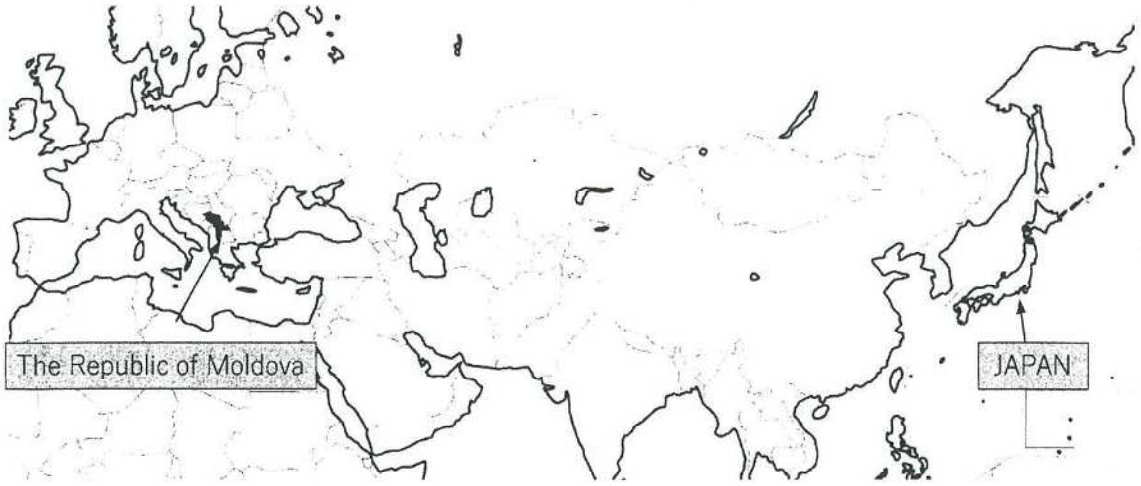
17-2. Notices

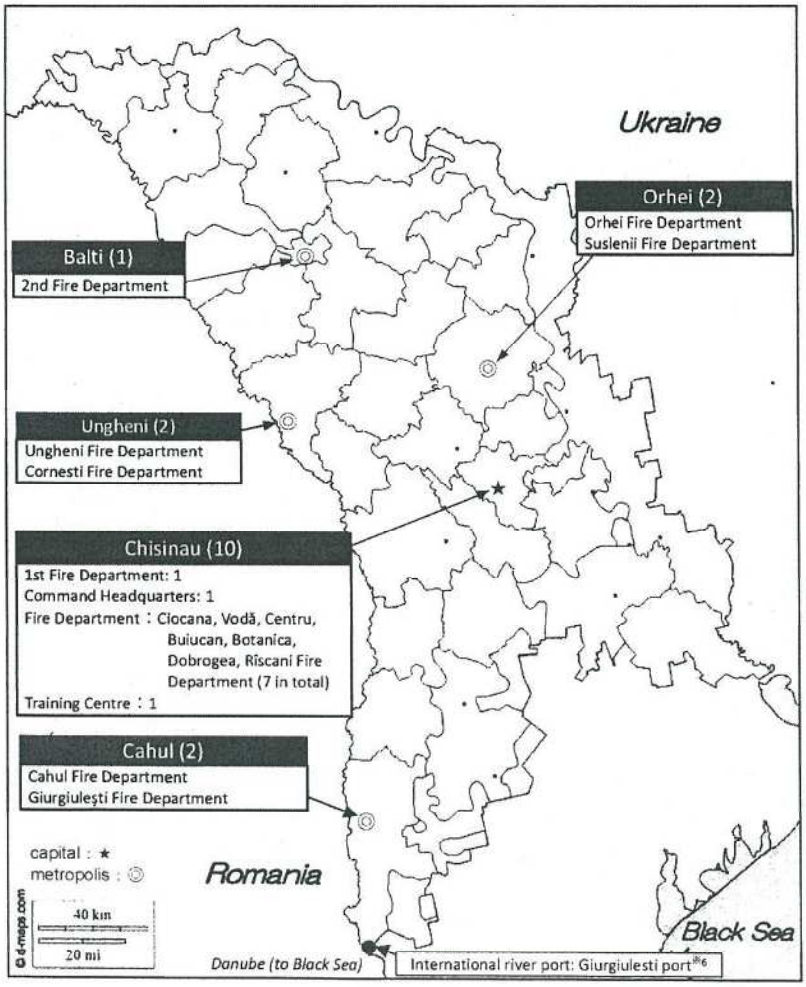
Both sides agreed that the results of this agreed upon survey are subject to be updated in accordance with the results of the upcoming field survey that is scheduled after the approval of travel permit to Moldova.

Annex 1 Project Site
Annex 2 Organization Chart
Annex 3 Japanese Grant
Annex 4 Project Implementation Schedule
Annex 5 Major Undertakings to be taken by the Government of Moldova
Annex 6 Project Monitoring Report (template)
Annex 7 Equipment List

Annex1

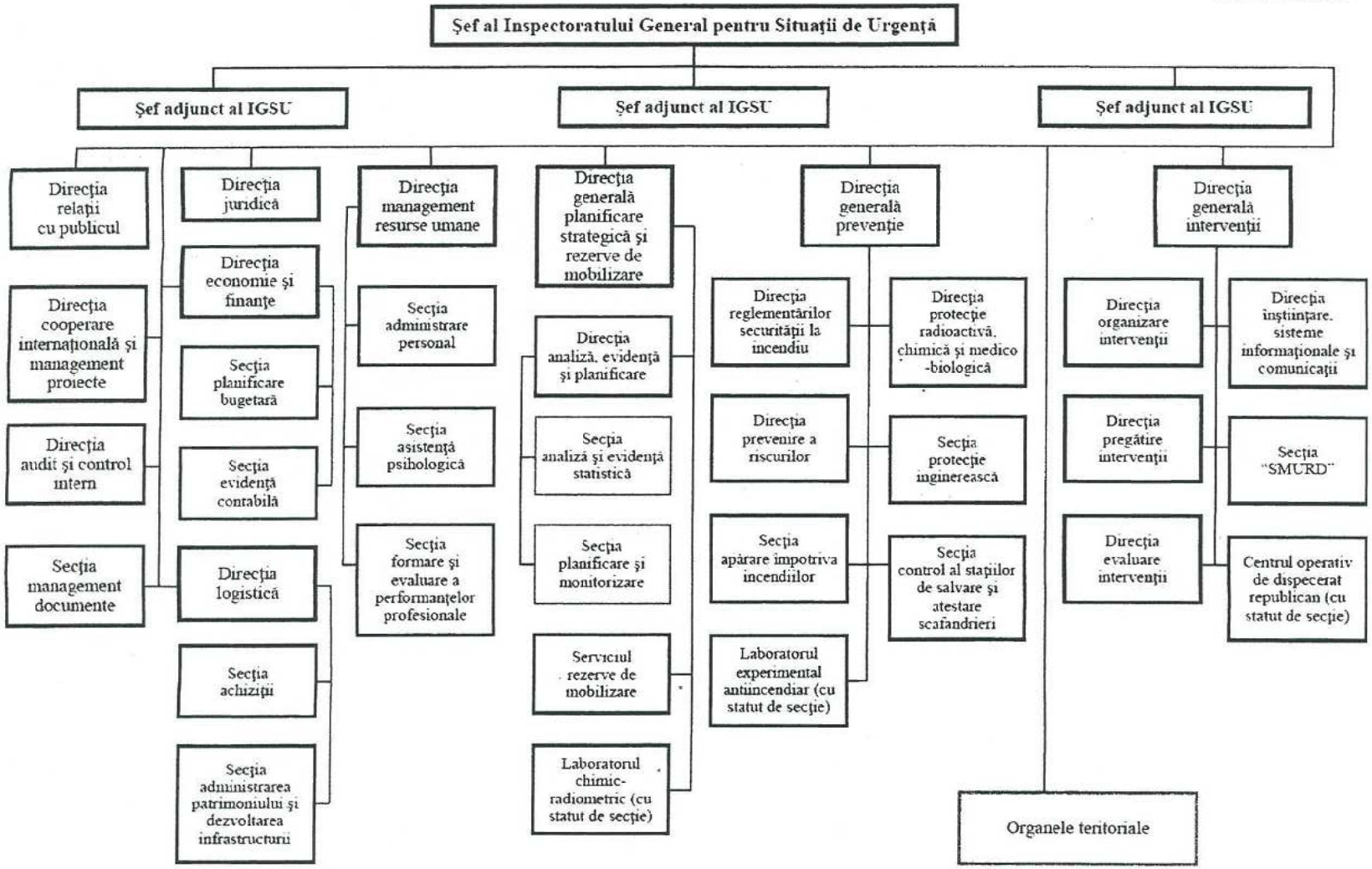
PROJECT SITES IN MOLDOVA





Anexa nr. 3
la Hotărîrea Guvernului
nr. 137 din 27.02.2019

ORGANIGRAMA INSPECTORATULUI GENERAL PENTRU SITUAȚII DE URGENȚĂ



Annex 3

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or 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. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2) Appraisal

-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")

-Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as "the B/A")

-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the 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 necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve 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 executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

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

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

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 singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the

Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.

b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

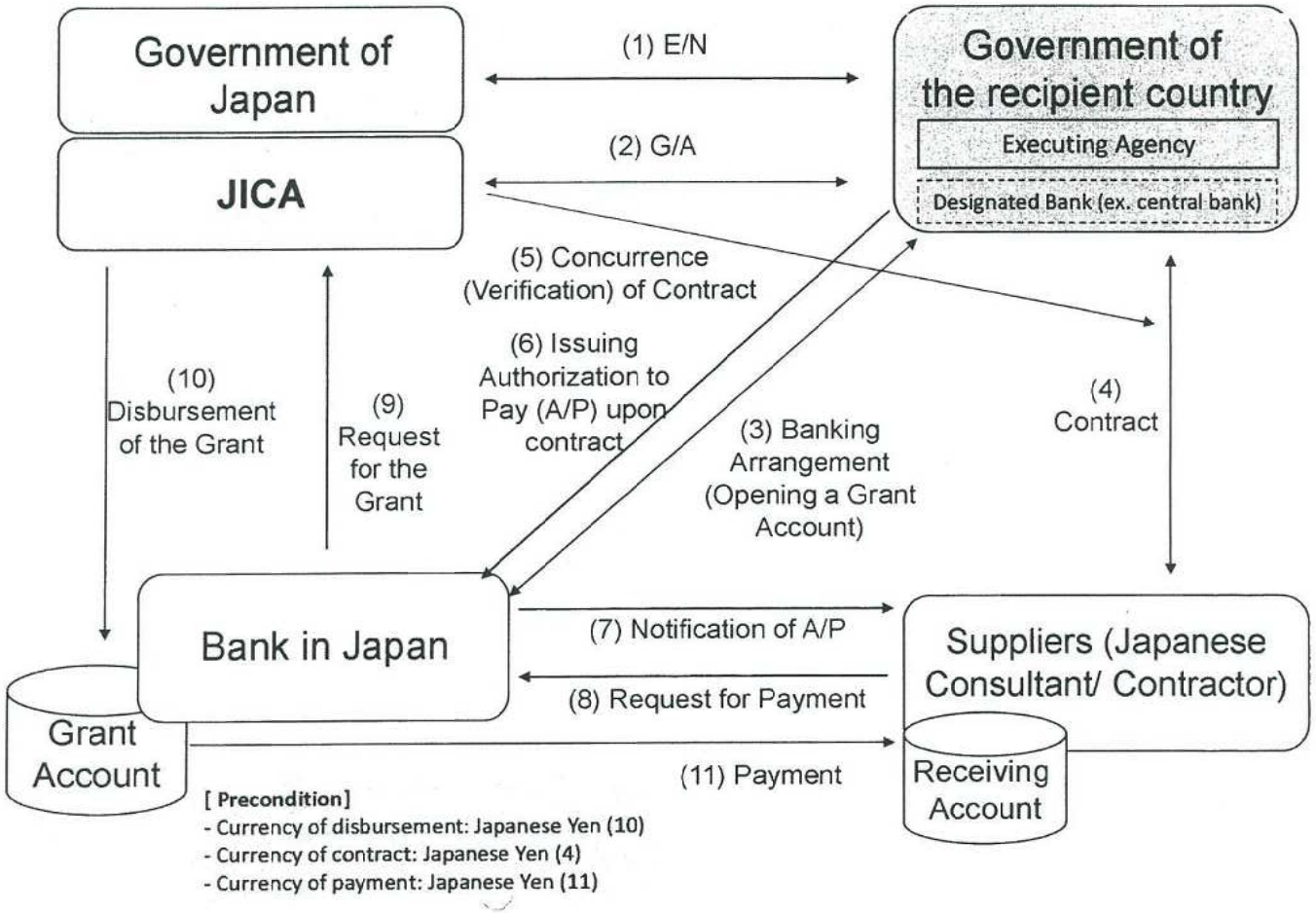
The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

PROCEDURES OF JAPANESE GRANT

Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate	—	x		x	x		
2. Appraisal	(2)Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3)Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet	—		x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)	—	x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x		—	x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate	—	x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

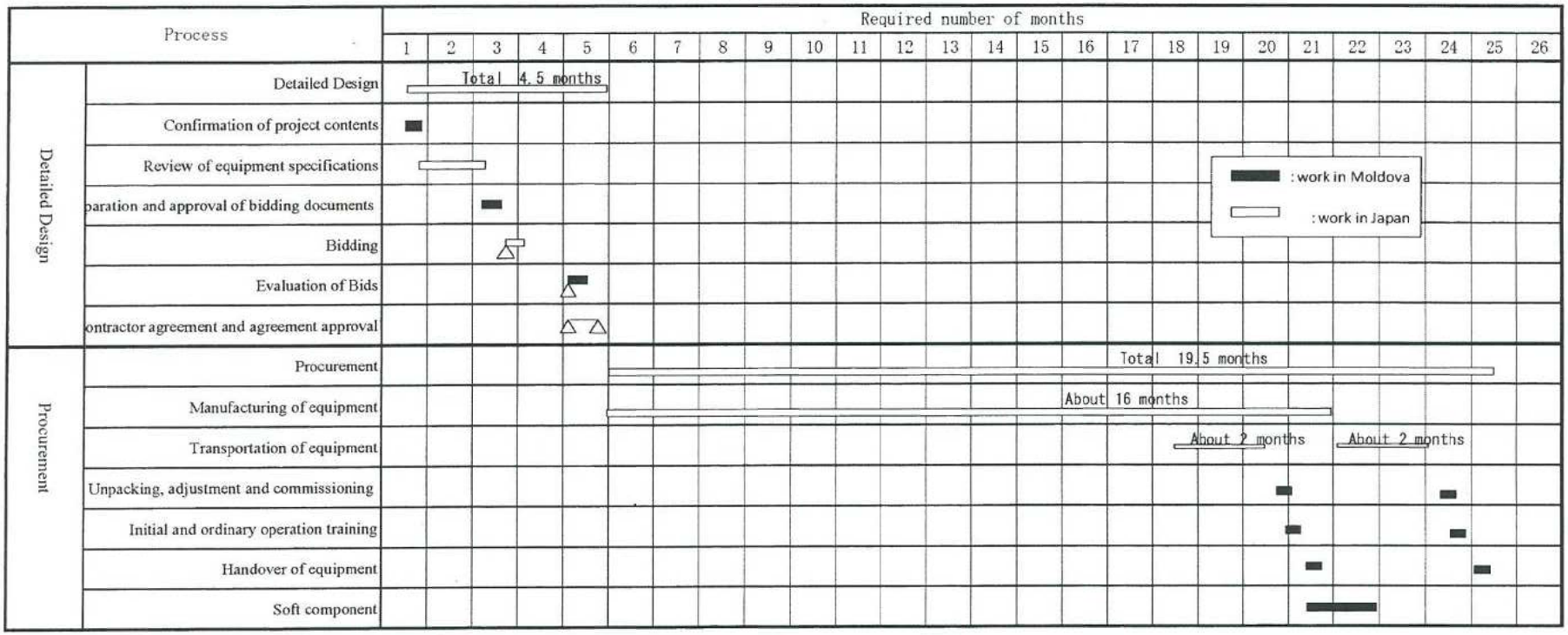
notes:
1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.
2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

Financial Flow of Japanese Grant (A/P Type)



Annex4

Project Implementation Schedule



Annex5

Major Undertakings to be taken by the Government of Moldova

1. Specific Obligations of the Government of Moldova which will not be Funded with the Grant

(1) Before the Bidding

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	Within 1 month after G/A	Central Bank of the Republic of Moldova	25,000JPY	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	Within 1 month after the signing of the contract with the consultant	GIES	25,000JPY	
3	To submit Project Monitoring Report No. 1 (with the result of Detailed Design)	Before preparation of bidding documents	GIES	-	

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the supplier(s)	Within 1 month after the signing of the contract with the supplier(s)	GIES	25,000JPY	
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A 1) Advising commission of A/P 2) Payment commission for A/P	1) Within 1 month after the signing of the contract with the supplier(s) 2) Every payment	GIES	25,000JPY	
3	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the Equipment and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	Immediately after the signing of the contract with the supplier(s)	GIES	-	
4	To submit Project Monitoring Report No. 2 after the signing of contract	Immediately after the signing of the contract with the supplier(s)	GIES	-	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the Equipment and/or the services be exempted	Before import of the Equipment	GIES	-	

(Continue)

No.	Items	Deadline	In charge	Estimated Cost	Ref.
6	To ensure prompt customs clearance and to assist the supplier(s) with inland transportation in the recipient country	Immediately after the shipment of the Equipment	GIES	-	
7	To secure and clear the parking spaces for each fire-fighting & rescue brigade	Before receiving the Equipment	GIES	3,800 USD	
8	To ensure that the initial and ordinary operation training costs (daily allowance, transportation, lodging, fuel, water etc.) for fire service staffs will be covered	Before receiving the Equipment	GIES	7,000 USD	
9	To ensure necessary number of personnel to collaborate with Japanese experts for provision of the Soft Component (including revision of manuals and operation training)	Before the receiving the Equipment	GIES	-	
10	To ensure the cost for the Soft Component (daily allowance, transportation, lodging, fuel, water etc.)	Before the receiving the Equipment	GIES	11,500 USD	
11	To submit Project Monitoring Report No. 3 (after receiving the Equipment)	Within 2 weeks after receiving the Equipment	GIES	-	
12	To submit Project Monitoring Report No. 4(final: with the result of the Soft Component)	Within 2 weeks after the completion of Soft Component	GIES	-	

(3) After the Project

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To register the Equipment provided under the Project	Immediately after receiving the Equipment	GIES	1,000USD	
2	To maintain and use properly and effectively the Equipment provided under the Japanese Grant 1) Allocation of operation and maintenance cost 2) Organization of operation and maintenance 3) Routine check/Periodic inspection	After the completion of the Project : Every year (Annual running cost)	GIES	13,000USD	
		After the completion of the Project : for expenses required in 3-10 years	GIES	445,000USD	
3	To execute trainings on maintenance and safe operation	Every year	GIES	13,250 USD	

2. Other Obligations of the Government of Moldova Funded with the Grant

No.	Items	Deadline	Amount (Million Japanese Yen) *
1	To procure the Equipment and to arrange the following transportation 1) Marine transportation of the Equipment from Japan 2) Inland transportation from the port of Odessa(Ukraine) to Chicinau		
2	To implement detailed design, bidding support and procurement supervision (Consulting Service)		

*The Amount is provisional. This is subject to the approval of the Government of Japan.

Project Monitoring Report
on
the Project for the Improvement of Fire Equipment
Grant Agreement No. XXXXXXX

Month, 20XX

Organizational Information

Signer of the G/A (Recipient)	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:
Executing Agency	**General Inspectorate for Emergency Situations** Person in Charge Contacts Address: Phone/FAX: Email:
Line Ministry	**Ministry of Internal Affairs of the Republic of Moldova** Person in Charge Contacts Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of Moldova: MDL_____

*JPY: Japanese Yen, MDL: Moldovan Leu

1. Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2. Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.		

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	***(at the time of signing the Grant Agreement)***	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

Progress of Specific Obligations

See Attachment 2.

2-5 Project Cost

2-5-1 Cost Borne by the Grant (Confidential until the Completion of Bidding)

Components			Cost (Million JPY)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = JPY

2-5-2 Cost Borne by the Recipient

Components			Cost (1,000AMD)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc.,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)* name: role: financial situation: institutional and organizational arrangement (organogram): human resources (number and ability of staff):
Actual *(PMR)*

3. Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spare parts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*
Actual *(PMR)*

4. Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks *(at the time of outline design)*
N/A

5. Evaluation and Monitoring Plan (after the work completion)

5-1 Overall Evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
4. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR No. 4 only)
5. Pictures (by JPEG style by CD-R) (PMR No.4 only)
6. Equipment List (PMR No.4 only)

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Equipment)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost (Consulting Service)	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Annex 7

LIST OF ITEMS REQUESTED BY THE GOVERNMENT OF MOLDOVA

1. Main Components

Area	No.	Deployment destination	Number of deployments				
			Ladder		Fire Engine		
			30m	54m	3,000 Lit	4,000 Lit	10,000 Lit
Chisinau	1	Detachment of rescuers and firefighters of **Ciocana** district	1	0	1	0	0
	2	Station of rescuers and firefighters **Vadul lui Vodă**	0	0	0	0	0
	3	Detachment of rescuers and firefighters of **Centru** district	0	0	0	0	0
	4	Detachment of rescuers and firefighters of **Buiucani** district	1	0	0	0	1
	5	Detachment of rescuers and firefighters of **Botanica** district	1	1	0	0	0
	6	Station of rescuers and firefighters **Dobrogea**	0	0	0	0	0
	7	Detachment of rescuers and firefighters of **Rîscani** district	1	0	1	0	0
	8	1st Regional Directorate of search rescue	0	0	0	0	0
	9	Training Fire Station	0	0	0	0	0
	10	Fire station of Republican Center of Operative Intervention	0	0	1	0	0
	Chisinau total		**4**	**1**	**3**	0	**1**
Balti	11	2nd Regional Directorate of search rescue	1	1	0	1	1
	Balti total		**1**	**1**	0	**1**	**1**
Cahul	12	Detachment of rescuers and firefighters **Cahul**	1	0	0	0	0
	13	Station of rescuers and firefighters **Giurgiuleşti**	0	0	0	1	0
	Cahul total		**1**	0	0	**1**	0
Ungheni	14	Station of rescuers and firefighters **Ungheni**	1	0	0	1	0
	15	Station of rescuers and firefighters **Corneşti**	0	0	0	0	0
	Ungheni total		**1**	0	0	**1**	0
Orhei	16	Station of rescuers and firefighters **Orhei**	1	0	0	1	0
	17	Station of rescuers and firefighters **Susleni**	0	0	0	0	0
	Orhei total		**1**	0	0	**1**	0
	total		**8**	**2**	**3**	**4**	**2**

2. Spare Parts

Adequate quantity of Spare parts

4.2. Signed on August 26, 2021

Minutes of Discussions
on the Preparatory Survey for the Project for
the Improvement of Fire Fighting Equipment
(Explanation on Draft Preparatory Survey Report)

With reference to the minutes of discussions signed between the General Inspectorate for Emergency Situations (hereinafter referred to as "GIES") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on December 4th, 2020 and in response to the request from the Government of the Republic of Moldova (hereinafter referred to as "Moldova") dated April 26th, 2019, JICA dispatched the Preparatory Survey Team (hereinafter referred to as "the Team") for the explanation of Draft Preparatory Survey Report (hereinafter referred to as "the Draft Report") for the Project for the Improvement of Fire Fighting Equipment (hereinafter referred to as "the Project").

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

26th August, 2021

高橋 俊

Takahashi Suguru
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan

Mihail Harabagiu
Head
General Inspectorate for Emergency Situations
Moldova

俊

ATTACHEMENT

1. Objective of the Project

   The objective of the Project is to improve the rescue performances for the scenes of emergency by procurement of the fire-rescue equipment, thereby contributing to improvement of the people's security in the Project sites.

2. Title of the Preparatory Survey

   Both sides confirmed the title of the Preparatory Survey as "the Preparatory Survey for the Project for the Improvement of Fire Fighting Equipment".

3. Project site

   Both sides confirmed that the sites of the Project are in Chisinau, Balti, Cahul, Ungheni and Orhei, which is shown in Annex 1.

4. Responsible authority for the Project

   Both sides confirmed the authorities responsible for the Project are as follows:

   4-1. The General Inspectorate for Emergency Situations will be the executing agency for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agency shall coordinate with all the relevant authorities to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be taken care by relevant authorities properly and on time. The organization charts are shown in Annex 2.

   4-2. The line ministry of the Executing Agency is the Ministry of Internal Affairs. The Ministry of Internal Affairs shall be responsible for supervising the Executing Agency on behalf of the Government of Moldova.

5. Contents of the Draft Report

   After the explanation of the contents of the Draft Report by the Team, the Moldova side agreed to its contents. JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Moldova side around December, 2021.

6. Cost estimate

   Both sides confirmed that the cost estimate explained by the Team is provisional and will be examined further by the Government of Japan for its approval.

7. Confidentiality of the cost estimate and technical specifications
Both sides confirmed that the cost estimate and technical specifications of the Project should never be disclosed to any third parties until all the contracts under the Project are concluded.

8. Procedures and Basic Principles of Japanese Grant
The Moldova side agreed that the procedures and basic principles of Japanese Grant (hereinafter referred to as "the Grant") as described in Annex 3 shall be applied to the Project. In addition, the Moldova side agreed to take necessary measures according to the procedures.

9. Timeline for the project implementation
The Team explained to the Moldova side that the expected timeline for the project implementation is as attached in Annex 4.

10. Expected outcomes and indicators
Both sides agreed that key indicators for expected outcomes are as follows. The Moldova side will be responsible for the achievement of agreed key indicators targeted in year 2026 and shall monitor the progress for Ex-Post Evaluation based on those indicators.

[Quantitative indicators]

Indicators	Baseline 【actual performance in 2020】	Target (2026) 【3 years after project completion】
Average preparation time from issuance of dispatch order to dispatch of fire vehicles (in minutes)	More than three minutes	Below one minute
Availability of fire vehicles that can be dispatched within one minute from issuance of dispatch order (%)	0%	100%
Average time required from dispatch of fire truck to arrival on the site (in minutes)	More than 15 minutes (the sites in Chisinau and Balti) More than 18 minutes (the sites in Cahul, Ungheni and Orhei)	Below 13 minutes (all sites)
Average time required from arrival on the site to beginning of the fire fighting and rescue operations by ladder truck (in second)	Approximately 230 second	Below 90 second

- Quantitative indicators is for replacement of the equipment under the Project.

[Qualitative indicators]

Enabling safe, effective and efficient firefighting operations

11. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Moldova side is required to provide necessary support for the data collection.

12. Technical assistance ("Soft Component" of the Project)

Considering the sustainable operation and maintenance of the products and services

granted through the Project, technical assistance is planned under the Project. The Moldova side confirmed to deploy necessary number of counterparts who are appropriate and competent in terms of its purpose of the technical assistance as described in the Draft Report.

13. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 5. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in (2) No.5 of Annex 5, both sides confirmed that such customs duties, internal taxes and other fiscal levies, which shall be clarified in the bid documents by Executing Agency during the implementation stage of the Project. The Moldova side will also be responsible for the transportation of the equipment from Chisinau to ten (10) Project Sites safely and promptly as attached in (2) No.6 of Annex 5.

The Moldova side assured to take the necessary measures and coordination, including allocation of the necessary budget, which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Furthermore, the renovation or construction of the garage of the equipment to be provided by the project, which was recognized as needed in 7 fire stations during the field survey (See Annex 7), must be carried out by the beginning of April 2022, under Moldova side's responsibility as attached in Annex 5.

Both sides also confirmed that the Annex 5 will be used as an attachment of Grant Agreement (G/A).

Both sides confirmed that Executing Agency shall take necessary measures to ensure and maintain the security of the Project site and the persons related to the implementation of the Project, in cooperation with relevant authorities during the Project period. Such security measures shall reasonably reflect needs of the Consultant/the Contractor engaging in the Project, as shown in Annex 5.

Both sides agreed that in case the additional security cost would be necessary for the implementation of the Project, such cost shall be borne by the Recipient without using the Grant.

14. Monitoring during the implementation

The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 6. The timing of submission of the PMR is described in Annex 5.

15. Project completion

Both sides confirmed that the Project completes when all the facilities constructed and equipment procured by the Grant are in operation. The completion of the Project will be reported to JICA promptly, but in any event not later than six months after completion of the Project.

16. Environmental and Social Considerations

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as C because the Project is likely to have minimal adverse impact on the environment under the Guidelines.

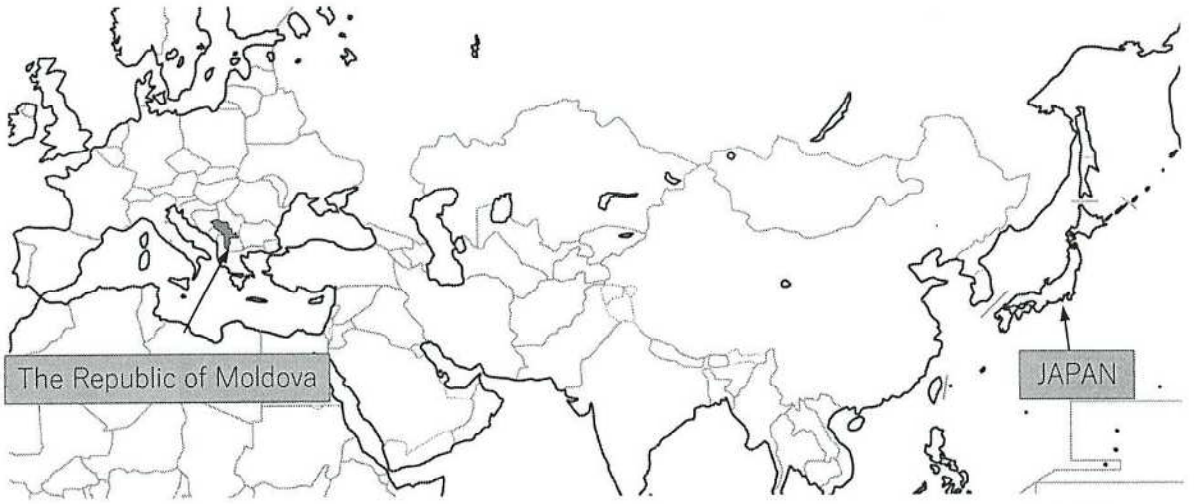
17. Disclosure of Information

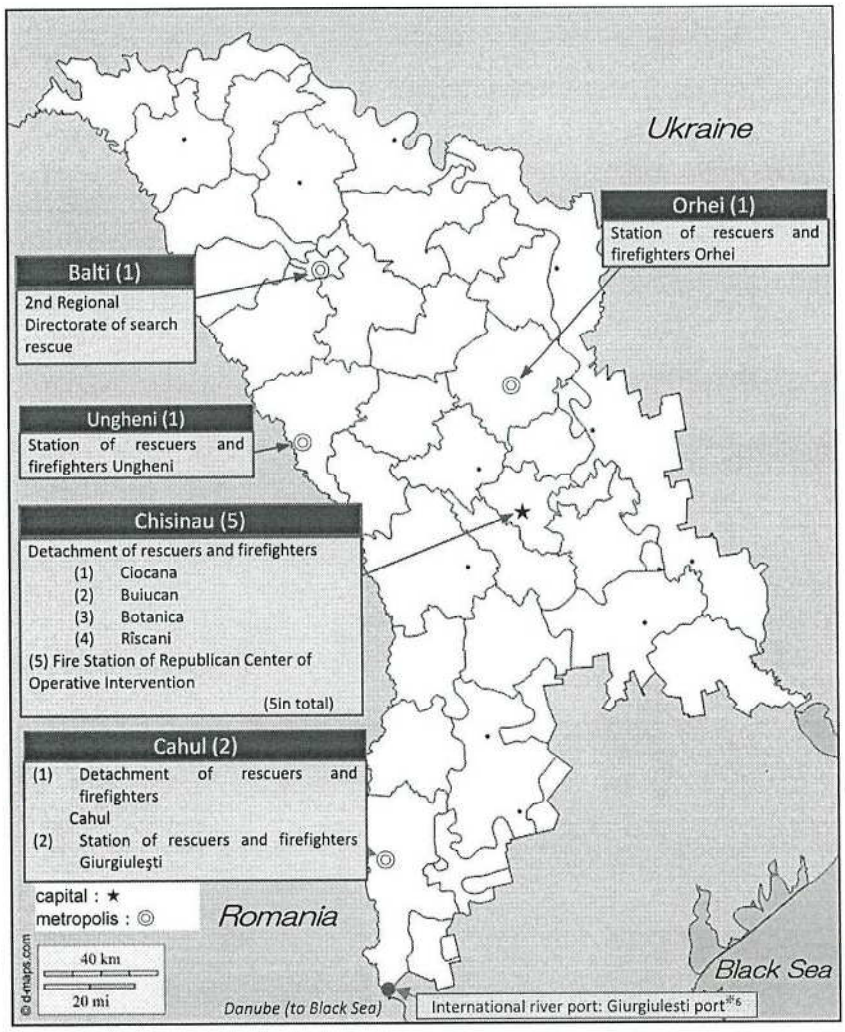
Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey. The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

Annex 1 Project Site
Annex 2 Organization Chart
Annex 3 Japanese Grant
Annex 4 Project Implementation Schedule
Annex 5 Major Undertakings to be taken by the Government of Moldova
Annex 6 Project Monitoring Report (template)
Annex 7 Equipment List

Annex1

PROJECT SITES IN MOLDOVA





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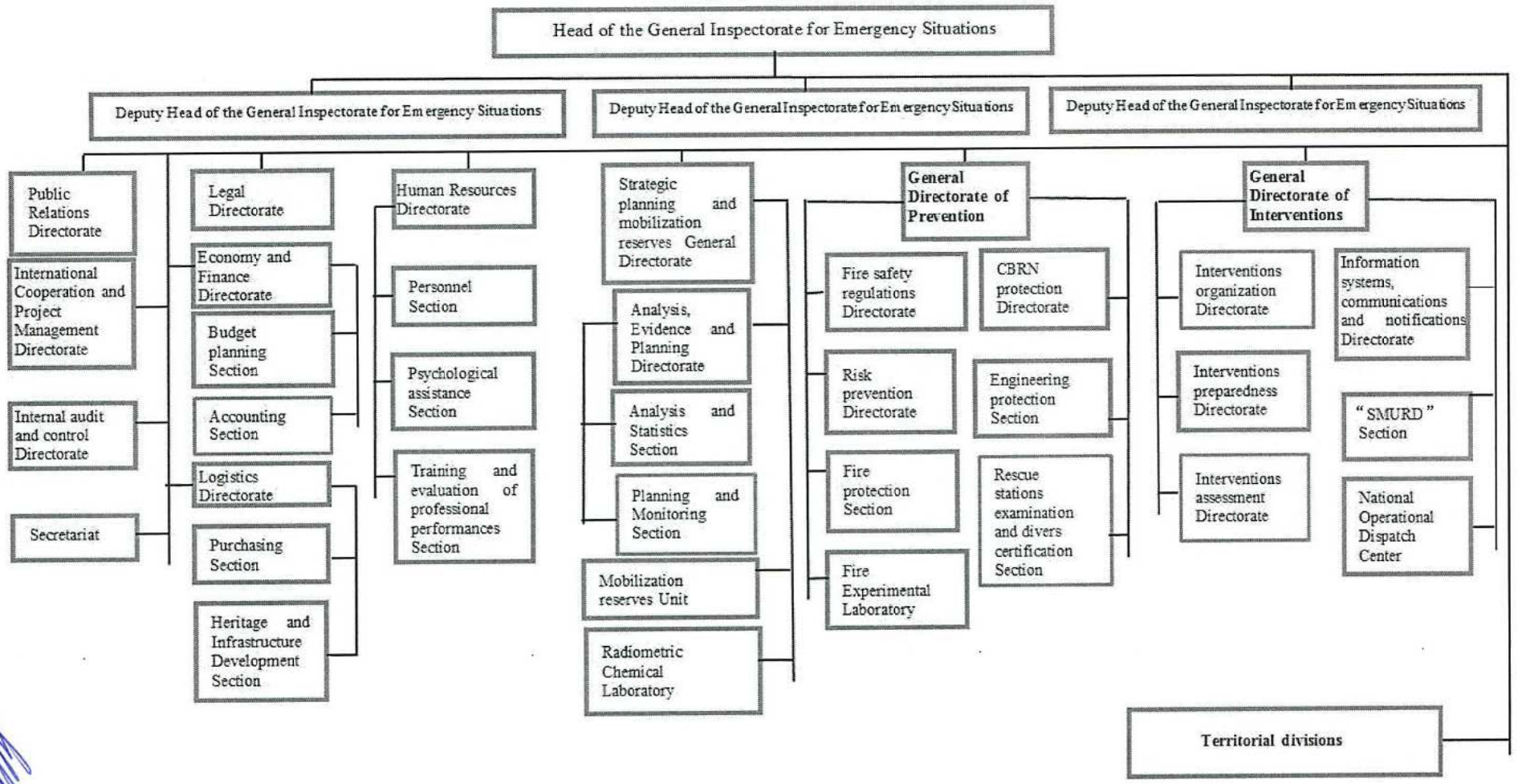
Annex2

THE GIES STRUCTURE



JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as "the Recipient") to purchase the products and/or 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. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as "Project Grants").

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See "PROCEDURES OF JAPANESE GRANT" for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as "the Survey") conducted by JICA

(2) Appraisal

-Appraisal by the government of Japan (hereinafter referred to as "GOJ") and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

-The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as "the G/A")

-Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as "the B/A")

-Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

-Implementation of the project (hereinafter referred to as "the Project") on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

-Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the 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 necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take measures necessary to achieve 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 executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

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

(3) Result of the Survey

JICA reviews the report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

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 singed between the GOJ and the Government of the Recipient to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the "General Terms and Conditions for Japanese Grant (January 2016)."

2) Banking Arrangements (B/A) (See "Financial Flow of Japanese Grant (A/P Type)" for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA's procurement guidelines as stipulated in the G/A.

4) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the Recipient to continue to work on the Project's implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the "Meeting") will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.

b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.

2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

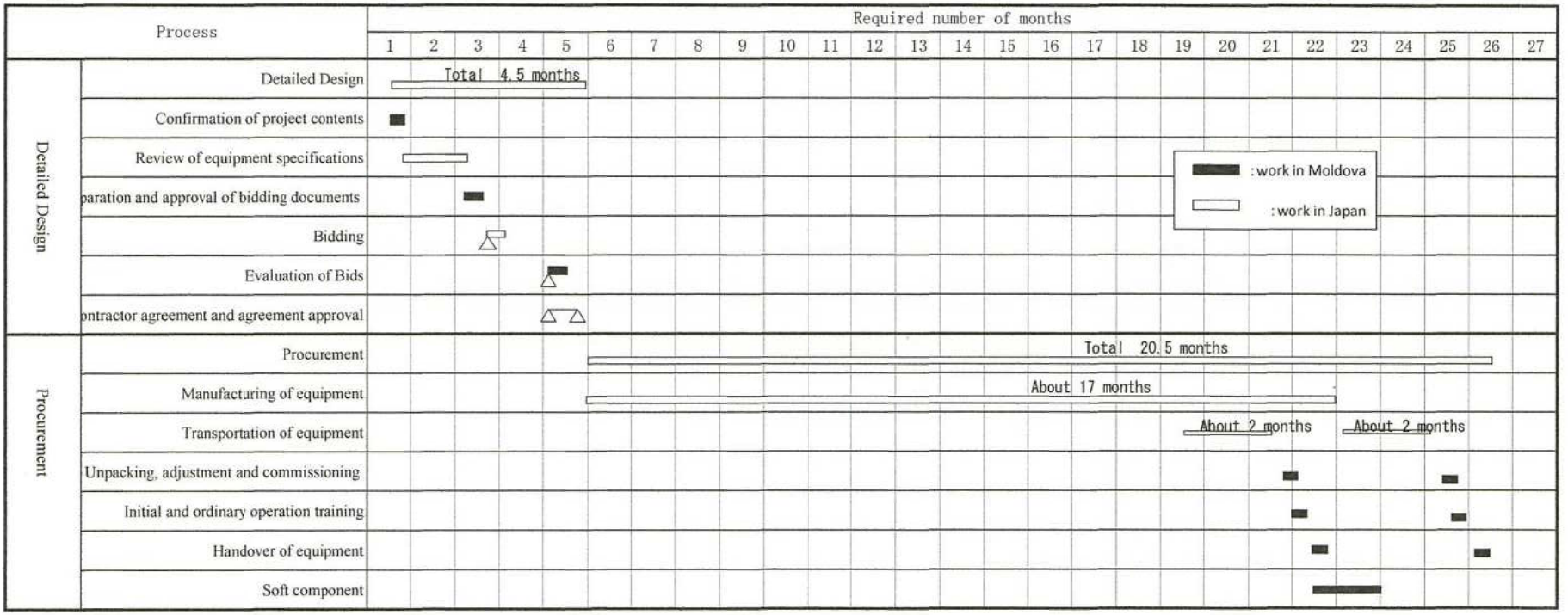
The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

Annex4

Project Implementation Schedule



Annex5

Major Undertakings to be taken by the Government of Moldova

1. Specific Obligations of the Government of Moldova which will not be Funded with the Grant

(1) Before the Bidding

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	Within 1 month after G/A	Central Bank of the Republic of Moldova	25,000JPY	
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	Within 1 month after the signing –of the contract with the consultant	GIES	25,000JPY	
3	To submit Project Monitoring Report No. 1 (with the result of Detailed Design)	Before preparation of bidding documents	GIES	-	

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

(2) During the Project Implementation

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the supplier(s)	Within 1 month after the signing of the contract with the supplier(s)	GIES	25,000JPY	
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A 1) Advising commission of A/P 2) Payment commission for A/P	1) Within 1 month after the signing of the contract with the supplier(s) 2) Every payment	GIES	25,000JPY	
3	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the Equipment and the services such facilities as may be necessary for their entry into the country of the Recipient and stay therein for the performance of their work	Immediately after the signing of the contract with the supplier(s)	GIES	-	
4	To submit Project Monitoring Report No. 2 after the signing of contract	Immediately after the signing of the contract with the supplier(s)	GIES	-	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the Equipment and/or the services be exempted	Before import of the Equipment	GIES	-	

(Continue)

No.	Items	Deadline	In charge	Estimated Cost	Ref.
6	To ensure prompt customs clearance and to assist the supplier(s) with inland transportation in the recipient country	Immediately after the shipment of the Equipment	GIES	-	
7	To secure and clear the garages for each fire-fighting & rescue brigade, in particular, at three fire stations that are currently under construction or scheduled for construction, and at four fire stations that have been identified as needing renovation.*1,2	By the beginning of April 2022	GIES	18,000 USD*3	
8	To ensure that the initial and ordinary operation training costs (daily allowance, transportation, lodging, fuel, water etc.) for fire service staffs will be covered	Before receiving the Equipment	GIES	1,2000 USD	
9	To ensure necessary number of personnel to collaborate with Japanese experts for provision of the Soft Component (including revision of manuals and operation training)	Before the receiving the Equipment	GIES	-	
10	To ensure the cost for the Soft Component (daily allowance, transportation, lodging, fuel, water etc.)	Before the receiving the Equipment	GIES	2,200 USD	
11	To submit Project Monitoring Report No. 3 (after receiving the Equipment)	Within 2 weeks after receiving the Equipment	GIES	-	
12	To submit Project Monitoring Report No. 4(final: with the result of the Soft Component)	Within 2 weeks after the completion of Soft Component	GIES	-	

*1: See Appendix 7 for details.

*2: Regarding fire stations that have been identified as needing renovation and that are currently scheduled for construction, the beginning and end of the engineering work must be informed from the Moldova side to JICA. In addition, regarding fire stations that are currently under construction, the end of the engineering work must be informed from the Moldova side to JICA.

*3: This amount is only for the renovation of the four fire stations deemed necessary.

(3) After the Project

No.	Items	Deadline	In charge	Estimated Cost	Ref.
1	To register the Equipment provided under the Project	Immediately after receiving the Equipment	GIES	4,300USD	
2	To maintain and use properly and effectively the Equipment provided under the Japanese Grant 1) Allocation of operation and maintenance cost 2) Organization of operation and maintenance 3) Routine check/Periodic inspection	After the completion of the Project-: for expenses required from 1 year to 2 years.	GIES	23,500USD	
		After the completion of the Project-: for expenses required from 3 years to 10 years.	GIES	192,500USD	
3	To execute trainings on maintenance and safe operation	Every year	GIES	0 USD	

(Continue)

2. Other Obligations of the Government of Moldova Funded with the Grant

No.	Items	Deadline	Amount (Million Japanese Yen)
1	To procure the Equipment and to arrange the following transportation 1) Marine transportation of the Equipment from Japan 2) Inland transportation from the port of Odessa(Ukraine) to Chicinau		
2	To implement detailed design, bidding support and procurement supervision (Consulting Service)		

Project Monitoring Report
on
the Project for the Improvement of Fire Equipment
Grant Agreement No. XXXXXXX

Month, 20XX

Organizational Information

Signer of the G/A (Recipient)	Person in Charge (Designation) Contacts Address: Phone/FAX: Email:
Executing Agency	**General Inspectorate for Emergency Situations** Person in Charge _____ Contacts Address: Phone/FAX: Email:
Line Ministry	**Ministry of Internal Affairs of the Republic of Moldova** Person in Charge _____ Contacts Address: Phone/FAX: Email:

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of Moldova: MDL_____

*JPY: Japanese Yen, MDL: Moldovan Leu

1. Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2. Details of the Project

2-1 Location

Components	Original *(proposed in the outline design)*	Actual
1.		

2-2 Scope of the work

Components	Original* *(proposed in the outline design)*	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	(proposed in the outline design)	*(at the time of signing the Grant Agreement)*	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

Progress of Specific Obligations

See Attachment 2.

2-5 Project Cost

2-5-1 Cost Borne by the Grant (Confidential until the Completion of Bidding)

Components			Cost (Million JPY)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = JPY

2-5-2 Cost Borne by the Recipient

Components			Cost (1,000AMD)	
	Original *(proposed in the outline design)*	Actual *(in case of any modification)*	Original[1),2)] *(proposed in the outline design)*	Actual
	1.			

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc.,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original *(at the time of outline design)* name: role: financial situation: institutional and organizational arrangement (organogram): human resources (number and ability of staff):
Actual *(PMR)*

3. Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spare parts, etc.)

Original *(at the time of outline design)*
Actual *(PMR)*

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original *(at the time of outline design)*
Actual *(PMR)*

4. Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (*at the time of outline design)*
N/A

5. Evaluation and Monitoring Plan (after the work completion)

5-1 Overall Evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
4. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR No. 4 only)
5. Pictures (by JPEG style by CD-R) (PMR No.4 only)
6. Equipment List (PMR No.4 only)

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Equipment)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost (Consulting Service)	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Annex 7

LIST OF ITEMS REQUESTED BY THE GOVERNMENT OF MOLDOVA

1. Main Components

Area	No.	Deployment destination	Number of deployments					Need to renovate the fire station?
			Ladder Truck		Fire Truck			
			30m class	50m class	3000 lit	4000 lit	10000 lit	
Chisinau	1	Detachment of rescuers and firefighters of **Ciocana** district	**1**	0	**1**	0	0	No renovation required
	2	Detachment of rescuers and firefighters of **Buiucani** district	**1**	0	0	0	**1**	Renovation required
	3	Detachment of rescuers and firefighters of **Botanica** district	**1**	**1**	0	0	0	To be constructed by GIES
	4	Detachment of rescuers and firefighters of **Rîscani** district	**1**	0	**1**	0	0	No renovation required
	5	Fire station of Republican Center of Operative Intervention	0	0	**1**	0	0	Renovation required
Balti	6	2nd Regional Directorate of search rescue	**1**	**1**	0	**1**	**1**	New construction or renovation required
Cahul	7	Detachment of rescuers and firefighters **Cahul**	**1**	0	0	0	0	Now under construction
	8	Station of rescuers and firefighters **Giurgiuleşti**	0	0	0	**1**	0	No renovation required
Ungheni	9	Station of rescuers and firefighters **Ungheni**	**1**	0	0	**1**	0	Now under construction
Orhei	10	Station of rescuers and firefighters **Orhei**	**1**	0	0	**1**	0	Renovation required

2. Spare Parts

Adequate quantity of Spare parts

5. Soft Component (Technical Assistance) Plan

The Ministry of Internal Affairs

The Republic of Moldova

PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR THE IMPROVEMENT OF FIRE FIGHTING EQUIPMENT IN REPUBLIC OF MOLDOVA

Soft Component Plan

JANUARY 2022

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)
INGEROSEC CORPORATION
KATAHIRA & ENGINEERS INTERNATIONAL

Contents

Contents
Overall map of recipient countries and site location map
Figure, table list

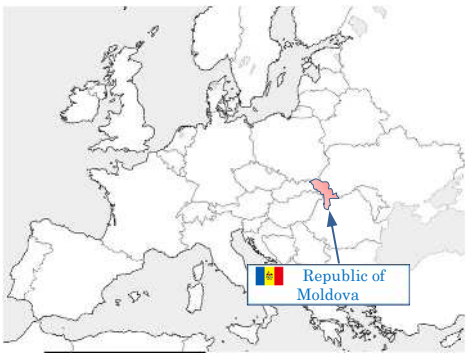
Page

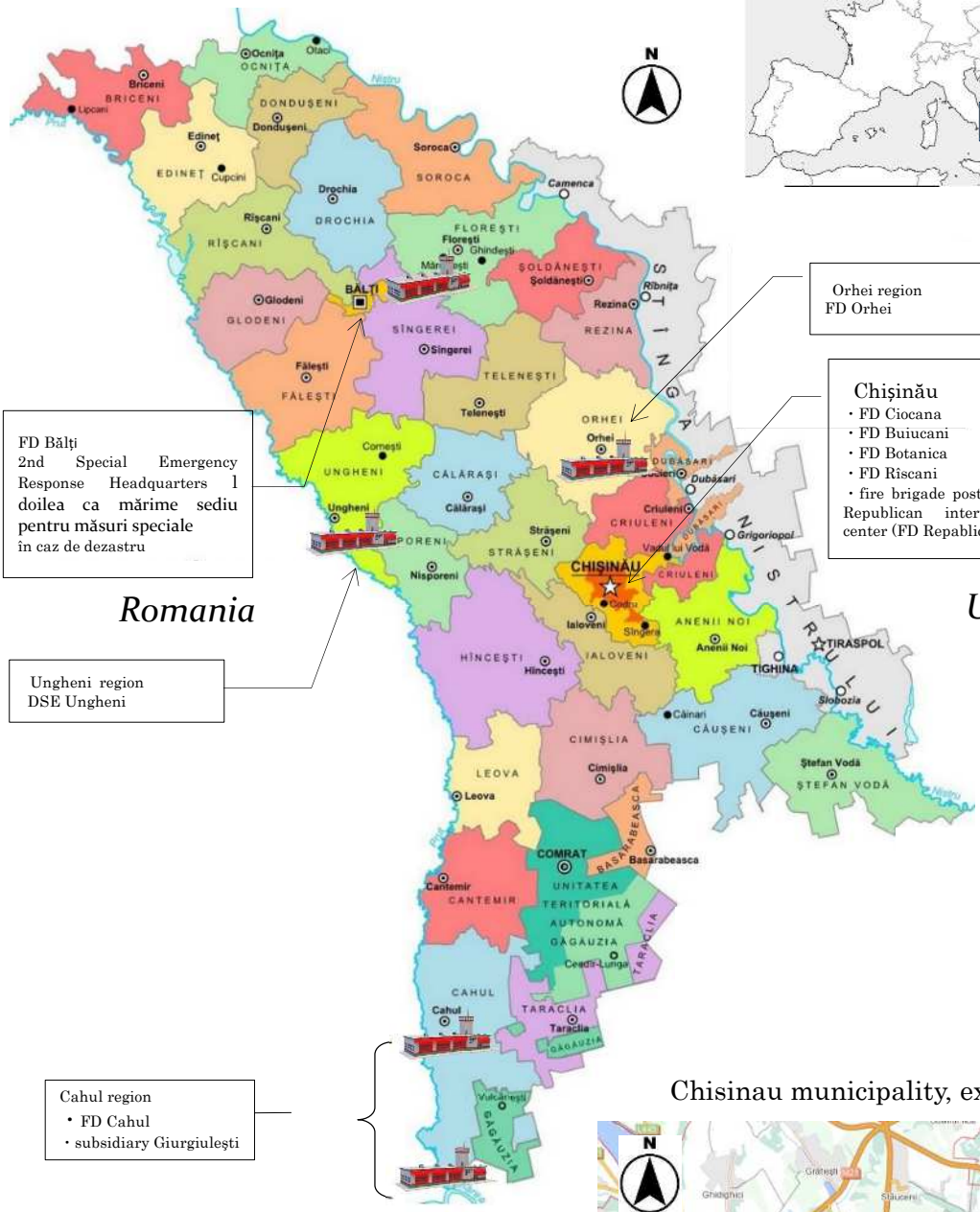
Chapter 1 Soft Component Planning Background 1
1-1 Outline of this project 1
1-2 Necessity of soft components 1
1-3 Contents of required soft components 1
Chapter 2 Soft Component Goals 2
Chapter 3 Achievements of Soft Components 2
3-1 Manuals for continuous firefighting and rescue activities will be prepared. 2
3-2 Improvement of fire extinguishing / rescue technology and maintenance technology for fire fighting vehicles 2
3-2-1 Improvement of firefighting and rescue technology capabilities using Fire truck 3
3-2-2 Improvement of fire extinguishing and rescue technology capabilities using ladder trucks 3
3-3 Target audience for soft components (students) 3
Chapter 4 Methods of checking the achievement level 4
Chapter 5 Soft Component Activities (Introduction Plan) 4
5-1 Soft component activity overview 4
5-2 Soft component activity 5
5-2-1 Preparation of manuals for continuous firefighting and rescue activities 5
5-2-2 Pumper truck operation technology and fire extinguishing technology 6
5-2-3 Ladder truck operation technology 6
5-3 Ability of Japanese engineers 6
Table 5-1 shows the abilities required for Japanese engineers. 6
5-3 Target audience for soft components (students) 6
5-4-1 Firefighters of the target fire departments 6
5-4-2 GIES headquarters staff, training center staff 6
5-5 Action items for soft components 7
Chapter 6 Implementation of Soft Components How to Procure Resources 7
6-1 Technical guidance system 7
6-2 Staffing plan 8
6-2-1 Domestic work 8
6-2-2 Soft component instruction (on-site work) 8
Chapter 7 Soft Component Implementation Process 10
Chapter 8 Soft Component Deliverables 11
8-1 Soft component completion report 11

8-2 Progress Report 11
8-3 Education and training manuals for firefighters 11
8-4 Lecture materials 11
8-5 Collected materials 11
Chapter 9 Responsibilities of the partner country 12
9-1 Items to be borne by the other party when implementing soft components 12
9-2 Items to be borne by the other party after the implementation of soft components 12

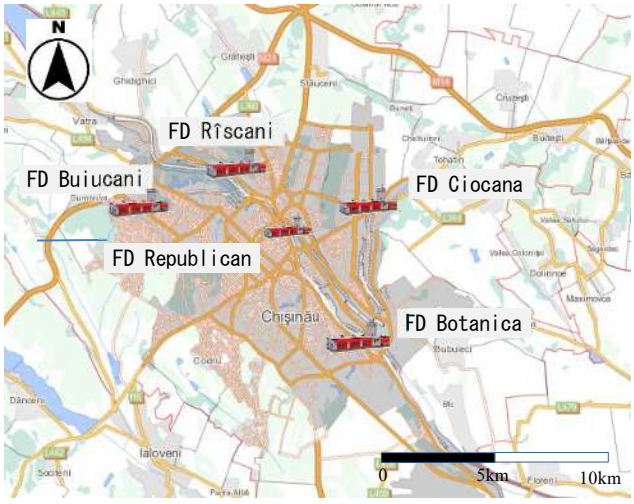
Republic of Moldova

Republic of Moldova





Chisinau municipality, extended map



Overall map of recipient countries and site location map

Figure, table list

■ Figure number

Figure 5-1 Software component implementation system diagram 5
Figure 7-1 Software component implementation process chart (overview) 10

■ Table number

Table 5-1 Technology required for the implementer of this software component 6
Table 5-2 Performance index and achievement level confirmation method 7
Table 6-1 Personnel plan (domestic) 8
Table 6-2 Personnel plan (on-site) 9

Chapter 1 Soft Component Planning Background

1-1 Outline of this project

In the Republic of Moldova (hereinafter referred to as "Moldova"), the government decision on emergency services (law on civil protection and emergencies) stipulated in 2014, "from dispatch request to arrival at the scene", in contrast to the target value of "time should be within 15 minutes", the average time in 2018 is about 20 minutes due to the aging of firefighting equipment, which is hindering prompt fire fighting and rescue activities.

Therefore, in the event of a fire or disaster, sufficient firefighting and rescue activities are not being carried out. In particular, the capital and local cities of Moldova, despite problems such as aging fire fighting equipment, the development of cities due to population increase is remarkable and it has become a serious social problem in terms of disaster prevention measures.

To remedy this situation, the Government of Moldova has requested Japan to provide Grant Aid for the development of firefighting equipment in jurisdiction of the capital Chisinau, the second cities of Balti, Cahul, Ungheni and Orhei[1].

1-2 Necessity of soft components

In this project, "initial operation / operation guidance" will be provided by the manufacturer engineer regarding the operation and maintenance of the equipment. However, since it is not enough for firefighters to carry out firefighting and rescue activities safely and efficiently at the disaster scene, it was judged that guidance with an emphasis on operational aspects is necessary in this project. Since soft components are the most efficient operational guidance, technical guidance by experts who are familiar with firefighting and rescue tactics will be considered. Especially in the case of a ladder truck, it is undeniable that there is a possibility that the vehicle may fall over and lead to a serious accident such as a fatal accident if the operation method is incorrect.

Therefore, as a technology transfer to the firefighters of the fire department in the target area of this project, personnel who are familiar with firefighting tactics will be dispatched to implement soft components.

1-3 Contents of required soft components

For Ladder truck, it requires operational skills for firefighting and rescue activities at high altitudes, such as baskets and safety device operating procedures. For Fire truck, it is necessary to learn the basic knowledge of pump control, to teach initial firefighting technology, water supply by connecting with Ladder truck.

Regarding large Fire truck, firefighting activity methods that anti leakage of water under firefighting operation, and operation techniques for firefighting activities.

[1] Within this project, are targeted the areas under the jurisdiction of firefighters and rescuers from the centers of Chisinau, Balti, Orhei, Ungheni and Cahul. The entire country of the Republic of Moldova is divided into 10 zones, each with its own jurisdiction for firefighting and rescue.

In addition, there is a demand for operational technology for Loaded equipment of Fire truck used in firefighting and rescue activities. Therefore, in order to be able to use the newly procured equipment safely and effectively, the following soft components will be implemented.

- Creation of manuals and teaching materials related to firefighting and rescue activities using Fire truck and Ladder truck
- Effective firefighting technology using Fire truck and Ladder truck to be maintained, technical guidance related to rescue activities
- Effective operation and technical guidance of Loaded equipment

In GIES, firefighters handle daily inspections and minor failures, but these light maintenance methods are not implemented in soft components because the manufacturer engineer provides technical guidance when procuring equipment.

Chapter 2 Soft Component Goals

When implementing soft components, basic skills for firefighters in the target area will be confirmed (baseline survey). After education and training, the proficiency level will be confirmed, and by setting a passing line, it will be reconfirmed whether a certain technical level has been reached.

The target of the soft component is the firefighters assigned to the target area, and the number of people is about 60.

Specifically, the goals to be achieved are the following four points.

- Manuals and teaching materials will be prepared, and maintenance equipment will be used continuously.
- It will be possible to carry out quick and efficient firefighting activities by Fire truck.
- Efficient fire extinguishing and rescue operations at high altitudes using a Ladder truck
- Loaded equipment will be used efficiently.

Chapter 3 Achievements of Soft Components

3-1 Manuals for continuous firefighting and rescue activities will be prepared.

Since the firefighting equipment maintained by this project have new functions compared to existing firefighting equipment, manuals and teaching materials on safety management and firefighting activity technology that reflect the new functions will be added. Through the added manuals, firefighters and rescue techniques and maintenance techniques will be established and passed on among firefighters.

3-2 Improvement of fire extinguishing / rescue technology and maintenance technology for fire fighting vehicles

3-2-1 Improvement of firefighting and rescue technology capabilities using Fire truck

The Fire truck to be maintained in this project has electronic control built in to prevent wear of the fire pump and to operate efficiently. With this control, it is possible to prevent damage due to a water hammer occur in the pump and to discharge water at a water pressure corresponding to the amount of water. It is important to acquire this basic knowledge for the operation of the equipment in the future.

In addition, since the existing fire trucks of GIES are severely deteriorated and its performance and function are inferior, it is desired to improve the operational aspect of the equipment by this project.

In addition, the equipment of the Fire truck has not only improved performance but also improved functionality, which is different from the equipment owned by GIES. As for soft components, the aim is to improve technical capabilities so that equipment can be used safely and effectively on the premise of such differences.

Furthermore, if it is determined that there is a problem with basic firefighting and rescue activities, Japanese engineers will propose countermeasures and aim to improve overall technical capabilities.

As a lecture method, lectures and practical training will be provided.

3-2-2 Improvement of fire extinguishing and rescue technology capabilities using Ladder truck

Most of the ladder trucks owned by GIES are made by the former Soviet Union, and few firefighters have experience in handling the latest ladder trucks (some crew members can handle ladder trucks (70m)). By implementing it on soft components, the aim is to improve the comprehensive technical capabilities of rescue activities at high building using a Ladder truck equipped computer-controlled system. And Ladder truck have a latest equipment such as basket and lifter to be used and maintained properly by soft components.

As with the soft components of Fire truck, if it is determined that there is a problem with basic fire firefighting and rescue activities, Japanese engineers will propose countermeasures and aim to improve overall technical capabilities. As a lecture method, lectures and practical training will be provided.

3-3 Target audience for soft components (students)

The GIES Headquarters will select soft component participants (currently assuming about 60 people) from 10 fire departments in Chişinău, Balti, Cahul, Ungheni, and Orhei. The selected members consist of a team of captains engaged in actual firefighting and rescue activities, Fire truck drivers, Ladder truck drivers and firefighters.

Japanese engineers will share the instruction manual with GIES instructors, and basically GIES instructors provide technical guidance to firefighters. In practical training, Japanese engineers will ensure the independence of GIES by devoting themselves to the support of GIES instructors. If this mechanism takes root, repeated training by GIES itself will be possible, and independent development can be expected.

Chapter 4 Methods of checking the achievement level

The confirmation method and index shown in Table 5-2 will be used to evaluate the achievement of technology transfer results. The degree of achievement will be judged by a paper test, the passing line will be 80 points or more, and students who fall below the same line will take additional lectures and training by GIES. Table 5-2 shows the timing of the test to evaluate skill goals and achievement levels.

As for the division of roles, after the lectures are conducted by "Firefighting technical guidance (pumper truck)" and "Firefighting technical guidance (ladder truck)", "Technical guidance assistant (pumper truck)" conducts a test and analyzes the degree of achievement. In addition, when examining and creating the contents of the exam questions, it is assumed that discussions will be held with "firefighting technical guidance (pumper truck)" and "firefighting technical guidance (ladder vehicle)" and that the team will collaborate with the GIES side instructor team. The "Technical Guidance Assistant (Firefighting)" always reports the test contents and results to the GIES side manager of this project.

Chapter 5 Soft Component Activities (Introduction Plan)

5-1 Soft component activity overview

Soft components are roughly divided into preparation of training manual and technical guidance regarding new functions of maintenance equipment and are implemented according to the system shown in Figure 5-1. As GIES instructors, the executive staff and training center staff will play a keyrole.

There will be created manuals that describe the new functions of the procured equipment, and it will also be provided soft components to firefighters stationed at the fire department in the target area, young staff at the GIES headquarters, and young teachers at the training center. Japanese engineers will supervise the work of creating manuals, will supervise whether technical guidance is properly provided, and will give advice if necessary.

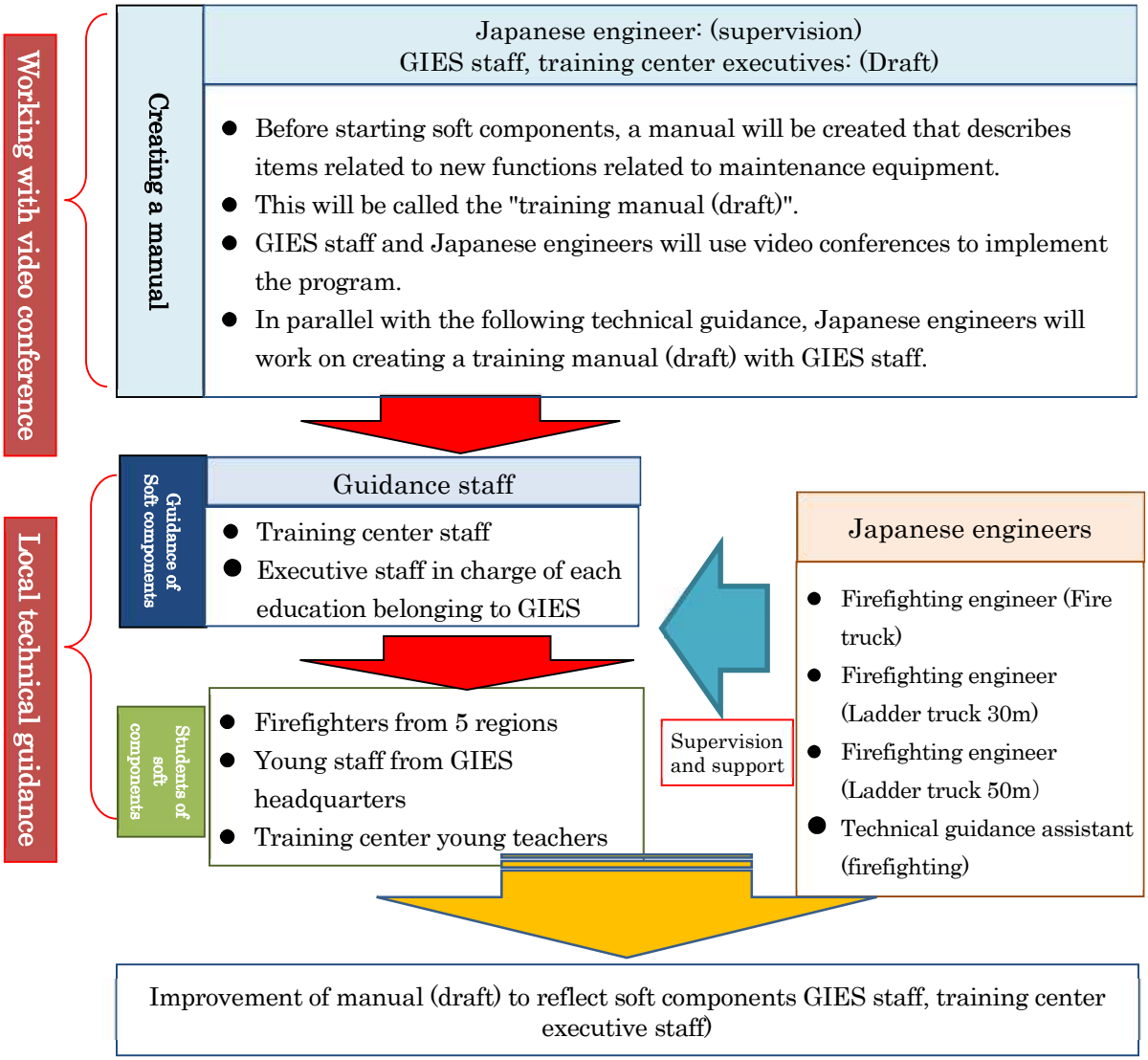


Figure 5-1 Soft component implementation system diagram

5-2 Soft component activity

5-2-1 Preparation of manuals for continuous firefighting and rescue activities

Manuals will be created, that describe how to utilize the new functions of the firefighting equipment developed in this project to engage in GIES firefighting activities.

In addition, GIES will take the lead in creating manuals, etc., and consultants will provide materials related to new functions and provide technical support and advice to bring out the independence of GIES and make the manual more suitable for the local situation.

5-2-2 Pumper truck operation technology and fire extinguishing technology

In this project will be provided technical guidance centered on new technologies (electronic equipment, etc.) and improved capabilities (pump capacity, etc.) of the pumper truck and its loaded equipment to be maintained in this project, and efficiently improve the current firefighting capability of GIES.

5-2-3 Ladder truck operation technology

Regarding Ladder truck, in addition to the same technical guidance as the above Fire truck, technical guidance will be provided focusing on rescue activities at high altitudes. In particular, baskets with water discharge nozzles and 50m class Ladder truck are equipped with lifters, so technical guidance will be given to safely incorporate them into firefighting rescue activities.

5-3 Ability of Japanese engineers

Table 5-1 shows the abilities required for Japanese engineers.

Table 5-1 Technology required for the implementers of this soft component

Personnel	Required technology
Firefighting technical guidance (Fire truck)	Have an experience of firefighting and rescue activities using a Fire truck equipped with a water tank in Japan or a third country and have knowledge of firefighting tactics and operations.
Firefighting technical guidance (Ladder truck 30m)	Have an experience of firefighting and rescue activities using a Ladder truck equipped with a ladder of 30 m or more in Japan or a third country and be familiar with firefighting tactics and operations.
Firefighting technical guidance (Ladder truck 50m)	Have an experience of firefighting and rescue activities using a Ladder truck equipped with a ladder of 50 m or more in Japan or a third country and be familiar with firefighting tactics and operations.

5-3 Target audience for soft components (students)

5-4-1 Firefighters of the target fire departments

The GIES headquarters will select about 60 students from the target fire department. At the time of selection, one team (6 ~7 people) will consist of captains, Fire truck drivers, Ladder truck drivers, and firefighters, assuming human resources who are active in the field and can pass on the technology to the next generation.

5-4-2 GIES headquarters staff, training center staff

Priority will be given to GIES headquarters staff and training center executive staff (several people) who are involved in firefighting education of Moldova. In addition, by providing guidance to the staff of the training center, the manual will be utilized for the development of youth human resources who will be responsible for the future of firefighting and rescue in Moldova.

5-5 Action items for soft components

Table 5-2 shows the action items of the soft component.

The curriculum was designed so that students can deepen their understanding of the differences in new functions and capacity improvements of equipment during the implementation of basic firefighting and rescue training.

Table 5-2 Performance index and confirmation method of achievement

	Fire vehicle		How to check the results	
	Technical guidance for fire trucks	Technical guidance for ladder trucks	Achievement confirmation method	Achievement index
Classroom lecture	Firefighting tactics and fire extinguishing activities for mid-to-high-rise buildings (common)		Examination before and after the lecture	Pass level: 90 points or more
	Basic principles of firefighting activities and safety management (common)			
	Dispatch, securing water use, relaying water supply, preparing for water discharge activities, operation management (common)			
Virtual training in the classroom	Activities in mid-to-high-rise buildings (common)		Tests are conducted for each fire truck before and after the lecture	Pass level: 90 points or more
	Mutual cooperation of multiple fire brigades (common)			
Practical training	・ Operation method and operation of fire extinguishing pump device ・ Natural water, water supply from fire hydrant ・ Check up of the pump pressure when extending the hose and discharging water ・ Water supply training for ladder trucks ・ Relay water supply between pumper trucks, appropriate pressure, how to use the gun nozzle ・ Fire extinguishing / rescue activities using on-board equipment	・ Operation method from the ladder and basket operation table, lifter operation method ・ Learn safe basic operations and how to operate new functions ・ Operation up to near the usage limit and confirmation of activation of safety device ・ Coordination work between base operator and basket crew, lifter operation ・ Relay from fire engine and water discharge training ・ Water discharge training with a monitor nozzle (water cannon) from the basket ・ Safe operation reconfirmation training ・ For safe maintenance of ladder trucks (for mechanics)	Tests are conducted for each fire truck before and after the lecture	Pass level: 90 points or more

Chapter 6 Implementation of Soft Components How to Procure Resources

6-1 Technical guidance system

Basically, under the supervision of trainers composed of Japanese firefighting engineers, a manual will be created, and soft components will be implemented mainly by education executives such as GIES training center staff.

In addition, technical guidance (soft components) will be provided to firefighters assigned to fire

departments in each region and young staff members of the GIES headquarters.

Japanese engineers will provide information and supervise these manual addition work, supervise whether technical guidance is properly provided, and give advice as necessary.

6-2 Staffing plan

6-2-1 Domestic work

In the process of implementing the soft component, current manuals of firefighting of GIES will be analyzed and for drafting of soft conpornets manuals in Japan.

Also, a specific curriculum for soft components will be created.

The personnel required for these tasks are technical guidance assistant (Grade. 3), firefighting technical guidance (command guidance, Fire truck) (Grade. 3), firefighting technical guidance (Ladder truck 30 m) (Grade. 3), firefighting technical guidance (Ladder truck 50 m). (Grade. 3) 4 people. Each staff member set 10 days (0.50M / M).

Table 6-1 Staff plan (domestic)

In charge	Contents	Work period
Technical guidance assistant (Firefighting) (Grade. 3)	Organize the manuals currently used by GIES and create the manuals (draft) to be produced in this project. In addition, meetings with GIES, summary	10 days (0.50M/M)
Firefighting technical guidance (Command guidance, Fire truck) (Grade. 3 as specialist of firefighting)	Among the manuals currently used by GIES, analysis of matters related to pumper truck and on-board equipment, preparation of additional manuals (draft) to be created in this project, meetings with GIES by video conference, etc.	10 days (0.50M/M)
Firefighting technical guidance (Ladder truck 30m) (Grade. 3 as specialist of firefighting)	Of the manuals currently used by GIES, analysis of matters related to Ladder trucks, preparation of additional manuals (draft) to be created in this project, meetings with GIES by video conference, etc.	10 days (0.50M/M)
Firefighting technical guidance (Ladder truck 50m) (Grade.3 as specialist of firefighting)	Analysis of matters related to Ladder trucks among the manuals currently used by GIES (especially analysis of educational standards related to existing 70m class ladder trucks), preparation of additional manuals (draft) to be created in this project, meeting by video conference with GIES.	10 days (0.50M/M)

6-2-2 Soft component instruction (on-site work)

Dispatch personnel to the field to implement soft components. The personnel required for this are technical guidance assistant (firefighting) (Grade. 3), firefighting technical guidance (command guidance, Fire truck) (Grade. 3), firefighting technical guidance (Ladder truck 30m) (Grade. 3), firefighting technical guidance (ladder truck 50m) (Grade. 3) 4 people in total.

Assistant technical guidance (firefighting) (Grade. 3) on the 47 days (1.57M / M), firefighting technical

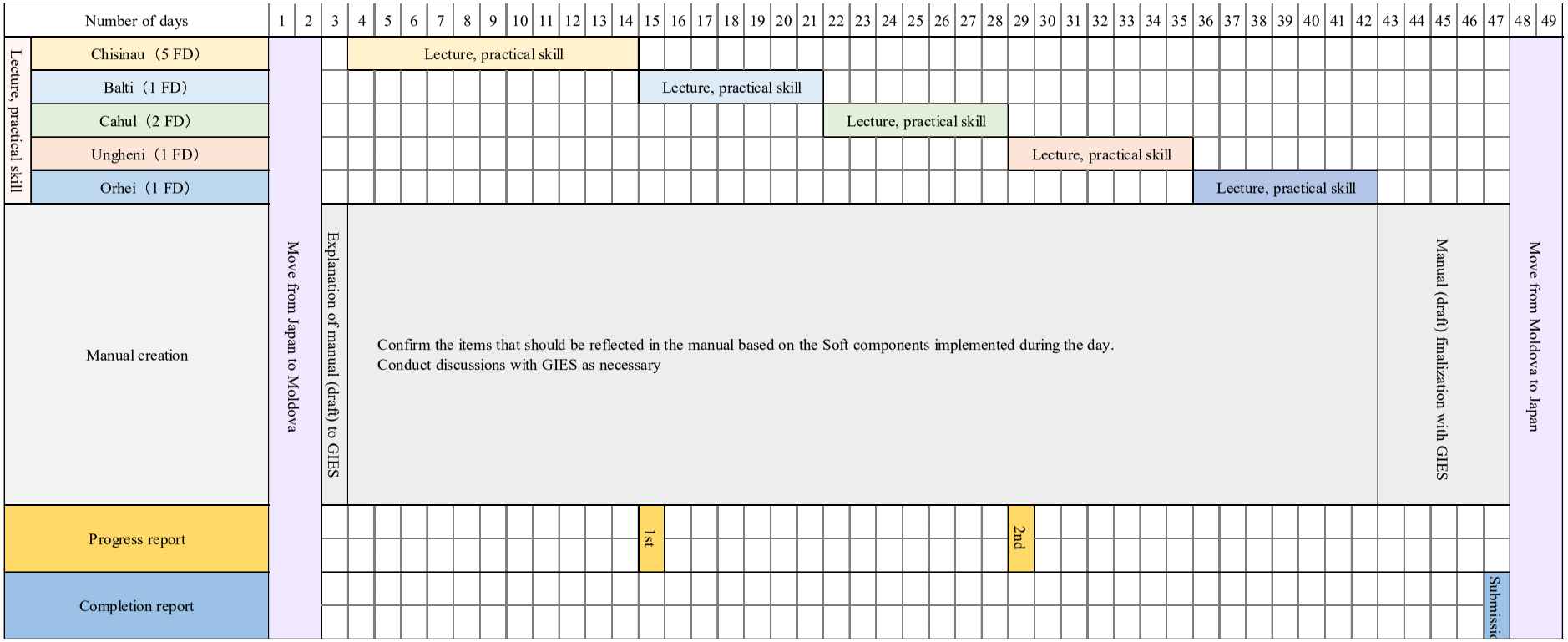
guidance (command guidance, Fire truck) (Grade. 3) on the 49 days (1.63M / M), firefighting technical guidance (Ladder truck 30m) (Grade. 3) was set on the 49 days (1.63M / M), and fire truck technical guidance (Ladder truck 50m) (Grade. 3) was set on the 26 days (0.87M / M).

Table 6-2 Personnel plan (on-site)

In charge	**Contents**	Dispatch period
Technical guidance assistant (Firefighting) (Grade. 3 as specialist of firefighting)	**.1.1 Assistant work：** With soft components, in order to provide technical guidance to firefighters in each region, about 10 teams will be instructed in one course, and it is difficult to supervise technical guidance with the following three experts alone. Therefore, the "Technical Guidance Assistant" assists the technical guidance supervision while receiving instructions from these three people. **.1.2 Business adjustment：** Various arrangements with GIES, document creation, etc. during the soft component period **.1.3 Safety management during the technical guidance period：** There will be performed safety management during the technical guidance period. In particular, to prevent accidents during the aerial work platform guidance period for ladder trucks, two ladder experts will discuss safety management in advance and take measures to prevent accidents.	47 days （1.57M/M）
Firefighting technical guidance (Command guidance, Fire truck) (Grade. 3 as specialist of firefighting)	In charge for instructing firefighting tactics, operating fire truck and supervising firefighting technology Preparation of manual to be created in this project, consultation with GIES	49 days （1.63M/M）
Firefighting technical guidance (Ladder truck 30m) (Grade. 3 as specialist of firefighting)	In charge for supervising ladder vehicle technology and operational guidance. Mainly in charge of ladder trucks (30m class). Preparation of manual to be created in this project, discussion with GIES	49 days （1.63M/M）
Firefighting technical guidance (Ladder truck 50m) (Grade. 3 as specialist of firefighting)	In charge for supervising ladder vehicle technology and operational guidance. Mainly in charge of ladder trucks (50m class). Preparation of manual to be created in this project, discussion with GIES	26 days （0.87M/M）

Chapter 7 Soft Component Implementation Process

The implementation process of soft components in the field is as follows. Before these on-site technical guidance, GIES officials and Japanese engineers will prepare manuals by utilizing the video conference.



※ Schedule bar includes travel dates to each region

※ There is a possibility that the training order and the number of days may be changed due to an obstacle to normal firefighting activities at each fire station or due to an urgent request.

※ The completion report to be submitted to the organization shall be submitted within about 2 weeks after returning to Japan.

Figure 7-1 Soft component implementation process chart (overview)

Chapter 8 Soft Component Deliverables

The following are the deliverables of the soft components in this project.

- Soft component completion report
- Progress Report
- Firefighting training manual (new function addition version)
- Lecture materials
- Various collection materials

8-1 Soft component completion report

A "Soft Component Completion Report" that complies with the "Soft Component Guidelines (4th Edition)" will be created and used as a deliverable. Depending on the situation, a "Soft Component Implementation Status Report" will be submitted to Moldova and JICA. The languages used should be Romanian and Japanese.

8-2 Progress Report

After confirming the progress of the soft component, the Progress Report will be submitted to the Republic of Moldova. The language used should be Romanian.

8-3 Education and training manuals for firefighters

The manual should be as follows, and the language used should be Romanian.

The main revisions assume that the manual will be supplemented with firefighting activities for new equipment. For example, it is possible to add firefighting activities using the latest straight-ahead ladder truck equipped with a lifter and an electric water cannon.

- Fire truck with water tank (firefighting and rescue activities)
- Ladder truck edition (firefighting and rescue activities edition)
- Loaded equipment product edition

8-4 Lecture materials

The above manual will be used for lecture materials. The language should be Romanian.

8-5 Collected materials

The photographs taken during the implementation of the soft component and the collected materials will be collected and used as part of the deliverables. The language used should be Romanian.

Chapter 9 Responsibilities of the partner country

9-1 Items to be borne by the other party when implementing soft components

The burdens on the Republic of Moldova side when implementing soft components are as follows.

- Securing space for classrooms and training for implementing soft components. The training ground includes a ladder truck training facility (including safety management)
- Selection of students
- Expenses such as travel expenses for students
- Water, fire extinguishing agent, fuel required for firefighting training
- Selection of leaders on the GIES side

9-2 Items to be borne by the other party after the implementation of soft components

Since the GIES fire fighters is educated and trained and has a high level of technology, the new technology of Fire truck developed in this project will be utilized for GIES firefighting and rescue activities by utilizing this software component manual. Furthermore, the manual will be positioned as an operation manual, and it is expected that it will continue to be operated at training centers, daily training, etc. In addition to the proper operation of the equipment maintained in this project, it is expected that it will be utilized for improving the skills of fire rescue personnel.

Therefore, GIES will make it a responsibility for the other firefighters after the implementation of the soft component to continue education and training using this manual at educational level up and improvement.