

Ministry of Transport and Communications
Kyrgyz Republic

**PREPARATORY SURVEY REPORT
ON
THE PROJECT
FOR
IMPROVEMENT OF EQUIPMENT FOR ROAD
MAINTENANCE
IN
ISSYK-KUL AND CHUI OBLASTS
IN
KYRGYZ REPUBLIC**

March 2010

JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

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PREFACE

In response to the request of the Government of the Kyrgyz Republic, the Government of Japan decided to conduct a survey in preparation for “The Project for Improvement of Equipment for Road Maintenance in Issyk-Kul and Chui Oblasts” and entrusted the Japan International Cooperation Agency (JICA) to carry out the preparatory survey.

JICA sent to Kyrgyz a preparation survey team (basic design) from August 18 to September 16, 2009.

The team held discussion with the officials concerned of the Government of Kyrgyz, and conducted a field survey at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Kyrgyz in order to discuss a draft outline design, and as this result, 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.

I wish to express my sincere appreciation to the officials concerned of the Government of Kyrgyz for their close cooperation extended to the teams.

March 2010

KUROYANAGI Toshiyuki
Director General, Economic Infrastructure Department
Japan International Cooperation Agency

Letter of Transmittal

We are pleased to submit to you the preparatory survey report on the Project for Improvement of Equipment for Road Maintenance in Issyk-Kul and Chui Oblasts in the Kyrgyz Republic.

This survey was conducted by Katahira & Engineers International, under a contract to JICA, during the period from August 2009 to March 2010. In conducting the survey, we have examined the feasibility and rationale of the project with due consideration to the present situation of Kyrgyz and formulated the most appropriate outline design for the project under Japan's Grant Aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

SATO Tadashi
Chief Consultant,
Preparatory Survey team on
The Project for Improvement of
Equipment for Road Maintenance in
Issyk-Kul and Chui Oblasts in
Kyrgyz Republic
Katahira & Engineers International

SUMMARY

1. Outline of the Country

The Kyrgyz Republic (hereinafter called “Kyrgyzstan”) is a landlocked country with a population of 5.4 million (as of 2008) and a land area of 198,500km² (about half the size of Japan). It is situated in the northeastern part of Central Asia, bordering Kazakhstan, Uzbekistan, Tajikistan, and China. The country has a continental climate with great temperature fluctuations. The average temperature in July ranges from 16 to 24°C in lowland areas and from 8 to 12°C in highland areas. The average temperature in January is minus 4 to minus 6°C in lowlands and minus 14 to minus 20°C in highlands. The rainfall is extremely small, and the average annual precipitation in Bishkek is about 450mm. The average number of clear days is 247 days per year.

Following independence, Kyrgyzstan converted to a free market economy in 1992 and has since taken a path of radical market reform according to IMF’s recommendation to tighten monetary policy. The country’s economy remained stagnant due to the collapse of the Soviet Union and the resulting chaos, but bounced back and recorded a positive GDP figure in 1996 for the first time after independence. Although Kyrgyzstan’s finances were severely affected by the Russian financial crisis in 1998, the country’s economy has been growing steadily (except in 2002 and 2005 when GDP declined due to reduced gold production at Kumtor Gold Mine, etc.). Although Kyrgyzstan is not directly affected by the global financial crisis, the country’s GDP growth has been slowing down since October 2008 due to economic recession in Russia and Kazakhstan, with which Kyrgyzstan has strong economic relationships. Bakiyev, who was reelected as president in July 2009, began reorganizing government agencies in October 2009.

Kyrgyzstan’s primary, secondary, and tertiary industries accounted for 37.1%, 21.9%, and 41.0% respectively of the country’s GDP in 2005. Agricultural sector that produces mostly wheat and other cereals occupies a large portion of GDP. The GDP per capita in 2007 was US\$712.

2. Background of the Project

Kyrgyzstan is a landlocked country located in the northeastern part of Central Asia, bordering Uzbekistan to the west, Kazakhstan to the north, and Tajikistan and China to the south. More than 90% of freight and passengers in Kyrgyzstan moves by road. In fact, roads in Kyrgyzstan play a vital role not only in providing linkage to other countries in Central Asia and Southwest Asia, but also in supporting the livelihood of local people. Transportation of goods and people rely heavily on the road network constructed during the former Soviet era, which, however, has been poorly maintained and deteriorating due to confusion and economic stagnation since the country’s independence in 1991. The deteriorated roads are not only hindering the transportation of daily necessities for the people but also becoming a bottleneck of Kyrgyzstan’s economic development, as they slow down the movement

of trade with neighboring countries. At present, Kyrgyzstan has an about 34,000-km road network, of which about 19,000 km of the republic roads, excluding agricultural and industrial roads, fall under the jurisdiction of MOTC. However, the pavement ratio of these roads is only 40%, and even the arterial roads connecting major cities, except for those rehabilitated with funds donated by aid organizations, have potholes, broken shoulder pavement, and other damages in scattered places, indicating inadequate maintenance. It is estimated that about 200km of the roads is losing function each year, calling for an immediate action to improve MOTC's road maintenance capacity. To rectify the situation, Japan extended grant aid for procuring equipment necessary to maintain 362km of the 539km Bishkek-Naryn-Torugart Road in Naryn Oblast. Also, a technical cooperation project has been implemented in Naryn Oblast since 2008 to improve its road maintenance capacity.

Consequently, the Kyrgyz Government requested Japan's grant aid assistance for procuring road maintenance equipment for Issyk-Kul, Jalal-Abad, and Osh Oblasts in 2007 and for Chui, Talas, and Batken Oblasts in 2009. The Japanese Foreign Ministry and Japan International Cooperation Agency (hereinafter referred to as JICA) examined these six oblasts, for which the requests had been made, based on the priority presented by the Kyrgyz Government and by taking into account the synergistic effects with other projects implemented by JICA while coordinating with the Kyrgyz Government and existence of international arterial roads, and as a result conceived this Project targeting the two oblasts of Issyk-Kul and Chui and conducted the preparatory survey.

3. The Result of the Study and Contents of the Project

In response to the request of the Government of Kyrgyzstan, the Government of Japan decided to conduct a preparatory survey for the Project for Improvement of Equipment for Road Maintenance, the executing agency of which is the Ministry of Transportation and Communications (MOTC). JICA dispatched a preparatory survey team to Kyrgyzstan from August 18 to September 16, 2009 to have discussions with Kyrgyz personnel concerned and survey the target areas of the Project. After returning to Japan, the survey team drafted an outline design based on the findings of the field survey and summarized the content in an outline design report. In order to present the outline design report, JICA dispatched the survey team to Kyrgyzstan from January 19 to January 27, 2010 to discuss and confirm the content of the report with Kyrgyz personnel concerned.

The overall goal and the purpose of this Project are as follows:

- Overall goal: Road conditions of the target areas are improved.
- Project purpose: Roads in the target areas are maintained properly.

This Project aims to enhance the road maintenance system by procuring road maintenance equipment that is lacking in the executing agency. This will enable efficient provision of high-quality maintenance services for the roads in the target areas in a timely manner. The road maintenance equipment will be procured for the execution agency of this Project (MOTC) through Japan's grant aid.

Based on the list of equipment requested by the Kyrgyz side, we had discussions with MOTC, the executing agency of this Project. Subsequently, it was agreed in the Minutes of Discussions dated August 24 that the road maintenance works, for which equipment would be procured by this Project, would consist of the following:

- (1) Patching (pothole and crack repair)
- (2) Repaving asphalt (overlay and repaving)
- (3) Snow cleaning
- (4) Road restoration work after a disaster

Based on the results of site survey and through the discussions with Kyrgyz and Japanese sides, the target road sections were decided as 130km length in Chui Oblast and 532km length in Issyk-kul Oblast. Total length of the target road sections is 662km.

It was decided to select the model type, specification, and quantity of each equipment item to be procured by this Project primarily for the purpose of performing the road maintenance works listed above for the target road sections and by taking into account how the existing equipment procured through the similar project in the past is being utilized.

Equipment to be Procured

No.	Equipment	Specifications	Location			
			Chui		Issyk-Kul	Total
			PLAUD No.1	BNT Road Maintenance Dept.	PLAUD No.4	
1	Asphalt Cutter	Cut depth:150mm	6	2	12	20
2	Vibrating Compactor	Weight: 70kg	6	2	12	20
3	Hand Breaker	Weight: 7kg	6	2	12	20
4	Air Compressor	Displacement: 5.1m ³	3	1	6	10
5	Asphalt Sprayer	Tank capacity: 400Lit	3	1	6	10
6	Hand Guide Roller	Weight: 650kg	3	1	6	10
7	Asphalt Finisher	Paving width: 4.7m	1	0	1	2
8	Road Roller	Weight: 10t	1	0	1	2
9	Tire Roller	Weight: 15t	1	0	1	2
10	Water Tank Truck	Tank capacity: 8,000Lit	1	0	1	2
11	Motor Grader	Blade width: 3.7m	1	0	1	2
12	Excavator	Bucket capacity: 0.8m ³	1	0	1	2
13	Wheel Loader	Bucket capacity: 2.5m ³	1	0	1	2
14	Dump Truck	Loading capacity:10t	5	0	5	10
15	Asphalt Plant	Production capacity: 35t/h	1	0	1	2
16	Aggregated Plant	Production capacity: 35t/h	1	0	1	2
17-1	Multi Purpose Vehicle	4WD, with PTO for attachment	1	0	2	3
17-2	Snow Plough	Width: 3,000mm	1	0	2	3
17-3	Rotary Snow Blower	Rotary diameter: 750mm	1	0	2	3
17-4	Salt Spreader	Hopper capacity: 2.0m	1	0	2	3
18	Truck with Crane	Loading capacity: 4.0t with 2.8t crane	3	1	6	10
19	Truck Trailer	Loading capacity: 25.0t, flat low floor	1	0	1	2
20	Mobile Workshop	4WD, 8-ton class, aluminum van Installed with repair equipment/ tools and crane	1	0	1	2
Total			50	10	84	144

The executing agency (MOTC) has been properly using and maintaining the equipment that was procured in a similar project called “The Project for Improvement of Equipment for Road Maintenance in Naryn Oblast” that was implemented in 2007. MOTC has been allocating sufficient budget for purchasing spare parts of said equipment from dealerships of the equipment manufacturers. Therefore, we decided not to include spare parts in this Project, as MOTC is deemed capable of purchasing them at its own account.

Aside from products made in the former Soviet Union, the executing agency is regularly using equipment made in Japan, Europe, and China. MOTC regards highly of the Japanese products procured through said similar project for their ease-of-use and high durability and desires strongly to

procure Japanese products for this Project as well.

In formulating the procurement plan while taking into account the above facts, we considered mostly Japanese equipment manufactures as supply sources. As for multi-purpose vehicles and attachments that are not produced in Japan, we examined European manufactures that are popular in Kyrgyzstan for their reliable quality along with those of other third countries.

4. Estimated Project Period and Cost

If this Project is to be implemented under Japan's grand aid scheme, the estimated time period required to prepare detailed design and procure equipment will be 4.5 months and 11.0 months respectively. The Project will be implemented in accordance with the Japan's Grant Aid scheme and the cost will be determined before concluding the Exchange of Note (E/N) for the Project.

5. Project Evaluation and Recommendations

The direct beneficiaries of this Project will be the approximately 1.2 million residents of the two target oblasts, and the indirect beneficiaries will be the entire Kyrgyz population of about 5.4 million. The expected effects of this Project are listed below.

(1) Direct effect and degree of impact

Road maintenance equipment will be fortified, decreasing the ratio of broken equipment under repair from 52% to 23%.

(2) Indirect effect and degree of impact

(i) 662km road in Issyk-Kul and Chui Oblasts will be improved.

(ii) Snow clearing operation in winter will be expedited, improving the living environment for the residents.

As described above, this Project is anticipated to bring about significant benefits and, at the same time, contribute to the enhancement of basic infrastructure of the people at large, which confirms the appropriateness of Japan's grant aid to assist a part of this Project.

Also, any problems are not foreseen with the Project's sustainability, as the Kyrgyz Government is committed to setting up an adequate implementation system in place to administer and maintain the positive outcome of the Project on a long-term basis.

In addition, this Project is expected to be implemented even more smoothly and efficiently if coordinated with technical transfer and other technical cooperation projects within the executing agency.

РЕЗЮМЕ

1. Краткие сведения о стране

Кыргызская Республика (далее КР) – внутриматериковое государство с населением 5,4 млн. чел. (2008 г.) и территорией 198,5 тыс. км² (примерно 1/2 территории Японии), расположена в северо-восточной части Центральной Азии, гранича с Казахстаном, Узбекистаном, Таджикистаном и Китаем. Климат – континентальный, с большой амплитудой положительных и отрицательных температур. Средняя температура в июле составляет 16~24°С в равнинах, 8~12°С – в горах и высокогорьях, в январе – минус 4~6°С и минус 14~20°С, соответственно. Количество осадков крайне мало: в г. Бишкеке за год выпадает около 450 мм, при 247 солнечных днях в среднем за год.

После обретения независимости в КР в 1992 г. была предпринята либерализация цен, и в соответствии с рекомендациями МВФ о проведении жесткой кредитно-денежной политики страна встала на путь проведения ускоренных рыночных реформ. В условиях хаоса, вызванного распадом Советского Союза, возник затяжной экономический спад, однако в 1996 г. впервые после обретения независимости снижение ВВП сменилась на рост. Затем под влиянием российского финансового кризиса 1998 г. в КР также произошел кризис, вызвавший давление на финансы, однако положительная динамика роста ВВП, в принципе, сохранилась. (В 2002 и 2005 гг., однако, ВВП снижался в результате уменьшения добычи золота на золоторудном месторождении Кумтор). И хотя прямого воздействия нынешнего мирового финансового кризиса на КР не наблюдается, рост ВВП здесь с октября 2008 г. замедлился под влиянием ухудшения конъюнктуры в России и Казахстане, с которыми Кыргызстан имеет глубокие экономические связи. В июле 2009 года были проведены президентские выборы, на которых был переизбран президент Курбанбек Бакиев. В октябре 2009 года президент Курбанбек Бакиев начал организационную реформу правительственных ведомств.

На первичные отрасли в структуре ВВП приходится 37,1%, на вторичные – 21,9%, на третичные – 41,0% (2005 г.). В структуре ВВП высока доля сельского хозяйства. Основную часть сельхозпродукции составляют зерновые (пшеница и др.). В 2007 году ВВП на душу населения составил в КР 712 долларов США.

2. Предпосылки, предыстория и краткая характеристика

Кыргызская Республика – внутриматериковое государство, расположенное в северо-восточной части Центральной Азии и граничащее на западе с Узбекистаном, на севере – с Казахстаном, на юге – с Таджикистаном и Китаем. На автомобильный транспорт в КР приходится свыше 90% грузовых и пассажирских перевозок. Автомобильное сообщение КР не только является важным внутрирегиональным средством транспорта, связывающим центральный и юго-западными регионами Азии, но и

выполняет для местного населения важную функцию в качестве коммуникаций жизнеобеспечения. Основная часть грузовых и пассажирских перевозок опирается на дорожную сеть, сооруженную в советский период. Однако, в ходе политических волнений и экономического спада, последовавшего за обретением в 1991 г. независимости, произошло ухудшение состояние автодорог. Состояние дорог стало препятствием не только для транспортировки грузов, необходимых для повседневной жизни населения, но и для внешней торговли с соседними государствами. Дороги превратились в «узкое место», мешающее экономическому росту. В настоящее время в КР существует дорожная сеть протяженностью ок. 34 тыс. км, из которых ок. 19 тыс. км находятся в ведении Министерства транспорта и коммуникаций (далее МТиК), а остальное составляют сельскохозяйственные и промышленные дороги. Доля дорог с твердым покрытием, однако, низка (40%), а содержание даже магистральных межгородских автодорог (за исключением дорог, реконструированных на донорскую помощь) должным образом не осуществляется: на дорогах много выбоин, в плохом состоянии находятся обочины, и т.д. По оценкам, ежегодно в результате недостаточного содержания и ремонта в КР теряют свои функции ок. 200 км дорог с твердым покрытием. В таких условиях экстренной задачей является повышение потенциала содержания и ремонта автодорог. В этой связи в 2006 г. Япония предоставила КР безвозмездную финансовую помощь для оснащения дорожно-строительной техникой, необходимой для содержания и ремонта проходящего по территории Нарынской области 362-километрового отрезка автодороги Бишкек-Нарын-Торугарт – магистрали протяженностью 539 км, соединяющей столицу с южными регионами страны. С 2008 г. Япония реализует проект технического содействия повышению потенциала содержания автодорог в Нарынской области. В таких условиях КР подала Японии заявки на безвозмездную помощь, связанную с поставкой техники и оборудования для содержания и ремонта автодорог: в 2007 г. – заявку, касающуюся автодорог Иссык-Кульской, Джалал-Абадской и Ошской областей, а в 2009 г. – заявку, касающуюся автодорог Чуйской, Таласской и Баткенской областей. МИД Японии и Японское агентство международного сотрудничества (далее JICA) провели изучение рейтинга приоритетов Правительства КР в отношении 6 указанных в заявках областей, исследовали мультипликативный эффект от проводимых JICA проектов и вопрос о наличии в перечисленных областях магистральных автодорог международного значения, и после согласования с Правительством КР было проведено исследование по проекту, целевым регионом которого являются Иссык-Кульская и Чуйская области.

3. Краткие результаты Исследования и содержание Проекта

На основании заявки от Правительства КР Правительство Японии приняло решение провести Подготовительное исследование по проекту сотрудничества, касающемуся оснащения оборудованием для содержания и ремонта автодорог.

Ведомством-исполнителем по данному проекту предусматривается Министерство транспорта и коммуникаций (МТиК). Японское агентство международного сотрудничества (JICA) направило в КР с 18 августа по 16 сентября 2009 г. Группу Подготовительного Исследования, которая провела консультации с заинтересованными лицами КР, а также обследовала целевые районы проекта. На основе итогов, полученных в ходе исследования на месте в КР, Группа Подготовительного Исследования после возвращения в Японию выполнила базовое проектирование оптимального содержания проекта. Было составлено Резюме Базового проекта, обобщающее его содержание. С целью предоставления объяснений по Резюме Базового проекта JICA направила в КР с 19 по 27 января 2010 г. Группу Исследования, которая обсудила и уточнила с заинтересованными лицами КР содержание названного Резюме.

Верховная и непосредственная цели Проекта определяются следующим образом.

- Верховная цель: улучшить ситуацию с автодорожной инфраструктурой в целевых районах.
- Цель Проекта: осуществлять надлежащее техобслуживание автодорог в целевых районах.

Для достижения вышеуказанных целей Проект предусматривает формирование системы, позволяющей осуществлять ремонт и содержание автодорог, за счет поставки ведомству-исполнителю недостающего для этого оборудования. Ожидается, что это позволит эффективно и своевременно выполнять высококачественные дорожные работы на автодорогах целевых районов. Согласно проекту безвозмездной финансовой помощи, Министерству транспорт и коммуникаций КР, являющемуся ведомством-исполнителем, будет поставлено оборудование для ремонта и содержания автодорог.

Исходя из запрошенного оборудования, в протоколе совещания, проведенного 24 августа с МтиК, исполнительным ведомством Проекта, было подтверждено, что работы по ремонту и содержанию дорог, проводимые с использованием поставляемого по данному Проекту оборудования, будут относиться к следующим рубрикам.

- ① Ямочный ремонт (ремонт выбоин и трещин в дорожном полотне)
- ② Переустройство асфальтобетонного покрытия (замена слоя износа, полное переустройство имеющегося асфальтобетонного покрытия)
- ③ Снегоуборочные работы
- ④ Восстановительные дорожные работы после стихийных бедствий

Модели, спецификации и число единиц оборудования, поставляемого по данному Проекту, было решено определить исходя из того, что это будет оборудование, необходимое для осуществления вышеуказанных работ по ремонту и содержанию целевых участков дорог, а также с учетом ситуации с эксплуатацией оборудования, поставленного по предыдущим сходным проектам.

План поставки оборудования

Наименование	Спецификации	Место размещения			Всего
		Чуйская обл.		Иссык-Куль обл.	
		ПЛУАД №1	УАД БНТ	ПЛУАД №4	
Асфальторезчик	Глубина резки - 150 мм	6	2	12	20
Вибротрамбовка	Вес - 70 кг	6	2	12	20
Отбойный молоток	Вес - 7 кг	6	2	12	20
Воздушный компрессор	Производительность - 5,1 м3	3	1	6	10
Автогудронатор	Объем бака - 400 л	3	1	6	10
Каток ручной	Вес - 650 кг	3	1	6	10
Асфальтоукладчик	Ширина укладки - 4,7 м	1	0	1	2
Каток вальцовый	Вес - 10 т	1	0	1	2
Каток пневмоколесный	Вес - 15 т	1	0	1	2
Поливочная автоцистерна	Объем бака - 8000 л	1	0	1	2
Автогрейдер	Ширина отвала - 3,7 м	1	0	1	2
Экскаватор	Объем ковша - 0,8 м3	1	0	1	2
Погрузчик колесный	Объем ковша - 2,5 м3	1	0	1	2
Самосвал	Грузоподъемность - 10 т	5	0	5	10
Асфальтобетонный завод	Производительность - 35 т/ч	1	0	1	2
Камнедробильная установка	Производительность - 35 т/ч	1	0	1	2
Многоцелевая машина	Полноприводная, с коробкой отбора мощности для установки навесного оборудования	1	0	2	3
Снегоочистительный плуг	Ширина - 3000 мм	1	0	2	3
Снегоочистительный ротор	Диаметр ротора - 750 мм	1	0	2	3
Аппарат для подсыпки	Объем хоппера - 2,0 м3	1	0	2	3
Грузовик с краном	Грузоподъемность - 4,0 т. С 2,8-тонным краном.	3	1	6	10
Грузовой а.м. с прицепом	Грузоподъемность - 25 т. С плоским низким кузовом.	1	0	1	2
Мастерская передвижная	Полноприводная, г/п - 8 т. Алюминиевый фургон. С краном и инструментами.	1	0	1	2
Итого		50	10	84	144

Ведомство-исполнитель с 2007 г. эксплуатирует оборудование, поставленное для «Проекта по оснащению оборудованием для содержания и техобслуживания дорог в Нарынской области», сходного с рассматриваемым Проектом, и надлежащим образом осуществляет техобслуживание этого оборудования. При этом ведомство-исполнитель обеспечивает также наличие бюджета на запчасти, приобретая их через агентства. На этом основании было вынесено заключение, что после поставки оборудования по Проекту осуществление ведомством-исполнителем снабжения запчастями также является возможным, и было принято решение о невключении запчастей в состав поставки.

Помимо техники советского производства в ведомстве-исполнителе эксплуатируется оборудование японского, европейского и китайского производства. Ведомство-исполнитель высоко оценивает эксплуатационную технологичность и долговечность японской техники, поставленной по вышеупомянутому сходному проекту помощи, и высказывает настойчивую просьбу поставить оборудование японского производства также и по рассматриваемому Проекту.

Исходя из вышеизложенного, при планировании поставки по Проекту в основном рассматривалось оборудование японского производства. Что же касается многоцелевой машины и навесного оборудования к ней, то в связи с отсутствием изделий японского производства был проработан вопрос о поставке качественной продукции третьих стран (прежде всего, машин европейского производства).

4. Сроки проекта, предварительные проектные расходы

В случае проведения данного Проекта по схеме безвозмездной японской помощи срок проектирования реализации предположительно составит 4,5 мес., а срок поставки оборудования – 11,0 мес. Проект будет реализован по схеме безвозмездной финансовой помощи Японии, при этом проектные расходы будут определены до подписания Обменной Ноты (E/N).

5. Изучение целесообразности Проекта

В случае реализации Проекта число его непосредственных бенефициаров составит ок. 1,2 млн. чел. (население 2 областей целевого региона), а число косвенных бенефициаров – ок. 5,4 млн. чел. (т.е. все население КР). Ниже указан эффект, ожидаемый от Проекта.

(1) Непосредственный эффект

Будет сформирован парк дорожно-ремонтной техники, и показатель оборудования, находящегося в ремонте, улучшится, снизившись с 52% до 23%.

(2) Косвенный эффект

① Будут приведены в рабочее состояние 662 км дорог в Иссык-Кульской и

Чуйской областях.

- ② Сократятся сроки выполнения снегоочистительных работ в зимний период, что приведет к улучшению жизненных условий местного населения.

Наряду с вышеизложенным разносторонним эффектом, ожидаемым от Проекта, он будет содействовать также повышению степени удовлетворения *базовых человеческих потребностей* (ВНН), что подтверждает целесообразность реализации части этого проекта сотрудничества в качестве проекта безвозмездной финансовой помощи со стороны Японии.

Следует также считать, что отсутствуют проблемы в аспектах хозяйствования и техобслуживания, касающихся обеспечения долгосрочного функционирования результатов Проекта, т.к. Правительство КР с определенностью обещало обеспечить наличие исчерпывающей системы реализации.

Представляется также, что можно добиться еще более гладкой реализации Проекта за счет налаживания внутри ведомства-исполнителя передачи технического опыта и взаимодействия с проектами технического сотрудничества.

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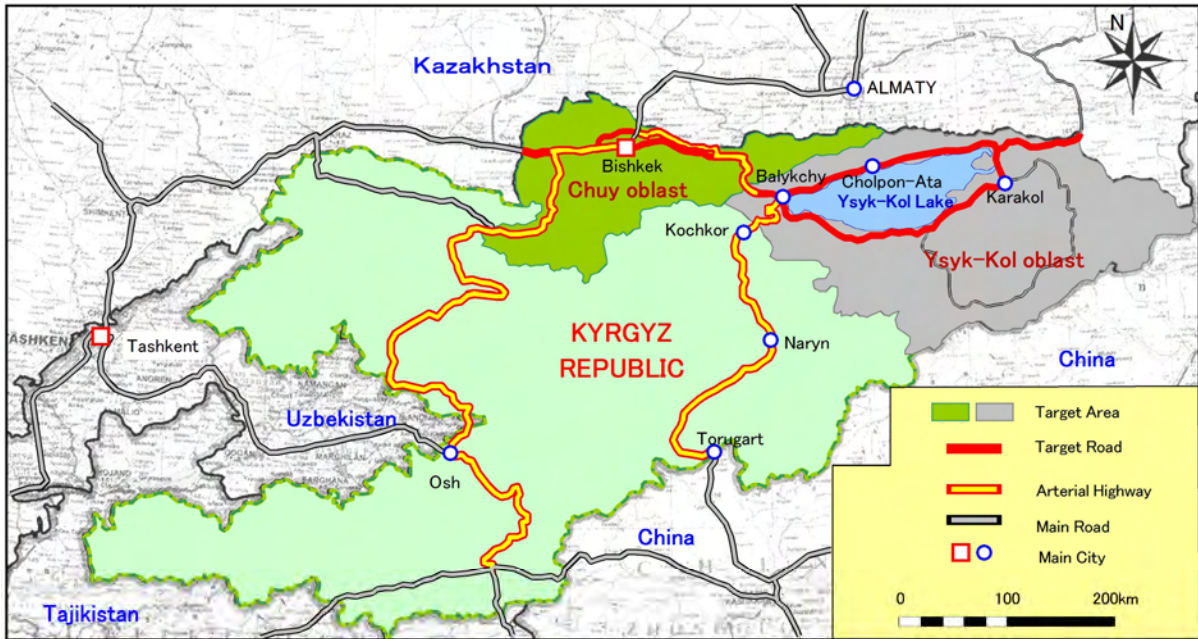
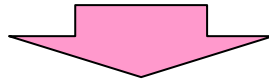
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2. Survey Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions



Project Area

Image Photo of the Equipment



1. Asphalt Cutter



2. Vibrating Compactor



3. Hand Breaker



4. Air Compressor



5. Asphalt Sprayer



6. Hand Guide Roller



7. Asphalt Finisher



8. Road Roller



9. Tire Roller



10. Water Tank Truck



11. Motor Grader



12. Excavator



13. Wheel Loader



14. Dump Truck



15. Asphalt Plant



16. Aggregate Plant



17-1. Multi Purpose Vehicle



17-2. Snow Plough



17-3. Rotary Snow Blower



17-4. Salt Spreader



18. Truck with Crane



(Semi-trailer)

19. Trailer Truck



(Tractor Truck)



(On-board Equipment)



20. Mobile Workshop

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ABBREVIATIONS

AC	Asphalt Concrete
A/C	Approval by Cabinet
ADB	Asian Development Bank
A/P	Authorization to Pay
B/A	Banking Arrangements
BNT	Bishkek – Naryn – Torugart
CIS	Commonwealth of Independent States
DEP	Dorozhno-Ekspluatatsionnoe Predpriyatie
EIA	Environmental Impact Assessment
E/N	Exchange of Notes
F/S	<i>Feasibility Study</i>
G/A	Grant Agreement
GOJ	Government of Japan
GDP	Gross Domestic Product
GNI	Gross National Income
IDB	Islam Development Bank
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
M/D	Minutes of Discussions
MOF	Ministry of Finance
MOTC	Ministry of Transport and Communications
ODA	Official Development Assistance
PLUAD	Proizvodstvenno-Lineinoe Upravlenie Avtomobilnykh Dorog
SBST	Single Bituminous Surface Treatment
T/N	Tender Notice
UN	United Nations
V/C	Verification of Contract
WB	World Bank

CHAPTER 1

BACKGROUND OF THE PROJECT

1-1 BACKGROUND OF THE REQUEST AND ITS SUMMARY

At present, Kyrgyzstan has an about 34,000-km road network, of which about 19,000 km of the republic roads, excluding agricultural and industrial roads, fall under the jurisdiction of MOTC. However, the pavement ratio of these roads is only 40%, and even the arterial roads connecting major cities, except for those rehabilitated with funds donated by aid organizations, have potholes, broken shoulder pavement, and other damages in scattered places, indicating inadequate maintenance. It is estimated that about 200km of the roads is losing function each year, calling for an immediate action to improve MOTC's road maintenance capacity. To rectify the situation, Japan extended grant aid for procuring equipment necessary to maintain 362km of the 539km Bishkek-Naryn-Torugart Road in Naryn Oblast. Also, a technical cooperation project has been implemented in Naryn Oblast since 2008 to improve its road maintenance capacity.

Consequently, the Kyrgyz Government requested Japan's grant aid assistance for procuring road maintenance equipment for Issyk-Kul, Jalal-Abad, and Osh Oblasts in 2007 and for Chui, Talas, and Batken Oblasts in 2009. The Japanese Foreign Ministry and JICA examined these six oblasts, for which the requests had been made, based on the priority presented by the Kyrgyz Government and by taking into account the synergistic effects with other projects implemented by JICA while coordinating with the Kyrgyz Government and existence of international arterial roads, and as a result conceived this Project targeting the two oblasts of Issyk-Kul and Chui and conducted the preparatory survey.

In response to the request of the Government of the Kyrgyz Republic, JICA sent to Kyrgyz a preparation survey team (basic design) from August 18 to September 16, 2009. The team held discussion with the officials concerned of the Government of Kyrgyz, and conducted a field survey at the study area. After the team returned to Japan, further studies were made.

1-2 NATURAL CONDITION

Tokmok where is the planning installation site for asphalt and aggregate plant in Chui Oblast is situated at around 800m altitude with temperatures ranging from -8°C in January to 35°C in July and an annual precipitation of about 400mm. It seldom rains in the area except between March and May, and there are about 300 sunny days each year. This area has 5-15cm snowfalls in winter.

Barskoon where is the planning installation site for asphalt and aggregate plant in Issyk-Kul Oblast is situated at around 1,600m altitude with temperatures ranging from the lowest of -9°C in January and to the highest of 35°C in July. The annual precipitation is around 500mm. This area has about 50cm snowfalls in winter.

1-3 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

This Project includes the construction of asphalt and aggregate plants, for which EIA needs to be conducted by the Kyrgyz side as part of its obligations under this Project in accordance with applicable laws and regulations of Kyrgyzstan. MOTC, the execution agency of this Project, needs to contract a licensed environmental consultant in Kyrgyzstan to prepare an EIA report and submit it to the National Agency for Environmental Protection and Forestry in charge of EIA to have the report examined and be issued a certificate of completion of EIA by the Agency. The time needed for this procedure is estimated at one month for EIA and three weeks for the issuance of the EIA completion certificate. This procedure will be similar to the procedure followed in The Project for Improvement of Equipment for Road Maintenance in Naryn Oblast. Since detailed data (installation map, specification sheet, etc.) of the plants is needed for preparing the EIA report, the Consultant should submit the detailed data to MOTC as soon as possible after tender for potential suppliers and provide technical assistance for MOTC as necessary.

EIA Procedure

- Confirmation of the status of the site for plant installation, acquisition of information of the natural condition around the site, acquisition of design documents (plant specifications, information of layout, etc.)
- Preparation and submission of an EIA report (about one month)
- Affected matters, affected contents, countermeasures, affected volume calculation
- Examination of the EIA report by the National Agency for Environmental Protection and Forestry (about two weeks)
- Approval of the project by the National Agency for Environmental Protection and Forestry (Issuance of a certificate of completion of EIA)
- Start of construction work (leveling of the installation site, infrastructure development, etc.)

The cost of EIA report preparation (EIA procedure) by the consultant for the asphalt plant of the equipment project in Naryn Oblast (borne by MOTC) was about US\$100, which will be the approximate cost of the EIA procedure for this Project.

CHAPTER 2

CONTENTS OF THE PROJECT

2-1 BASIC CONCEPT OF THE PROJECT

(1) Overall goal and the purpose of the Project

The overall goal of the Project is that Road conditions of the target areas are improved. In other words, the improving of the road conditions means to secure the accessibility to public infrastructure as market. The road development program under National Development Goals (2009~2011) mentions three points as follows;

- 1) Large scale rehabilitations of International Transport corridors
- 2) Repairing rough road surface
- 3) Acceleration of improving bridges and road structures

MOTC conducts road maintenance work by administration for the measurement of repairing rough road surface. The targets of work are as follows;

- Chipseal pavement : 800km length per year
- Overlay and repairing : 100km length per year

This project aims to conduct 20km length overlay per year and 450km length patching.

(2) Outline of the Project

For above-mentioned purposes, this project improves the road maintenance equipment for proper road maintenance on the target roads with necessary of manpower, equipment maintenance and budget to be covered by Kyrgyz side.

(3) Outline of Target Road Sections

The target road sections at the starting of the Project were 2 road sections as from Chaldovar to Kegen (523km) and from Balykchy to Tup (248km). Total length is 771km.

Based on the results of the site survey and series of discussions with Kyrgyz and Japanese side, following 2 road sections were omitted from the target road sections.

- 1) Section in Kara-balta ~ Bishkek(50km)
- 2) Road section in Bishkek ~ Naryn ~ Torgurt (82km)

MOTC requested the survey team to add Bishkek north bypass road (23km) for the target road sections. Finally the target road sections are justified for 130km length in Chui Oblast and 532km length in Issyk-kul Oblast. Total length of the target road sections is 662km. This Project will procure the necessary road maintenance equipment for the target road section through Japan's grant aid. The target road sections of this Project are outlined in Table 2-1 below.

Table 2-1 Outline of Target Road Sections

Target road section	Characteristics	Kyrgyz road	Kyrgyz road	Approximate traffic volume (AADT)
		Classification	Hierarchy	
Chaldovar - Bishkek	International road designated as Asian Highway AH5 and TRACEA Route 33.	International	II	14,000 – 6,000 vehicles/day
Western Bishkek - Tokmok	Bypass road in northern Bishkek*	International	II and III	10,000 - 8,600 vehicles/day
Bishkek - Naryn	International road designated as Asian Highway AH61.	International	III	10,000 vehicles/day
Balykchy - Tup	Issyk-Kul Lake Circumference Road (northern route) with large tourist traffic.	International	II (Balykchy - Cholpon-Ata)	3,000 vehicles/day **
			III (Cholpon-Ata - Tup)	2,000 vehicles/day
	Issyk-Kul Lake Circumference Road (southern route) with small tourist traffic.	International	III (Balykchy - Cholpon-Ata)	2,000 vehicles/day
Tup - Kegen	International road from Tup to Kazakh border.	International	IV	1,000 vehicles/day

Source: MOTC

(4) Road Maintenance Departments (PLUADs) and Road Maintenance Depots (DEPs) of the Target Road Sections

Table 2-2 below shows the three Road Maintenance Departments (PLUADs) and ten Road Maintenance Depots (DEPs) that have jurisdiction over the target road sections of this Project. The total road length is 662km. Figure 2-1 shows the location of each DEP.

Table 2-2 Road Maintenance Departments and DEPs of the Target Road Sections

Oblast	PLUAD	DEP	Target Road Section	Length (km)				
				Section	DEP	PLUAD	Oblast	Total
Chui	No.1	40	Kara-balta - Chaldovar	31	31	130	130	662
		954	BNT Road 32K - 82K	50	50			
		958	BNT Road 6K - 32K	26	26			
	BNT	39	BNT Bypass, west side	23	23			
Issyk-Kul	No.4	3	Lake Issyk-Kul southern route 124K - 150K	26	26	532	532	
		4	Lake Issyk-Kul northern route 156K - 207K	51	127			
			Entire Tup - Kegen Road	76				
		7	Lake Issyk-Kul northern route 40K - 156K	116	116			
		10	BNT Road 148K - 166K (to Balykchy)	18	118			
			Northern route via Balykchy 0K - 40K	40				
			Southern route via Balykchy 0K - 60K	60				
		33	Lake Issyk-Kul southern route 60K - 124K	64	64			
		35	Northern route to Karakol 207K - 218K	11	81			
Southern route to Karakol 150K - 220K	70							

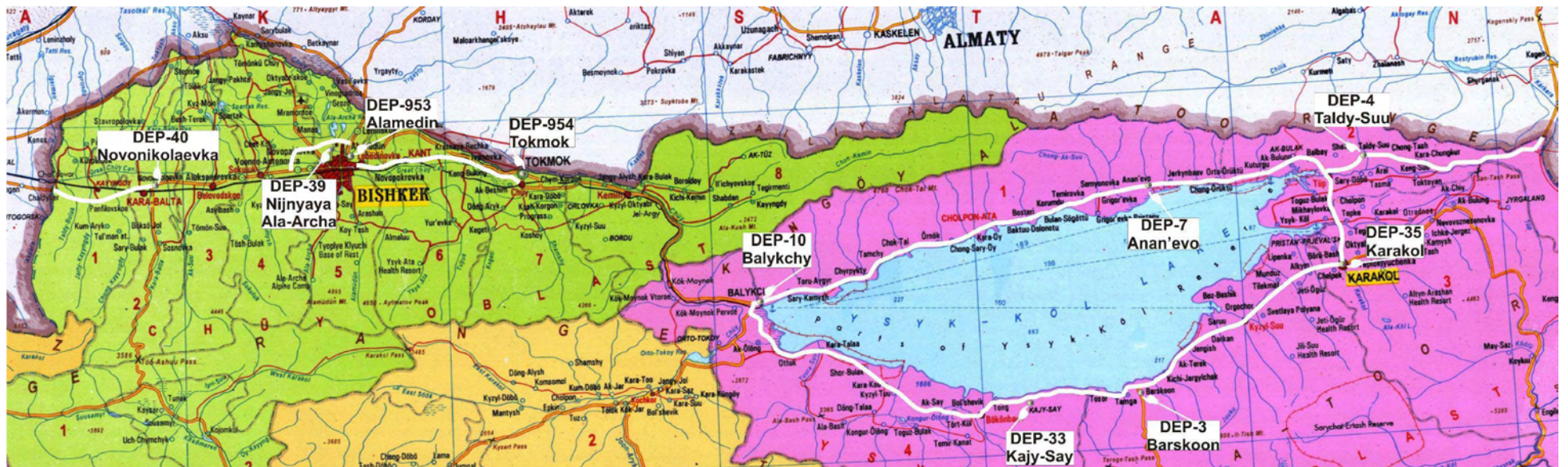


Figure 2-1 Location Map of DEP

2-2 BASIC DESIGN OF THE REQUESTED JAPANESE ASSISTANCE

2-2-1 DESIGN POLICY

(1) Basic Concept

Although MOTC provides a diverse range of road maintenance services, this Project will focus on procuring equipment to perform the following operations that are needed to maintain the basic functions of the roads:

- Road repair work: patching, crack sealing, overlay and repaving
- Snow clearing and melting : snow/ice clearing, salt/sand spraying
- Disaster restoration: removal of fallen rocks and mud, restoration of collapsed road
- Support work: transportation of equipment, on-site equipment repair

In preparing the equipment plan, procuring road maintenance equipment for the 10 DEPs and the PLUADs that have jurisdiction over 662km target road will be considered. Considering the fact that the most of the DEPs do not have the equipment needed to perform road maintenance services or only have antiquated equipment that will stop operating within a few years, we will determine the quantity of each equipment item on the assumption that work groups will be organized to perform road maintenance using the equipment to be procured by this Project.

Each DEP is in charge of managing its own basic equipment and assigns a full-time operator/mechanic for each equipment unit. PLUADs are in charge of administering plants and large equipment. PLUADs normally do not loan equipment to each other. Therefore, an equipment plan will be formulated based on the assumption that each DEP and PLUAD will be administering their own equipment.

Since the types of operations related to this Project are similar to those of the “Project for Improvement of Equipment for Road Maintenance in Naryn Oblast”, the equipment specifications for this Project is considered based on those of the Naryn Oblast Project and those of popular models in Kyrgyzstan, while incorporated some needed changes that were identified through this survey.

Table 2-3 Target PLUADs and DEPs of Equipment Procurement

Chui		Issyk-Kul	
PLUAD No.1	BNT	PLUAD No.4	
DEP 40	DEP 39	DEP 3	DEP 4
DEP 954	—	DEP 7	DEP 10
DEP 958	—	DEP 33	DEP 35

(2) Policy on Natural Condition

The climatic conditions of the target areas in Issyk-Kul and Chui Oblasts are as follows:

- Temperature -30°C - +35°C
- Altitude 760 - 2,000m
- Rainfall approx. 500mm a year
- Snowfall 5 - 160cm

(3) Policy on Environmental Aspects

In Kyrgyzstan, there are no standards regulating emission from construction equipment and vehicles, and some of the fuels being marketed contain impurities and lack consistency in quality. Therefore, fuel filters will be installed in the main equipment items to prevent engine trouble and mitigate air pollution from exhaust gases.

(4) Policy for the Management and Maintenance Level of MOTC

Each target DEP of this Project is able to overhaul engines, transmissions, and travel devices and capable of performing basic maintenance works on construction equipment made in the former Soviet Union. Although they lack some technical knowledge on the latest equipment made in Japan and other countries to be procured for this Project, they are deemed technically capable, as MOTC has been properly maintaining the Japanese-made road maintenance equipment that was procured for Naryn Oblast in 2007.

If equipment is to be procured as part of this Project, technical transfer within MOTC will be proposed to support the development of their maintenance capacity on a self-sustaining basis.

Also, in order to improve the operating rate of each equipment, it is important to be able to prevent equipment failure and, in case of breakage, repair it as soon as possible. Therefore, we will consider procuring repair equipment that can be used on the construction sites.

(5) Policy on the Procurement of Spare Parts

MOTC, the executing agency of this Project, has been properly using and maintaining the equipment procured under the similar Naryn Project in 2007. MOTC has been purchasing spare parts from the distributors of the equipment manufacturers and established channels to purchase Japanese parts and components as well. As for financing, the budget for the Road Department was increased by approximately 250% in 2007 as counterpart funding for the Naryn Project to allocate the extra budget to road repair works and maintenance of the equipment procured.

In addition to the above, the Kyrgyz Government has promised to appropriate sufficient budget after the procurement of equipment by this Project. Therefore, it has been determined not to include spare parts in this Project, as MOTC is deemed capable of purchasing them at its own account.

(6) Matters Concerning Supply Source Countries

The matters are stated in section 3-2-3-6.

2-2-2 BASIC PLAN (Equipment Plan)

(1) Overall Plan

1) Road Repair

① Patching

- Cutting asphalt around patching area → crushing and removal of asphalt → cleaning →
→ prime coating → filling of asphalt mixture → rolling and compaction

Particular attentions need to be paid to proper cutting of damaged parts, thorough cleaning of the holes after removal of asphalt, and sufficient compaction of asphalt mixture.

② Crack Sealing

- Cleaning of crack → filling of straight asphalt → curing by sand

Particular attentions need to be paid to thorough cleaning of the inside of cracks and sufficient filling of straight asphalt.

③ Overlay and Repaving

- Cleaning of paved surface (or sufficient compaction of base course) → prime coating →
→ leveling of asphalt mixture → rolling and compaction

Particular attentions need to be paid to proper controlling of the thickness of asphalt layer and sufficient rolling and compaction of road surface.

2) Snow Clearing and Melting

① Snow/Ice Clearing

- Clearing of initial snowfall → clearing of compacted snow → clearing of ice on road
- Clearing of over 50 cm of deep snow or drifting snow

Particular attentions need to be paid to the selection of appropriate snow clearing methods and equipment according to the degree and conditions of snowfall.

② Salt/Sand Spraying

- Spraying of salt and sand

Particular attentions need to be paid to appropriate mixing ratios of salt and sand and adjustment of spray volume according to the atmospheric temperature, snowfall, and road conditions.

3) Disaster Restoration

① Removal of Fallen Rocks and Mud

- Removal and loading of fallen rocks and mud → hauling of rocks and mud

Particular attentions need to be paid to swift removal, loading, and hauling of rocks and mud.

② Restoration of Collapsed Road

- Carrying of earth and sand → backfilling of earth and sand → rolling and compaction → paving road

Particular attentions need to be paid to speedy transportation of earth and sand, backfilling, and sufficient rolling and compacting.

4) Support Work

① Transportation of Equipment

- Loading equipment → transportation → unloading equipment

Particular attentions need to be paid to the weight and size of the equipment to be procured for safe loading and transportation.

② On-site Equipment Repair

- Transportation → Repair of equipment → transportation

Particular attentions need to be paid to installing tools and machinery that can repair small- to large-sized procured equipment on site and selecting vehicles with high mobility (4WD, etc.) that can quickly travel on poor roads.

(2) Determining the Equipment Content

Table 2-4 below shows a list of equipment corresponding to each work type discussed above.

Table 2-4 Equipment Configuration by Work Type

Operation	Work type	Equipment configuration
Road repair	Patching	Asphalt cutter, hand breaker, air compressor, asphalt sprayer, hand guide roller, vibrating compactor, dump truck
	Crack sealing	Air compressor, asphalt sprayer,
	Overlay and repaving	Asphalt sprayer, asphalt finisher, road roller, tire roller, water tank truck, excavator, wheel loader, motor grader, dump truck, asphalt plant, aggregated plant
Snow clearing & melting	Snow/ice clearing	Snow removing truck, rotary snow blower, motor grader
	Salt/sand spraying	Salt spreader
Disaster restoration	Removal of fallen rocks and mud	Excavator, wheel loader, dump truck
	Restoration of collapsed road	Excavator, wheel loader, dump truck Whole set of paving equipment (same as overlay equipment)
Support	Transportation of equipment	Truck with crane, truck trailer
	On-site repair	Mobile workshop

(3) Basic Specification of Each Equipment Item

We considered basic equipment specifications based on the design policy of this Project and the standard specifications listed in the cost estimation standards for pavement/civil works projects set by the Ministry of Land, Infrastructure, Transport and Tourism while taking into account the specifications and popularity of the existing equipment in Kyrgyzstan, as well as how the road maintenance equipment procured for the similar project in Naryn Oblast has been utilized. As a result, we came up with the basic equipment specifications that were deemed appropriate and shown in Table 2-5.

The types of works related to this Project are basically the same as those of the Naryn Project. Since the equipment procured for the Naryn Project has been utilized well, their specifications are deemed appropriate for the works required. Therefore, the equipment specifications for this Project will be almost identical to those of the Naryn Project with the exception of snow clearing equipment because the snow removing trucks procured for the Naryn Project are designed exclusively for clearing snow and cannot be driven during summer. To improve the efficiency of equipment utilization for this Project, we will consider procuring 4WD utility vehicles that are usable during both summer and winter and to which various attachments could be fitted. MOTC has requested snow ploughs, rotary snow blowers, and salt spreaders to accommodate different types of snow clearing operations, which can be mounted on the utility trucks. Procuring these devices as attachments to the utility trucks will enable them to handle different operations at lower cost than procuring separate equipment for each operation.

Table 2-5 Basic Specifications of Equipment (draft)

Work	Equipment	Function	Basic specification
		Reason/criteria for selection	
Road repair	Asphalt Cutter	Cuts asphalt. Thickness of existing asphalt: 50 – 100mm	Cut depth: 150mm * Same spec as Naryn Project
	Hand Breaker	Breaks asphalt. Standard spec	Weight: 7kg * Same spec as Naryn Project
	Air Compressor	Supplies compressed air (to hand breakers). Air consumption of 2 hand breakers	Displacement: 5.1m ³ * Same spec as Naryn Project
	Asphalt Sprayer	Sprays tack coat & asphalt. Standard spec	Tank capacity: 400Lit * Same spec as Naryn Project
	Hand Guide Roller	Rolls road surface. Standard spec	Weight: 650kg * Same spec as Naryn Project
	Vibrating Compactor	Rolls road surface. Standard spec	Weight: 70kg * Same spec as Naryn Project
	Dump Truck	Transports gravel, crushed stones & asphalt mixture. Standard spec, aggregate plant capacity	Loading capacity: 10t * Same spec as Naryn Project
	Asphalt Finisher	Levels asphalt mixture. Width of 1-lane road	Paving width: 4.7m * Same spec as Naryn Project
	Road Roller	Rolls road surface. Standard spec	Weight: 10t * Same spec as Naryn Project
	Tire Roller	Rolls road surface. Standard spec	Weight: 15t * Same spec as Naryn Project
	Water Tank Truck	Sprays road with water & supplies water to roller, etc. Standard spec, water supply volume to roller	Tank capacity: 8,000Lit * Same spec as Naryn Project

Work	Equipment	Function	Basic specification
		Reason/criteria for selection	
Road repair (continue)	Excavator	Collects & loads gravel. Popular model	Bucket capacity: 0.8m ³ * Same spec as Naryn Project
	Wheel Loader	Transports gravel. Supply volume to plant	Bucket capacity: 2.5m ³ * Same spec as Naryn Project
	Motor Grader	Prepares the base course. Standard spec, width of 1 lane	Blade width: 3.7m * Same spec as Naryn Project
	Asphalt Plant	Produces asphalt Minimum requirement: 32.9t/h=80m/h×3.5m×5cm×2.35t/m ³	Production capacity: 35t/h * Same spec as Naryn Project
	Aggregate Plant	Produces aggregate Asphalt plant capacity	Production capacity 35t/h * Same spec as Naryn Project
Snow clearing & melting	Snow Removing Truck (Multi Purpose Vehicle + Snow Plough)	Clears initial snow. Can be attached with various snow-clearing devices	4WD, snow plough width: 3.0m
	Rotary Snow Blower (Multi Purpose Vehicle + Rotary Snow Blower)	Clears deep snow. Attachable to utility truck	Rotary diameter: 750mm
	Salt Spreader (Multi Purpose Vehicle +Salt Spreader)	Spreads salt and sand. Attachable to utility truck	Hopper capacity: 2.0m
	Motor Grader	Removes ice. Used also for road paving	Blade width: 3.7m * Same spec as Naryn Project
Disaster restoration	Excavator	Removes/loads fallen rocks and mud. Used also for road paving	Bucket capacity: 0.8m ³ * Same spec as Naryn Project
	Wheel Loader	Remove/loads fallen rocks and mud. Used also for road paving	Bucket capacity: 2.5m ³ * Same spec as Naryn Project
	Dump Truck	Carries fallen rocks and mud. Used also for road paving	Loading capacity: 10t * Same spec as Naryn Project
	Whole set of paving equipment	—Same as road repair equipment—	
Support work	Truck with Crane	Carries small equipment (for patching) Weight of patching equipment & supplies: approx. 3.5t	Loading capacity: 4.0t with 2.8t crane * Same spec as Naryn Project
	Truck Trailer	Carries large equipment. Weight of large equipment: approx. 2.1t	Loading capacity: 25.0t, flat low floor * Same spec as Naryn Project
	Mobile Workshop	Repairs broken equipment on site. Installed with necessary tools for on-site repair	4WD, 8-ton class, aluminum van Installed with repair equipment/ tools and crane * Same spec as Naryn Project

(4) Determining the Quantity of Equipment Needed

1) Road Repair (patching, crack sealing)

The ten DEPs in charge of the target roads perform patching and seal cracking with one or more work groups on a daily basis. Because they do not have patching/sealing equipment, they have to do the job manually and can only provide low-quality repair work.

Therefore, we will consider procuring one set of patching/crack-sealing equipment for each DEP. Each set will include two units because each of asphalt cutters, hand breakers, and vibrating compactors, as was the case with the Naryn Project, in order to increase work efficiency and provide spare units, as they tend to wear quickly and could break suddenly.

Table 2-6 Quantity of Equipment Needed for Road Repair (patching and crack sealing)

Equipment	Specification	Qty.
Asphalt Cutter	Cut depth: 150mm	20
Vibrating Compactor	Weight: 70kg	20
Hand Breaker	Weight: 7kg	20
Air Compressor	Displacement: 5.1m ³	10
Asphalt Sprayer	Tank capacity: 400Lit	10
Hand Guide Roller	Weight: 650kg	10

2) Road Repair (overlay and repaving)

Of the PLUADs that have jurisdiction over the target roads, the BNT Road Maintenance Department has been provided with new asphalt and aggregate plants as part of the Naryn Project in 2007. The asphalt and aggregate plants of PLUADs No.1 and No.4, on the other hand, are old and deteriorated and cannot produce asphalt mixtures in sufficient volumes or at the correct ratios. Because of this, PLUADs No. 1 and No.4 can supply adequate amounts of properly mixed asphalt only to a few areas under their jurisdictions, but is unable to do any overlay or repaving work in other areas. Therefore, to support such areas, we will consider procuring one asphalt and one aggregate plant for each of the two PLUADs. The candidate sites of the plants will be discussed later in this document.

In order to perform overlay and repaving work using asphalt mixture produced by these plants in two locations, at least one set of paving equipment will be needed in each location.

According to record, the equipment procured for the Naryn Project has been paving about 8km of roads per year. Presently, as part of the National Development Strategies, MOTC is aiming to pave 10km per year by each PLUAD. Thus, procuring of one set of paving equipment for each PLUAD will be considered.

The capacity of the asphalt plant can be calculated based on the road width (3.75m x 2 lanes = 7.5m), average pavement thickness (10cm), annual pavement length (10km), plant loss rate (10%), and specific gravity of asphalt mixture (2.381) by using the formula below:

- Annual production capacity required: $7.5m \times 0.1m \times 10,000m \times 1.1 \times 2.381 = 19,643t/year$

The asphalt plant operates 5 hours a day, and the number of days when pavement work can be performed is 140 days a year (7 months x 20 days). (The pavement work cannot be done because of the air temperature depression in winter, operation during year is assumed to be seven months for one January-March of winter.)

Therefore, the required production capacity per hour is:

- Annual production capacity required (for repavement): $19,643\text{t/year} \div 140 \text{ days/year} \div 5\text{h/day} = 28.06\text{t/h}$

The production capacity needed for patching can be calculated as follows based on the average patching area ($2\text{m} \times 2\text{m} = 4\text{m}^2$), average patching thickness (10cm), and the number of patching locations per day (20 locations):

- Annual production capacity required (for patching): $4\text{m}^2 \times 0.1\text{m} \times 2.381 \times 20 \text{ locations} \div 5\text{h} = 3.8\text{t/h}$

Therefore, the required production capacity per hour of the asphalt plant is:

- Annual production capacity required: $28.06\text{t/h} + 3.8\text{t/h} = 31.86\text{t/h}$

Based on the above, as well as the standard specification of asphalt plant, we will set the plant capacity at 35t/h, which is the same as that of the Naryn Project.

The aggregate plant supplies materials to the asphalt plant. In order not to cause a supply shortage in the asphalt plant, the plant capacity of the aggregate plant should be set at 1.5 times that of the asphalt plant so that sufficient stock is maintained at all times. For this Project, as was the case with the Naryn Project, we will set the operating hours of the aggregate plant at 1.5 times (8 hours/day) that of the asphalt plant and set the plant capacity at the same capacity as that of the asphalt plant of 35t/h, as we determined that the aggregate plant can stock up materials by operating longer hours.

The number of trucks needed to supply asphalt mixtures to construction sites is calculated as follows:

- Loading time of asphalt mixture: approx. 20 min. (waiting time included)
- Round-trip transportation time: approx. 60 min. = $\{50\text{km (average round-trip distance)} \div 50\text{km/h (average traveling speed)}\} \times 60 \text{ min.}$
- Providing time of asphalt: 15 min.
- Total time from loading to providing: 95 min.
- Hauling volume per dump truck: approx. $6.3\text{t/h} = (60\text{min} \div 95\text{min}) \times 10\text{t}$ (loading volume)
- Average workload of asphalt finisher:
 Approx $31.3\text{t/h} = 35\text{m/h}$ (work speed) $\times 3.75 \text{ m}$ (pavement width) $\times 0.1\text{m}$ (pavement thickness) $\times 2.381\text{t/m}^3$ (specific gravity of asphalt)

Therefore, the number of trucks needed is:

$$31.3\text{t/h} \div 6.3\text{t/h/truck} = 4.96 \doteq 5 \text{ trucks}$$

The temperature of asphalt mixture needs to be 110°C or higher when it arrives at the

construction site. Based on the summer temperature, etc. of the target areas, asphalt can travel about 100km one way (or 200km both ways) while maintaining the temperature of 110°C or higher. Under such conditions, in order to perform the same amount of work as shown in the above calculation, 14 or so trucks will be needed. However, this Project will procure five trucks each for the two plant sites to satisfy the minimum requirement.

Table 2-7 Quantity of Equipment Needed for Road Repair (overlay and repaving)

Equipment	Specification	Qty.
Asphalt Finisher	Paving width: 4.7m	2
Road Roller	Weight: 10t	2
Tire Roller	Weight: 15t	2
Water Tank Truck	Tank capacity: 8,000Lit	2
Motor Grader	Blade width: 3.7m	2
Excavator	Bucket capacity: 0.8m ³	2
Wheel Loader	Bucket capacity: 2.5m ³	2
Dump Truck	Loading capacity: 10t	10
Asphalt Plant	Production capacity: 35t/h	2
Aggregate Plant	Production capacity: 35t/h	2

***Candidate Sites for Plant Construction**

As far as Chui Oblast is concerned, the asphalt plant of the Bishkek-Osh Road Bureau can supply asphalt mixtures for overlay and repaving work for the Kara-balta – Chaldovar section on the west side of Bishkek under the jurisdiction of PLUAD No.1. However, the 140km section from Bishkek to the Issyk-Kul border has only one privately owned plant in Kemin, and no other facilities that can produce asphalt mixture of correct proportions. Therefore, procurement of asphalt and aggregate plants for this section will be considered. MOTC told us during discussion that there was about 400ha of land in the northern part of Tokmok City, and it was possible to have the ownership of the land transferred from the city to this Project. As a result of field survey, it was found that the land had sufficient acreage for constructing the plant, and was located a few kilometers away from the nearest residences, thus posing no environmental concern. Also, a sand and gravel quarry is within a 1 – 2km radius.

As for Issyk-Kul Oblast, there is no plant that can make asphalt mixtures usable for overlay and repaving work by MOTC for the 541km target roads. Since there are numerous spots in need of overlay and repaving in scattered places throughout the target roads, asphalt plants would be necessary for the entire sections. Asphalt plants would be needed at least in three locations if we tried to cover the entire 541km roads, however, we decided to consider setting up plant facilities in one location for the priority road section only after taking into account the content and scale of the whole list of equipment to be procured for this Project, as well as the balance of equipment distributed to the two oblasts.

Looking at the road conditions, it is found that the southern route of the Lake Issyk-Kul Circumference Road is more damaged and in greater need of overlay and repaving than the northern route. The private plant in Tup is scheduled to be removed at the completion of the rehabilitation work on the Tup – Kegen section in 2011 and possibly relocated to an area along the northern coast that is likely to have demand for asphalt mixtures. Therefore, we will consider building one unit each of asphalt and aggregate plant along the southern coast of Lake Issyk-Kul. We were told during the meeting that MOTC owned a 25ha land adjacent to the currently operating plant in Barskoon that could be used for setting up new plants for this Project. As a result of field survey, it was found that the site is located about 1km away from the nearest private houses, and the existing plant is operating without problems, thus posing no environmental threat. A sand and gravel quarry is within a 1-2km radius from the site.

3) Snow Clearing and Melting

The target roads under the jurisdiction of the BNT Road Maintenance Department in Chui Oblast have only small snowfalls of 5 – 10cm, and thus are excluded from the procurement of snow clearing and melting equipment under this Project. The approximately 32km section from Kara-balta to Chaldovar of the target road under the jurisdiction of PLUAD No.1 has over 50cm snowfall. The approximately 76km section from Tup to Kazakh border under the jurisdiction of PLUAD No.4 in Issyk-Kul Oblast is situated at 2,000m altitude and has over 100 – 150cm snowfall.

The existing snow clearing equipment for these road sections often cannot function due to aging, resulting in suspension of traffic occasionally. Therefore, when clearing snow is not in time, the days in which road blocked occur, is about 20days between Karabalta-Chaldovar and about 60days between Tup-Kazakhstan border in yearly average. Therefore, we will consider procuring snow clearing and melting equipment for these road sections.

The snow clearing equipment will consist of snow ploughs for clearing initial snowfall, rotary snow blowers for removing deep snow of over 50cm, and salt spreaders for spraying anti-slip sand and snow-melting salt. The motor grader to be procured for road repair will be used for clearing ice during the winter months.

Snow clearing/melting operations are required almost daily during winter. The average work load is 10km/h (1 lane). Thus, the number of snow removing vehicles needed for the target roads will be as follows:

- Kara-balta – Chaldovar: 32km
 $(32\text{km} \times 2 \text{ lanes}) \div (8\text{h/day} \times 10\text{km/h} \cdot \text{vehicle}) = 0.8 \doteq 1 \text{ vehicle}$
- Tup - Kazakh border: 76km

$$(76\text{km}\times 2\text{lanes})\div(8\text{h/day}\times 10\text{km/h}\cdot \text{vehicle})=1.9\div 2\text{ vehicles}$$

Total: 3 vehicles

Therefore, we will consider procuring snow clearing/melting equipment in the following quantities:

Table 2-8 Quantity of Equipment Needed for Snow Clearing/Melting

Equipment	Specification	Qty.
Multi Purpose Vehicle	4WD, with PTO for attachment	3
Snow Plough	Width: 3,000mm	3
Rotary Snow Blower	Rotary diameter: 750mm	3
Salt Spreader	Hopper capacity: 2.0m	3
Motor Grader	Blade width: 3.7m	—

4) Disaster Restoration

Of the target roads of this Project, about 30km in the Boom Gorge near the Chui and Issyk-Kul border is exposed to the risk of fallen rocks and mud slide. Also, about 200km along the southern circumference of Lake Issyk-Kul is susceptible to debris flow and in need of preparedness for disaster restoration works.

Excavator, wheel loader, dump truck, and road paving equipment are needed for disaster restoration. However, since disasters occur only once to a few times at the most in the target areas, there is not much need to have dedicated equipment exclusively for disaster restoration.

Therefore, we will plan to use the road repair equipment also for the purpose of disaster restoration and work out the procurement plan accordingly.

5) Support Work

① Truck with Crane

A truck with crane is needed for transporting small equipment and supplying water, gravel, and other materials which are used for patching and crack sealing of road repair work to the construction site. Procuring of one such truck for each work group or a total of ten trucks will be considered.

② Truck Trailer

The road paving equipment to be procured for the two PLUADs will be used in all target roads under their jurisdictions and thus need to move frequently from one construction site to another. Since it is difficult for the road rollers, tire rollers, and excavators to travel a long distance on

their own, procuring of two trailer trucks will be considered to transport these equipment.

③ Mobile Workshop

The mobile workshop procured for the Naryn Project has been operating almost at full capacity, conducting on-site inspections and periodic replacement of spare parts on Japanese-made equipment and performing on-site repair work on the aging existing equipment. The mobile workshop has reduced considerably the time needed to complete on-site repair work from up to one week heretofore to around one day. It has turn out to be an extremely useful tool for improving the efficiency of equipment utilization.

Of the target PLUADs of this Project, the BNT Road Maintenance Department will be excluded from the procurement of mobile workshop, as it has already been provided with one under the Naryn Project, which has been utilized by all DEPs under its jurisdiction. Thus, procuring of one mobile workshop each for PLUADs No. 1 and No.4 will be considered.

Table 2-9 Quantity of Equipment Needed for Support Work

Equipment	Specification	Qty.
Truck with Crane	Loading capacity: 4.0t with 2.8t crane	10
Truck Trailer	Loading capacity: 25.0t, flat low floor	2
Mobile Workshop	4WD, 8-ton class, aluminum van Installed with repair equipment/ tools and crane	2

(5) Equipment to be Procured

A list equipment to be procured for this Project as determined based on the above considerations is shown in the table below:

Table 2-10 Equipment to be Procured

No.	Equipment	Specifications	Location			Total
			Chui		Issyk-Kul	
			PLAUD No.1	BNT Road Maintenance Dept.	PLAUD No.4	
1	Asphalt Cutter	Cut depth:150mm	6	2	12	20
2	Vibrating Compactor	Weight: 70kg	6	2	12	20
3	Hand Breaker	Weight: 7kg	6	2	12	20
4	Air Compressor	Displacement: 5.1m ³	3	1	6	10
5	Asphalt Sprayer	Tank capacity: 400Lit	3	1	6	10
6	Hand Guide Roller	Weight: 650kg	3	1	6	10
7	Asphalt Finisher	Paving width: 4.7m	1	0	1	2
8	Road Roller	Weight: 10t	1	0	1	2
9	Tire Roller	Weight: 15t	1	0	1	2
10	Water Tank Truck	Tank capacity: 8,000Lit	1	0	1	2
11	Motor Grader	Blade width: 3.7m	1	0	1	2
12	Excavator	Bucket capacity: 0.8m ³	1	0	1	2
13	Wheel Loader	Bucket capacity: 2.5m ³	1	0	1	2
14	Dump Truck	Loading capacity:10t	5	0	5	10
15	Asphalt Plant	Production capacity: 35t/h	1	0	1	2
16	Aggregated Plant	Production capacity: 35t/h	1	0	1	2
17-1	Multi Purpose Vehicle	4WD, with PTO for attachment	1	0	2	3
17-2	Snow Plough	Width: 3,000mm	1	0	2	3
17-3	Rotary Snow Blower	Rotary diameter: 750mm	1	0	2	3
17-4	Salt Spreader	Hopper capacity: 2.0m	1	0	2	3
18	Truck with Crane	Loading capacity: 4.0t with 2.8t crane	3	1	6	10
19	Truck Trailer	Loading capacity: 25.0t, flat low floor	1	0	1	2
20	Mobile Workshop	4WD, 8-ton class, aluminum van Installed with repair equipment/ tools and crane	1	0	1	2
Total			50	10	84	144

2-2-3 IMPLEMENTATION PLAN

2-2-3-1 Implementation Policy

(1) Project Implementation System

Figure 2-2 below shows how the organizations in Japan and Kyrgyzstan related to one another when this Project is implemented according to the framework of Japan's Grant Aid.

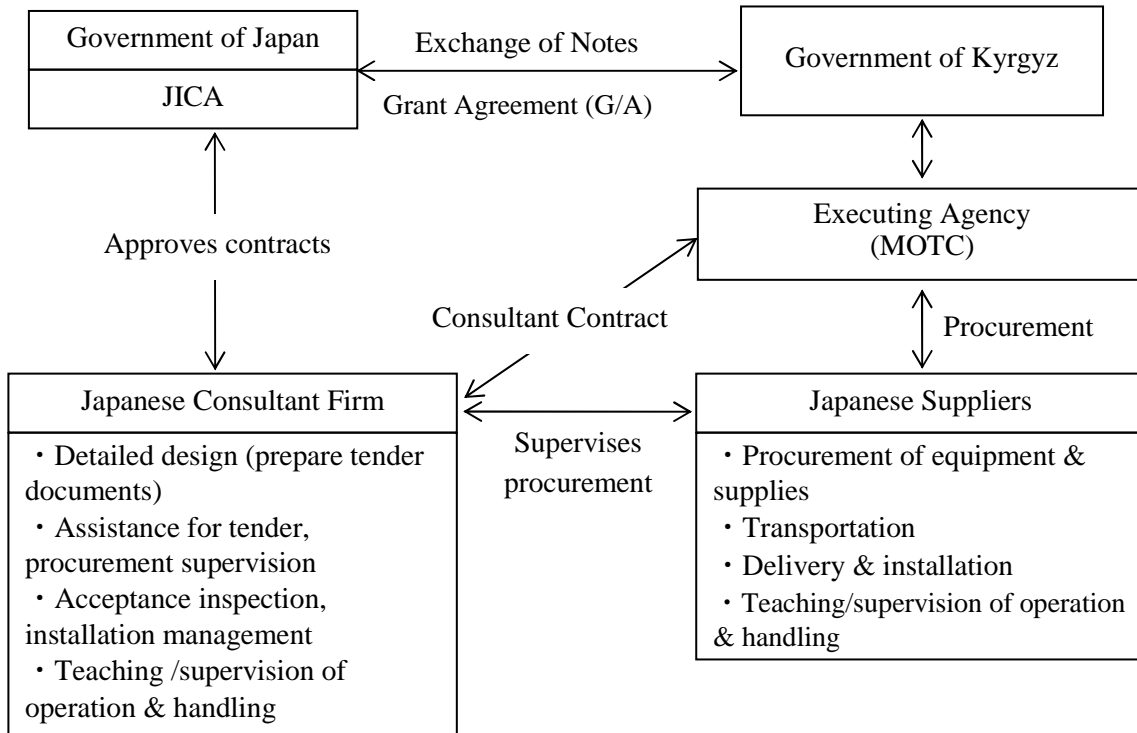


Figure 2-2 Relationships of Organizations Engaged in Project Implementation

The executing agency of this Project on the Kyrgyz side is the Ministry of Transportation and Communications (MOTC). In accordance with the Grant Aid framework of the Japanese Government, a Japanese consulting firm will take charge of detailed design and supervision of procurement process, and equipment will be procured mostly from Japanese corporations.

(2) Consultant

After the signing of E/N and G/A, MOTC will immediately conclude a consultant contract with a Japanese consulting firm. The contracted consultant will be responsible for providing engineering services with regard to the preparation of detailed design and tender documents, assistance for the tender procedure, and supervision of procurement until the handover of equipment under this Project.

(3) Supplier

Successful bidders that meet the criteria for quality and specifications in an open competitive tender for pre-qualified suppliers will sign a contract with MOTC with regard to the supply of equipment selected for this Project.

2-2-3-2 Implementation Conditions

The procured equipment will be discharged at Tianjin Port, China and transported through

China and Kazakhstan via train to Bishkek, Kyrgyzstan to undergo customs clearance. Then the goods will travel inland through Kyrgyzstan and be delivered to their respective destinations as specified below:

- The designated place for delivery of procured equipment (excluding plant equipment) and spare parts should be the DEP 39 of BNT Road Maintenance Department.
- Plant equipment should be delivered to the planned construction sites for plants under PLUAD No.1 in Chui Oblast and PLUAD No.4 in Issyk-Kul Oblast.

After the delivery of equipment to the designated places, the supplier will test run each and every equipment item to ensure that they operate properly before handing them to MOTC. Immediately following the handover, the supplier will teach MOTC personnel how to operate, handle, inspect, and maintain the equipment.

The equipment will be distributed to the ten DEPs under the jurisdiction of three PLUADs shown in Table 2-10. MOTC will be responsible for the delivery of equipment to their final destinations.

2-2-3-3 Scope of Works

The Japanese side will bear all costs associated with equipment procurement, including the transportation cost to the delivery sites and unloading fees. The Kyrgyz side will exempt the imported equipment from customs duty and any other taxes. Table 2-11 below shows the obligations of each side.

For asphalt and aggregate plants, the two countries will divide the responsibilities as follows:

- The Kyrgyz side will bear land acquisition, ground leveling, and works for securing primary power and water supply and drainage to the plant.
- The Japan side will bear installation works including foundation/retaining wall works.
- The Kyrgyz side will bear removal and relocation of the existing buildings which interfere in installation of procured equipment.

The Japanese side will present to the Kyrgyz side the following documentation in advance:

- Plant floor plan
- Plant foundation drawing
- Schematic diagram of water supply and drainage
- Required electric power energy

Table 2-11 Obligations of the Japanese and Kyrgyz Governments

Item	Contents	Undertaken by		Remarks
		Japan	Kyrgyz	
Procurement of equipment	Procurement	○		Up to customs Including tax exemption Beyond customs
	Land and marine transportation	○		
	Customs clearance		○	
	Inland transportation	○		
Operation guidance	Operation guidance	○		
	Inspection guidance	○		
Plant installation	Land acquisition, ground leveling		○	
	Foundation/retaining wall works	○		
	Installation work	○		
	Water supply & drainage		○	
	Primary power		○	
Maintenance work	Forwarding the equipment		○	Forwarding of equipment to final destinations
	Securement of storage place		○	
	Maintenance of equipment		○	

2-2-3-4 Consultant Supervision

(1) Detailed Design

After the signing of E/N and G/A, the Japanese Consultant will conclude a consulting contract with the Kyrgyz Government and supervise the procurement work according to the framework of Japan's Grant Aid and within the scope stipulated in E/N. It is important for the Consultant to perform its duties based on thorough understanding of the background of this Project, as well as how and why the content of the basic design was determined.

(2) Procurement Supervision

The procurement supervision work consists mainly of the following:

- Discussion and confirmation with the Kyrgyz side
- Review of equipment specifications
- Preparation of tender documents
- Explanation and approval by the Kyrgyz side on the tender documents
- Assistance for tendering (public announcement, provision of tender document, execution of tender, evaluation of tender)
- Assistance for contract (negotiation, witness of contract, verification of contract)
- Confirmation of the issuance of order sheets for the equipment

- Factory inspection, inspection before delivery
- Pre-shipment inspection (committed to the third party)
- Discussion with the Kyrgyz side (delivery/installation schedule, customs clearance, initial instruction procedure)
- Supervision of installation work
- Final inspection and handover
- Witness of instruction of operation and inspection/maintenance
- Preparation of completion report

2-2-3-5 Quality Control Plan

In order to verify if the equipment to be procured is meeting the quality standards and specifications set forth in the contract, the following inspections will be conducted at each stage of the procurement work:

- Confirmation of contents of equipment order sheets issued by the supplier
- Factory inspection and inspection before delivery in the manufacturing plant
- Pre-shipping inspection
- Inspection at plant installation
- Inspection at handover of equipment

2-2-3-6 Procurement Plan

(1) Country of Origin

Aside from equipment made in the former Soviet Union, MOTC has been using equipment produced in Japan, Europe, and China. MOTC regards highly of the Japanese-made equipment procured for the Naryn Project for their ease of use and durability, and desires strongly to obtain and has been Japanese products for this Project as well. MOTC is familiar with and has been properly maintaining the Japanese equipment by purchasing spare parts from local distributors.

Therefore, we will consider mostly Japanese manufacturers as the supply sources for this Project. As for products that are not or seldom produced in Japan, we will consider European or other third-country products that are popularly used in Kyrgyzstan and have comparable qualities to Japanese products.

At present, the following four types of equipment are considered to be procured from Europe:

- Multi purpose vehicle
- Snow plough (attachment of multi purpose vehicle)
- Rotary snow blower (attachment of multi purpose vehicle)

- Salt Spreader (attachment of multi purpose vehicle)

As for multi-purpose utility vehicles and their attachments, European products need to be considered, as they are not manufactured in Japan. We have so far found suitable products that are made in Germany, France, Italy, Switzerland, and other countries that are members of EC and DAC (Development Assistance Committee) of OECD (Organization for Economic Co-operation and Development).

In view of the above, equipment for this Project will be procured from Japan and the member states of EC and DAC.

(2) Delivery Route

There are a few possible routes to deliver equipment procured in Japan, such as from Nakhodka Port via Trans-Siberian Railway to Bishkek, from Karachi Port to Bishkek by land, and from Tianjin New Port via China Railway to Bishkek. The “Tianjin New Port via China Railway (transshipped in Druzhba, Kazakhstan) to Bishkek” route was chosen for “The Project for Improvement of Equipment for Road Maintenance in Naryn Oblast” after comparing the number of transshipments, risk of theft and loss, transportation cost, and other factors with other routes. Since the equipment for the Naryn Project was transported through this route without accidents, it is considered to be the best route for this Project as well. For equipment procured in Europe, Trans-Siberian Railway to Bishkek seems to be the most prudent choice.

2-2-3-7 Guidance Plan for Initial and On-going Operation, etc.

(1) Plan for Test Run and Adjustment

In time for the arrival of the equipment, the supplier will dispatch engineers to test run and make adjustments on the procured equipment to make sure that they operate properly. Although this Project plans to procure 23 different types of equipment from a number of suppliers, two engineers will be sufficient with each taking charge of multiple equipment models, including guidance on initial and on-going operation.

(2) Guidance Plan for Initial and On-going Operation, etc.

Guidance for initial and on-going operation teaches how to operate the equipment and conduct daily inspections. Since MOTC has been using Japanese-made equipment and has general technical knowledge of equipment operation, the guidance will focus on unique maneuvers and inspection procedure required for each equipment model.

2-2-3-8 Implementation Schedule

This Project will be implemented in accordance with the Grant Aid framework of the Japanese Government in the schedule shown in Table 2-12 below.

Table 2-12 Project Implementation Schedule

Items	No. of months required																	
	1	2	3	4	5	6	7	8	9	10	11							
Detailed Design	Final confirmation of project content	■																
	Review of equipment spec sheet	□																
	Preparation of tender documents	□																
	Approval of tender documents		■															
	Tender notice (T/N)		▽															
	Distribution/explanation of tender documents		□															
	Tender				▽													
	Tender evaluation				■													
	Verification of contract (V/C)				●													
Procurement Schedule	Manufacture of equipment																	
	Pre-inspection meeting (Consultant, Kyrgyz agency)					■												
	Product (factory) inspection, pre-shipment inspection						□											
	Pre-loading inspection of equipment						□											
	Ocean/inland transportation								■									
	Guidance on initial & on-going operation (road repair equipment)									■								
	Acceptance inspection, handover (road repair equipment)										■							
	Installation, assembly, test run (plant)											■						
	Guidance on initial & on-going operation (plant)												■					
	Acceptance inspection, handover (plant)													■				

2-3 OBLIGATIONS OF RECIPIENT COUNTRY

If this Project is implemented through Japan’s Grant Aid, the Government of Kyrgyzstan will be responsible for the following matters:

- To bear commissions to the Japanese foreign exchange bank for its banking services, based upon the Banking Arrangement (B/A).
- To provide facilities for Japanese personnel in entering and staying in Kyrgyzstan and visiting relevant government agencies to perform their duties under the Project.
- To exempt Japanese nationals and corporations engaged in the Project from custom duties and other internal taxes.
- To ensure exemption of preparation documents needed for customs clearance for the equipment under the Project.
- To secure the necessary personnel and obligations at the execution of the guidance for initial operation, inspection and maintenance.
- To accomplish appropriate operation and maintenance of the procured equipment.
- To execute proper construction and maintenance of the Project road.
- To bear all expenses, other than those covered by the Japan’s Grant Aid, necessary for the Project.

2-4 PROJECT OPERATION PLAN

If equipment is going to be procured through this Project, the Kyrgyz side will need to deploy sufficient personnel in time for the delivery of the equipment to the designated places so that they can learn how to operate and maintain each equipment model from the engineers dispatched from Japan at the time of operation instruction.

MOTC has a track record of properly operating and maintaining the equipment that was handed over under the “Project for Improvement of Equipment for Road Maintenance in Naryn Oblast” in 2007 by increasing budget dedicated to it. Also, MOTC has already promised in writing that it would allocate sufficient manpower and funds needed by each of the target PLUADs to perform road maintenance work using the equipment to be procured by this Project. Therefore, it is deemed certain that MOTC would properly operate and maintain the equipment for this Project as well. Table 2-13 below shows personnel required to operate and maintain the equipment provided for each PLUAD.

Table 2-13 Personnel Requirement

	Chui		Issyk-Kul
	PLUAD No.1	BNT	PLUAD No.4
Pothole repairer	24	8	48
Operator	13	0	13
Driver	11	1	15
Subtotal	48	9	76
Total (persons)	133		

2-5 PROJECT COST ESTIMATION

2-5-1 INITIAL COST ESTIMATION

(1) Cost borne by the Government of Japan

The Project will be implemented in accordance with the Japan's Grant Aid scheme and the cost will be determined before concluding the Exchange of Note (E/N) for the Project.

(2) Cost borne by the Government of Kyrgyz

Item	Cost	
	10 thousand som	10 thousand yen
Land acquisition & ground leveling for plants	16.0	36.16
Incidental facilities	64.0	144.64
B/A fees	22.0	49.72
Total	102.0	230.52

(3) Parameters of Cost Estimation

- Time of cost estimate: August 2009
- Exchange rate: US\$1.00 = 97.55yen
1som = 2.26yen
- Procurement periods: Detailed design and procurement periods are shown in the Implementation Schedule.
- Others: This Project will be implemented in accordance with the framework of the Grant Aid of the Government of Japan.

2-5-2 OPERATION AND MAINTENANCE COST

The estimated cost of fuel and oil needed to operate the equipment after their introduction is 16,672,000 som (about 37,670,000 yen) per year as shown in Table 2-14. The estimated annual cost for maintenance and repair is 11,926,000 som (about 26,950,000 yen) as shown in Table 2-15.

The estimated cost of straight asphalt needed to operate the project will be as follows:

Amount of necessity of hot asphalt mixture par year

$$31.86\text{t/h} \times 5\text{h/day} \times 140\text{day/year} = 22,302\text{t}$$

Amount of necessity of straight asphalt par year

$$22,302\text{t} \times 5\% = 1,115\text{t}$$

Cost of straight asphalt

$1,115t \times 14,100\text{som}/t = 15,722,000\text{som}$ (35,530,000 yen)

Thus, MOTC's total cost for the operation and maintenance about the procured equipment is estimated at 44,320,000 som (about 100,160,000 yen).

MOTC has a track record of substantially increasing the budget for the operation and maintenance of the equipment procured for the Naryn Project, and the Secretary of MOTC has promised in writing that it would appropriate sufficient budget for the equipment to be procured under this Project as well. Therefore, it is deemed that operation and maintenance of the equipment will be adequately funded.

Table 2-14 Estimated Fuel and Oil Cost (newly required cost)

No.	Equipment	Spec. (kw)	Qty.	Working hour		Fuel consumption		
				(h/day)	(day/year)	(L/h·unit)	(L/year·unit)	(L/year)
1	Asphalt Cutter	10.0	20	5	120	2.0	1,200.0	24,000.0
2	Vibrating Compactor	3.0	20	3	120	0.9	324.0	6,480.0
3	Hand Breaker	—	20	3	120	—	—	—
4	Air Compressor	35.0	10	5	120	7.4	4,440.0	44,400.0
5	Asphalt Sprayer	4.0	10	3	120	0.6	216.0	2,160.0
6	Hand Guide Roller	4.5	10	3	120	0.6	216.0	2,160.0
7	Asphalt Finisher	50.0	2	5	120	5.9	3,540.0	7,080.0
8	Road Roller	55.0	2	5	120	6.0	3,600.0	7,200.0
9	Tire Roller	70.0	2	5	120	7.1	4,260.0	8,520.0
10	Water Tank Truck	170.0	2	5	120	8.0	4,800.0	9,600.0
11	Motor Grader	110.0	2	5	180	12.0	10,800.0	21,600.0
12	Excavator	100.0	2	5	180	18.0	16,200.0	32,400.0
13	Wheel Loader	140.0	2	5	180	17.0	15,300.0	30,600.0
14	Dump Truck	210.0	10	5	180	12.0	10,800.0	108,000.0
15	Asphalt Plant	—	2	5	120	260.0	156,000.0	312,000.0
16	Aggregated Plant	—	2	5	180	—	—	—
17-1	Multi Purpose Vehicle	110.0	3	5	180	9.0	8,100.0	24,300.0
17-2	Snow Plough	—	3	5	60	—	—	—
17-3	Rotary Snow Blower	—	3	5	60	—	—	—
17-4	Salt Spreader	—	3	5	60	—	—	—
18	Truck with Crane	130.0	10	5	180	6.6	5,940.0	59,400.0
19	Truck Trailer	210.0	2	5	180	18.0	16,200.0	32,400.0
20	Mobile Workshop	170.0	2	5	180	10.0	9,000.0	18,000.0
	Total							750,300.0
<p>Conditions in the cost estimate;</p> <p>Fuel consumption is based on the "Depreciation Calculation Table for Construction Equipment, Etc." (Japan Construction Mechanization Association)</p> <p>Cost of diesel fuel: 22som/Litter=49.72yen/Litter</p> <p>Cost of oil: 1% of fuel cost</p> <p>1som=2.26yen</p>								
Fuel cost (annual)	750,300L×22som/L = 16,506,600som					approx. 37,300,000yen		
Oil cost (annual)	16,506,600som×1%=165,066som					approx. 370,000 yen		
Total	16,671,666som					approx. 37,670,000yen		

Table 2-15 Estimated Cost for Maintenance and Repair

No.	Equipment	Spec. (kw)	Equipment price (thousand yen)	Qty.	Rate of maintenance (%)	Service life (yr.)	Standard tenure of use in Kyrgyz (yr.)	Annual maintenance ratio (%)	Maintenance and repair cost/year · unit (thousand yen)	Maintenance and repair cost/year (thousand yen)
1	Asphalt Cutter	10.0	358.0	20	40%	6.0	9.0	4.4%	1.6	31.8
2	Vibrating Compactor	3.0	130.0	20	50%	5.0	7.5	6.7%	0.9	17.3
3	Hand Breaker	—	132.0	20	30%	5.0	7.5	4.0%	0.5	10.6
4	Air Compressor	35.0	1,940.0	10	30%	11.0	16.5	1.8%	3.5	35.3
5	Asphalt Sprayer	4.0	1,600.0	10	50%	5.0	7.5	6.7%	10.7	106.7
6	Hand Guide Roller	4.5	862.0	10	35%	11.0	16.5	2.1%	1.8	18.3
7	Asphalt Finisher	50.0	20,800.0	2	45%	11.0	16.5	2.7%	56.7	113.5
8	Road Roller	55.0	7,740.0	2	35%	13.0	19.5	1.8%	13.9	27.8
9	Tire Roller	70.0	7,050.0	2	45%	13.0	19.5	2.3%	16.3	32.5
10	Water Tank Truck	170.0	8,280.0	2	45%	9.5	14.3	3.2%	26.1	52.3
11	Motor Grader	110.0	13,200.0	2	35%	12.0	18.0	1.9%	25.7	51.3
12	Excavator	100.0	11,900.0	2	45%	7.5	11.3	4.0%	47.6	95.2
13	Wheel Loader	140.0	14,200.0	2	70%	11.0	16.5	4.2%	60.2	120.5
14	Dump Truck	210.0	9,850.0	10	60%	9.0	13.5	4.4%	43.8	437.8
15	Asphalt Plant	—	65,000.0	2	50%	9.0	13.5	3.7%	240.7	481.5
16	Aggregated Plant	—	39,100.0	2	70%	9.0	13.5	5.2%	202.7	405.5
17-1	Multi Purpose Vehicle	110.0	20,000.0	3	45%	10.0	15.0	3.0%	60.0	180.0
17-2	Snow Plough	—	2,500.0	3	45%	8.0	12.0	3.8%	9.4	28.1
17-3	Rotary Snow Blower	—	3,500.0	3	45%	8.0	12.0	3.8%	13.1	39.4
17-4	Salt Spreader	—	4,200.0	3	45%	8.0	12.0	3.8%	15.8	47.3
18	Truck with Crane	130.0	6,000.0	10	45%	10.0	15.0	3.0%	18.0	180.0
19	Truck Trailer	210.0	16,000.0	2	35%	10.0	15.0	2.3%	37.3	74.7
20	Mobile Workshop	170.0	18,000.0	2	45%	10.0	15.0	3.0%	54.0	108.0
	Total									2,695.2
<p>Conditions in the cost estimate;</p> <p>Based on the "Depreciation Calculation Table for Construction Equipment, Etc." (Japan Construction Mechanization Association)</p> <p>Equipment price: body price or estimated price (CIF)</p> <p>Standard tenure of use in Kyrgyz (yr.) = service life x 1.5</p> <p>Annual maintenance ratio = maintenance ratio ÷ standard tenure of use in Kyrgyz</p> <p>Annual maintenance cost = equipment price x annual maintenance ratio</p> <p>1som = 2.26yen</p>										
Annual maintenance cost		11,925,000som					26,950,000yen			

2-6 OTHER RELEVANT ISSUES

Since China, ADB, and other donors are actively involved in assisting the Kyrgyz road sector, it is important when implementing this Project to pay attention to the movements of other assistance projects and check with MOTC to find out if there are any redundancies.

In addition, in implementing this Project through Japan's Grant Aid, the Kyrgyz side needs to perform its obligations without delay according to the division of responsibilities defined earlier.

If the equipment is going to be transported via Chinese railway, each of the transshipment process from ocean to railway at Tianjian Port and to another railway at the China/Kazakh border and the temporary customs clearance procedure at the Kazakh/Kyrgyz border will take a few days. Thus, the equipment supplier will need to work out the detail of shipment schedule

with MOTC in advance. Also, during transportation, the supplier needs to maintain close contact with freight companies to keep track of the cargo and inform the Kyrgyz side about the status and scheduled delivery date from point to point.

There have been thefts of lamps, batteries, and tools in transit in past projects that are similar to this Project. Since some parts and components for this Project are also at risk of theft during transportation, the supplier should protect the cargo with anti-theft covers and employ a security guard if necessary. If some of the goods are found to be missing due to theft after arrival at their destinations, an insurance claim should be filed immediately to be compensated for loss and re-procure the same items.

Since MOTC has a track record of successfully implementing a similar project in the past as the executing agency, no particular difficulty is foreseen in the implementation of this Project.

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATION

3-1 PROJECT EFFECT

Present conditions and problems	Solutions to be offered by the Project	Direct effect and degree of impact	Indirect effect and degree of impact
<p>1. Road Maintenance Equipment</p> <ul style="list-style-type: none"> • Existing equipment is mostly inoperable and incapable of meeting the required workload and quality to properly maintain the roads. • Operable equipment has long passed its standard service life with a low operating rate due to frequent breakages and is unable to adequately perform needed road maintenance work. 	<ul style="list-style-type: none"> • Procurement of various equipment for road repair, snow clearing / melting, disaster restoration, and support work. • Adjustment & test run • Guidance on initial operation, inspection and servicing. 	<ul style="list-style-type: none"> • Road maintenance equipment will be fortified, decreasing the ratio of broken equipment under repair from 52% to 23%. 	<ul style="list-style-type: none"> • 662km road in Issyk-Kul and Chui Oblasts will be improved. • Snow clearing operation in winter will be expedited, improving the living environment for the residents.
<p>2. Asphalt Plant</p> <ul style="list-style-type: none"> • Breaks frequently due to aging and cannot supply asphalt mixture needed for road maintenance on a sable basis. • Cannot produce asphalt mixture of consistent quality due to deteriorated function. 	<ul style="list-style-type: none"> • Procurement of asphalt plant. • On-site installation • Adjustment & test run • Guidance on initial operation, inspection and servicing 		
<p>3. Aggregate Plant</p> <ul style="list-style-type: none"> • Breaks frequently due to aging and cannot supply aggregate needed for road maintenance on a sable basis. • Cannot produce aggregate of proper diameter due to deteriorated function. 	<ul style="list-style-type: none"> • Procurement of aggregate plant. • On-site installation • Adjustment & test run • Guidance on initial operation, inspection and servicing 		
<p>4. Equipment Maintenance</p> <ul style="list-style-type: none"> • Equipment repair takes many days due to lack of repair equipment that can handle large-scale breakages on site. 	<ul style="list-style-type: none"> • Procurement of mobile workshop • Adjustment & test run • Guidance on initial operation, inspection and servicing 		

3-2 RECOMMENDATION

3-2-1 RECOMMENDATION TO THE RECIPIENT COUNTRY

For the similar “Project for Improvement of Equipment for Road Maintenance in Naryn Oblast,” soft component support was provided to facilitate Kyrgyz personnel’s acquisition of comprehensive road maintenance skills, including the management of equipment, and expedite the early practical use of the equipment on a self-sustaining basis. Because this Project will not implement any soft component, the engineers and operators of each DEP, who were given training as part of the Naryn Project, need to provide technical support on how to use the procured equipment for road repair work, etc. for the engineers and operators of each DEP, to which equipment will be distributed under this Project. This will facilitate MOTC to begin utilizing the equipment and manage it promptly and autonomously on a continuous basis.

3-2-2 TECHNICAL ASSISTANCE & COOPERATION WITH OTHER DONORS

“The Project for Improvement of Administrative Capacity for Road Maintenance” that is currently being implemented as a technical cooperation project is providing technical guidance on quality control tests related to road repair by procuring test equipment. Also, a pilot project using the equipment procured for the Naryn Project has been implemented to introduce the cement stabilization method of base course, which had not been practiced by MOTC, thereby significantly contributing to the improvement of road maintenance capacity of Kyrgyzstan.

This Project needs to be coordinated with these kinds of technical cooperation projects in order to further develop the technical capacity of and effective utilization of the equipment by each target DEP.

APPENDICES

1. Member List of the Survey Team
2. Survey Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions

APPENDIX 1

MEMBER LIST OF THE SURVEY TEAM

Appendix 1: Member List of the Survey Team

1) Field Surveys

	Name	Job title	Affiliation
1	Mr. Kawahara Shuntaro	Team Leader	JICA Economic Infrastructure Dep.
2	Mr. Suzuki Masahiro	Coordinator	JICA Economic Infrastructure Dep. Urban and Regional Development Division I
3	Mr. Sato Tadashi	Chief Consultant/ Road Planner	Katahira & Engineers International
4	Mr. Kobayashi Kiyohito	Equipment Planner/ Maintenance Planner	Katahira & Engineers International
5	Mr. Tamaki Takakazu	Procurement Planner/ Cost Estimator	Katahira & Engineers International
6	Mr. Asano Tomu	Interpretation	Katahira & Engineers International

2) Explanation of the Draft Final Report

	Name	Job title	Affiliation
1	Mr. Maruyama Hideaki	Team Leader	JICA Kirgiz Office Head
2	Mr. Sato Tadashi	Chief Consultant/ Road Planner	Katahira & Engineers International
3	Mr. Kobayashi Kiyohito	Equipment Planner/ Maintenance Planner	Katahira & Engineers International
4	Mr. Asano Tomu	Interpretation	Katahira & Engineers International

APPENDIX 2

SURVEY SCHEDULE

1) Field Surveys

	Day		JICA		Consultant			
			Leader Mr.Kawahara	Coordinator Mr.Suzuki	Chief Consultant Mr.Sato	Equipment Planner Mr.Kobayashi	Procurement Planner / Cost Estimator Mr.Tamaki	Interpreter Mr.Asano
1	Aug 18	Tue	Tokyo→Seoul: OZ101 Seoul→Almaty: OZ577					
2	Aug 19	Wed	Almaty→Bishkek: land route AM: Meeting w/JICA Kirgiz Office PM: Meeting & Discussion w/MOTC					
3	Aug 20	Thu	PM: Meeting & Discussion w/MOTC					
			Courtesy call to ADB			Reporting		to ADB
4	Aug 21	Fri	Site survey: Bishkek ~ Kochkor ~ Karakol					
5	Aug 22	Sat	Site survey: Karakol ~ Chorpon Ata ~ Bishkek DEP4, DEP7, DEP10, Private Asphalt Plant, Bridge site No.14					
6	Aug 23	Sun	Site survey: Bridge site No.1, No.2					
7	Aug 24	Mon	AM: Meeting & Discussion w/MOTC					
			PM: Signing on MD					
8	Aug 25	Tue	Meeting w/ JICA, EOJ					
			Bishkek→Almaty: land route Almaty→			Team meeting and Data Compiling		
9	Aug 26	Wed	→Seoul: OZ578			Team meeting and Data Compiling		
			Seoul→Tokyo: OZ102					
10	Aug 27	Thu	Site survey: Bishkek~Karakol~Chaldovar DEP40					
11	Aug 28	Fri	Site survey: Bishkek~Tokmok DEP954, DEP32, DEP958 Asphalt plant planned site					
12	Aug 29	Sat	Team meeting and Data Compiling					
13	Aug 30	Sun	Team meeting and Data Compiling					
14	Aug 31	Mon	Team meeting and Data Compiling					
			(Indep. Day)					
15	Sep 1	Tue	Team meeting and Data Compiling					
16	Sep 2	Wed	Site survey: DEP39, Bypass road					
17	Sep 3	Thu	Meeting w/ Head of DEP4					
18	Sep 4	Fri	Meeting & Discussion w/MOTC					
19	Sep 5	Sat	Team meeting and Data Compiling					
20	Sep 6	Sun	Team meeting and Data Compiling					
21	Sep 7	Mon	Team meeting and Data Compiling				Site survey: Bypass road	
22	Sep 8	Tue	Team meeting and Data Compiling					
23	Sep 9	Wed	Team meeting and Data Compiling					
24	Sep 10	Thu	Team meeting and Data Compiling					
25	Sep 11	Fri	Team meeting and Data Compiling					
26	Sep 12	Sat	Team meeting and Data Compiling					
27	Sep 13	Sun	Team meeting and Data Compiling					
28	Sep 14	Mon	Reporting to MOTC, JICA, EOJ					
29	Sep 15	Tue	Bishkek→Almaty: land route			Almaty→		
30	Sep 16	Wed	→Seoul: OZ578 Seoul→Tokyo: OZ102					

2) Explanation of the Draft Final Report

	Day		JICA Kirgiz Office	Consultant		
			Leader Mr.Maruyama	Chief Consultant Mr.Sato	Equipment Planner Mr.Kobayashi	Interpreter Mr.Asano
1	Jan 19	Tue	/	Tokyo→Beijing: JL789 Beijing→Almaty: KC888		
2	Jan 20	Wed		Almaty→Bishkek: land rute Meeting w/JICA Kirgiz Office		
3	Jan 21	Thu	Meeting & Discussion w/MOTC			
4	Jan 22	Fri	Site survey: Bishkek~Tokmok Asphalt plant planned site			
5	Jan 23	Sat	Team meeting and Reporting			
6	Jan 24	Sun	Team meeting and Reporting			
7	Jan 25	Mon	AM: Meeting & Discussion w/MOTC PM: Signing on MD			
8	Jan 26	Tue	/	Bishkek→Almaty: land rute Almaty→		
9	Jan 27	Wed		→Beijing: KC887 Beijing→Tokyo: JL780		

APPENDIX 3

LIST OF PARTIES CONCERNED IN THE RECIPIENT COUNTRY

Appendix 3: List of Parties Concerned in the Recipient Country

1) Ministry of Transport and Communications

Mr. SULAIMANOV Nurlan	Minister
Mr. MAMAEV Kubanychbek	Permanent Secretary
Mr. KAIYNBAEV Nurlanbek	Director of Road Department
Mr. OSOEV Erkin	Deputy Director of Road Department
Ms. MILOVATSKAYA Nina	Chief Specialist of Road Department
Mr. SUBANBEKOV Nusup	Head of Bishkek-Naryn-Torugart Road Maintenance Office
Mr. BEISHEBAEV Taalaibek	Head of Division of Contract Preparation and Production Control of Bishkek-Naryn-Torugart Road Maintenance Office
Mr. AMANOV Kubanychbek	Head of Regional Road Maintenance Office (PLUAD) No.1
Mr. SULTANOV Duishon	Chief Engineer of PLUAD No.1
Mr. TOIKULOV Bektursun	Chief Specialist of PLUAD No.1
Mr. SOODOMBAEV Jumash	Head of PLUAD No.4
Mr. KOKOEV Mukhametali	Head of Local Road Maintenance Unit (DEP) No.3
Mr. TURGANBAEV Kadyrbek	Head of DEP No.4
Mr. KOJOKMANOV Maksatbek	Head of DEP No.7
Mr. AKULUEV Shabyn	Head of DEP No.10
Mr. AALIEV Jumakadyr	Head of DEP No.32
Mr. ARSTAKEEV Bektursun	Head of DEP No.35
Mr. CHEKIROV Nasir	Chief Specialist of Asphalt Plant (controlled by DEP No.35) in Barskoon village
Mr. CHOIBEKOV Bazarbek	Head of DEP No.39
Mr. KAKEEV Bolotbek	Chief Engineer of DEP No.40
Mr. JUMAGULOV Chapai	Leading Specialist of DEP No.954
Mr. BERDIBEKOV Kanalbek	Chief Engineer of DEP No.955
Mr. TOKTOMAMBETOV Hurlan	Chief Engineer of DEP No.958

2) Ministry and Finance

Mr. BAIGONCHOKOV Mirlan	Head of External Aid Coordination and International Cooperation Department
Ms. MAVLIANOVA Ainur	Head of External Relations, Technical and Program Aid Coordination Division

APPENDIX 4

MINUTES OF DISCUSSIONS

1) Field Surveys

**Minutes of Discussions
on the Preparatory Survey (for Basic Design)
on the Project for Improvement of Equipment for Road Maintenance
in Issyk-kul and Chui Oblasts in Kyrgyz Republic**

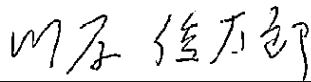
In response to a request from the Government of the Kyrgyz Republic, the Government of Japan decided to conduct a Preparatory Survey (for Basic Design) on the Project for Improvement of Equipment for Road Maintenance in Issyk-kul and Chui Oblasts (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Kyrgyz Republic the Preparatory Survey Team (hereinafter referred to as "the Team"), headed by Mr. Shuntaro Kawahara, Senior Assistant to the Director General for Economic Infrastructure Department of JICA headquarters, and is scheduled to stay in the country from August 19 to September 15, 2009.

The Team held discussions with the officials concerned of the Government of the Kyrgyz Republic and conducted a field survey at the study area.

In the course of the discussions and field survey, both sides have confirmed the main items described in the attached sheets.

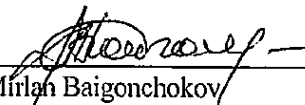
Bishkek, August 24, 2009



Shuntaro Kawahara
Leader
Preparatory Survey Team
Japan International Cooperation Agency



Kubanychbek Mamaev
Permanent Secretary
Ministry of Transportation and Communications
Kyrgyz Republic



Mirlan Baigonchokov
Head of External Aid Coordination and
International Cooperation Department
Ministry of Finance
Kyrgyz Republic

ATTACHMENT

1. Objective

The objective of the Project is to maintain and rehabilitate the road under jurisdiction of MOTC in Issyk-kul and Chui Oblasts in the Kyrgyz Republic, by procuring the equipment for road maintenance (hereinafter referred to as "the Equipment").

2. Project Site

The Project sites are shown in Annex-1. The Japanese side stated that the preparatory survey should focus on Issyk-kul and Chui Oblasts because of the following reasons;

(1) The tourist industry in Issyk-kul Oblast is expected to develop by improving the accessibility from the Republic of Kazakhstan and other regions of the Kyrgyz Republic. Therefore, improvement of road maintenance in Issyk-kul oblast will vitalize the local economy in the region.

(2) Bishkek is located in Chui Oblast and the road network includes two international roads, which makes Chui Oblast geographically important region. Thus, Regional Road Maintenance Unit (hereinafter referred to as "PLUAD") could be utilized as the internal training place for other PLUAD in the Kyrgyz Republic. Also, it is expected that PLUAD in Chui Oblast become model of road maintenance office in the Kyrgyz Republic.

The Kyrgyz side agreed to the proposed scope of the preparatory survey.

3. Responsible and Implementing Organizations

(1) The responsible and implementing organization is the Ministry of Transportation and Communications (hereinafter referred to as "MOTC").

(2) The organization chart of MOTC is shown in Annex-2.

4. Items Requested by the Government of the Kyrgyz Republic

After discussions, both sides confirmed that the main items for road maintenance work are as follows:

- Patching Work
- Asphalt Concrete Pavement Renewal Work (including overlay and scraping)
- Snow Removing Work
- Recovery Work after Natural Disaster

JICA will assess the appropriateness of the request and will report the findings to the Government of Japan. The specifications and quantities of the Equipment shall be described in the Draft Basic Design Report (hereinafter referred to as "the Draft Report") through the examination of MOTC's capability for road maintenance, the work volumes, the work schedule, and so on.



5. Japan's Grant Aid Scheme

(1) The Kyrgyz side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of the Kyrgyz Republic explained by the Team as described in Annex-3 and Annex-4

(2) The Kyrgyz side will take the necessary measures, especially tax exemption and payment for banking commission, as described in Annex-4, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

6. Schedule of the Study

(1) The Team will proceed to further studies in the Kyrgyz Republic by September 15, 2009.

(2) JICA will prepare the Draft Report and dispatch a team to the Kyrgyz Republic in order to explain its contents around the middle of January, 2010.

(3) In case that the contents of the Draft Report are accepted in principle by the Government of the Kyrgyz Republic, JICA will complete the final report and send it to the Government of the Kyrgyz Republic by the end of March, 2010.

7. Commercialization and privatization in road sector

Currently MOTC has the policy for privatization and commercialisation in road sector, but the detail of the policy will be determined for the future. Therefore, both sides confirmed and agreed that, under any changes in the policy on commercialisation and privatisation in road sector, the Equipment under Japan's Grant Aid will be maintained and be used for road maintenance properly and exclusively by PLUAD. Both sides confirmed that MOTC does not plan to privatize PLUAD, which is in charge of planning, maintenance and management of equipment concerning road maintenance.

8. Other Relevant Issues

(1) Both sides confirmed that the Equipment will be used mainly for the road maintenance work between Chaldovar-Karabalta-Bishkek-Balykchy-Cholponata-Tup-Karakol-Bokonbaev-Balykchy and Tup-Kegen including recovery work for damages caused by natural disaster.

(2) The Kyrgyz side shall undertake necessary preparation work in the depot, such as securing the parking place and clearing site for asphalt plant, before the delivery of the Equipment.

(3) The Kyrgyz side shall secure the sufficient budget and personnel so that the Equipment is utilized properly and effectively for the purpose of the Project.

(4) The Kyrgyz side shall complete necessary procedures and arrange the budget allocation for undertakings to be done by the Kyrgyz side described in Annex-4.

(5) The Kyrgyz side confirmed to take necessary measures for tax exemption and custom clearance.

(6) The Kyrgyz side requested the Team to include Soft Component to obtain knowledge and information planning and supervising maintenance work using the provided machineries and equipment in order to effectively maintain and use them. The team will assess the appropriateness of the request and will study the contents and necessity of the Soft Component in consideration of the achievements of other road maintenance projects.

(7) MOTC shall complete the necessary procedures concerning the Environmental and Social Considerations of the laws and regulations of the Kyrgyz Republic and report it in writing to the JICA Kyrgyz Republic Office.

(8) The Kyrgyz side shall provide necessary number of counterpart personnel to the Japanese side during the installation and workout period for the Equipment to obtain their operation skills.

(9) The Kyrgyz side shall submit the answers to the Questionnaire, which the Team handed to the Kyrgyz side, by August 28, 2009.

Annex-1: Location Map

Annex-2: Organization Chart of MOTC

Annex-3: Japan's Grant Aid

Annex-4: Major Undertakings to be taken by Each Government

(end)

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Annex 1: Location Map

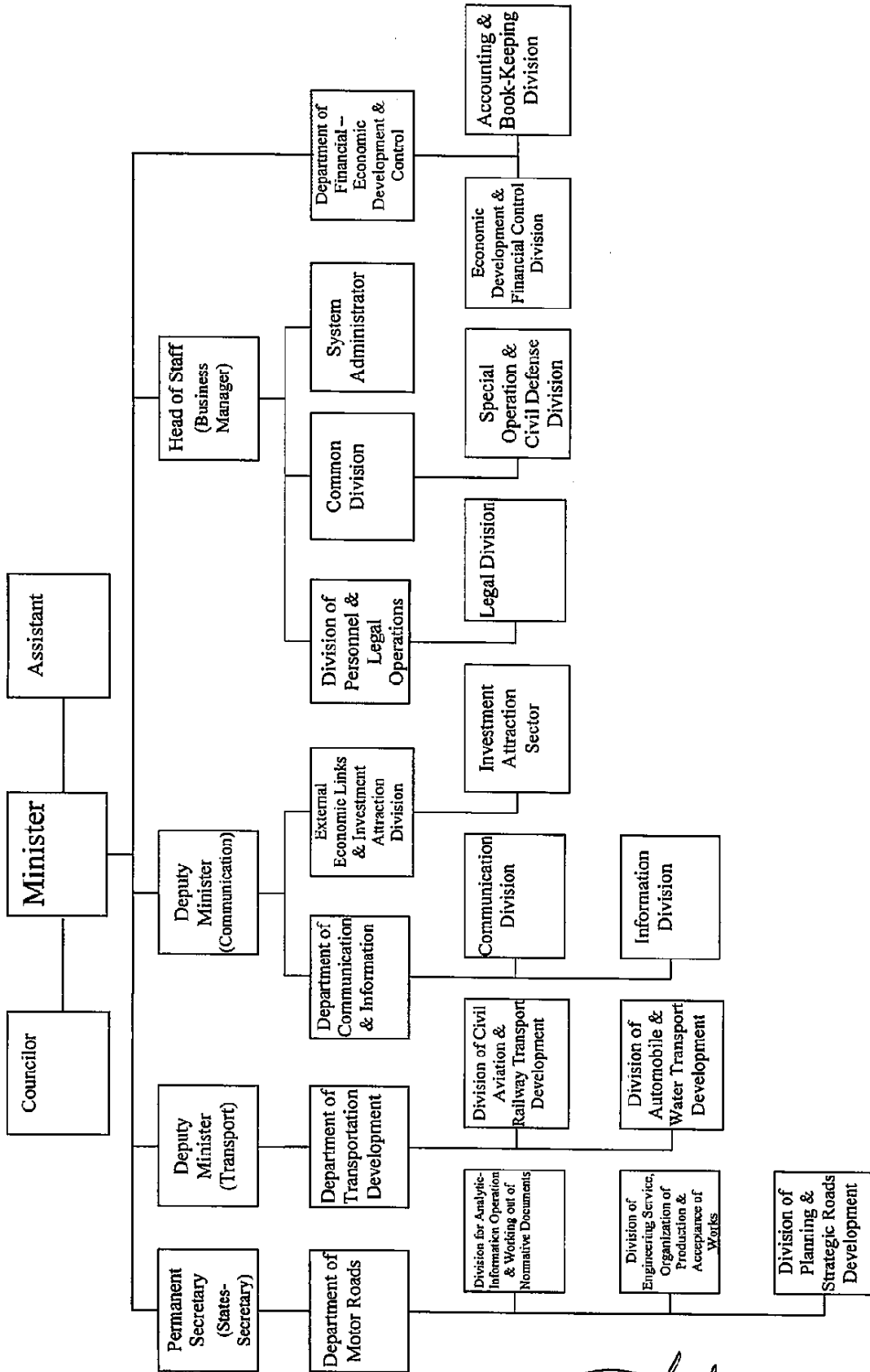


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Annex-2A

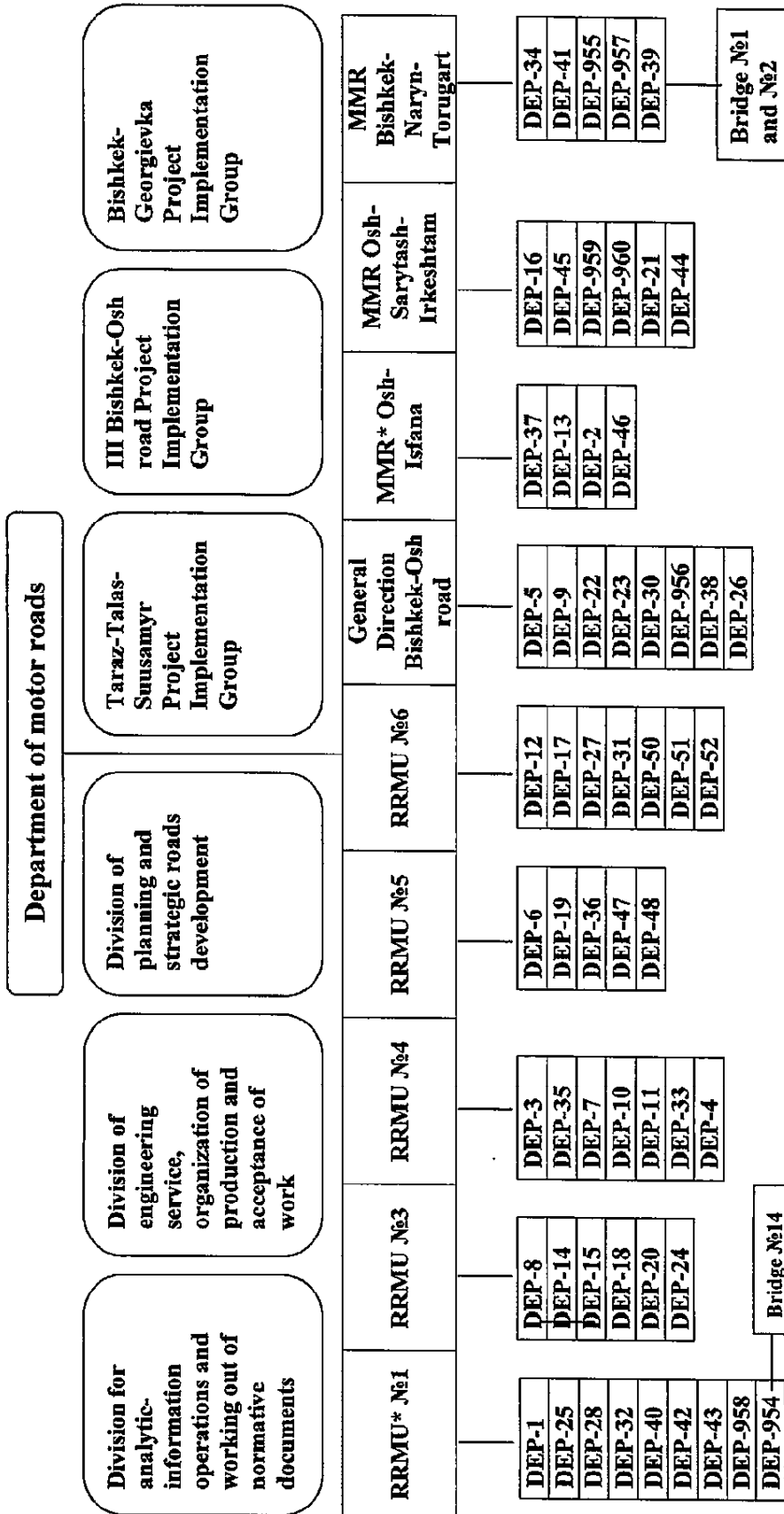
Organization Chart of MOTC



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MOTC's motor roads department organization chart



* MMR – the management of motor roads (UAD)
 * RRMU - Regional road maintenance unit (PLUAD)
 * DEP – the local road maintenance unit

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Annex-3

JAPAN'S GRANT AID

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

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

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

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

2. Preparatory Survey**(1) Contents of the Survey**

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

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




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

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

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

JICA requests the Government of the recipient country to take whatever 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 organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered 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 appropriateness of the Project.

3. Japan's Grant Aid Scheme

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

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

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey



will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

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

(4) Necessity of "Verification"

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

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

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

(6) "Proper Use"

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

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

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

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an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

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

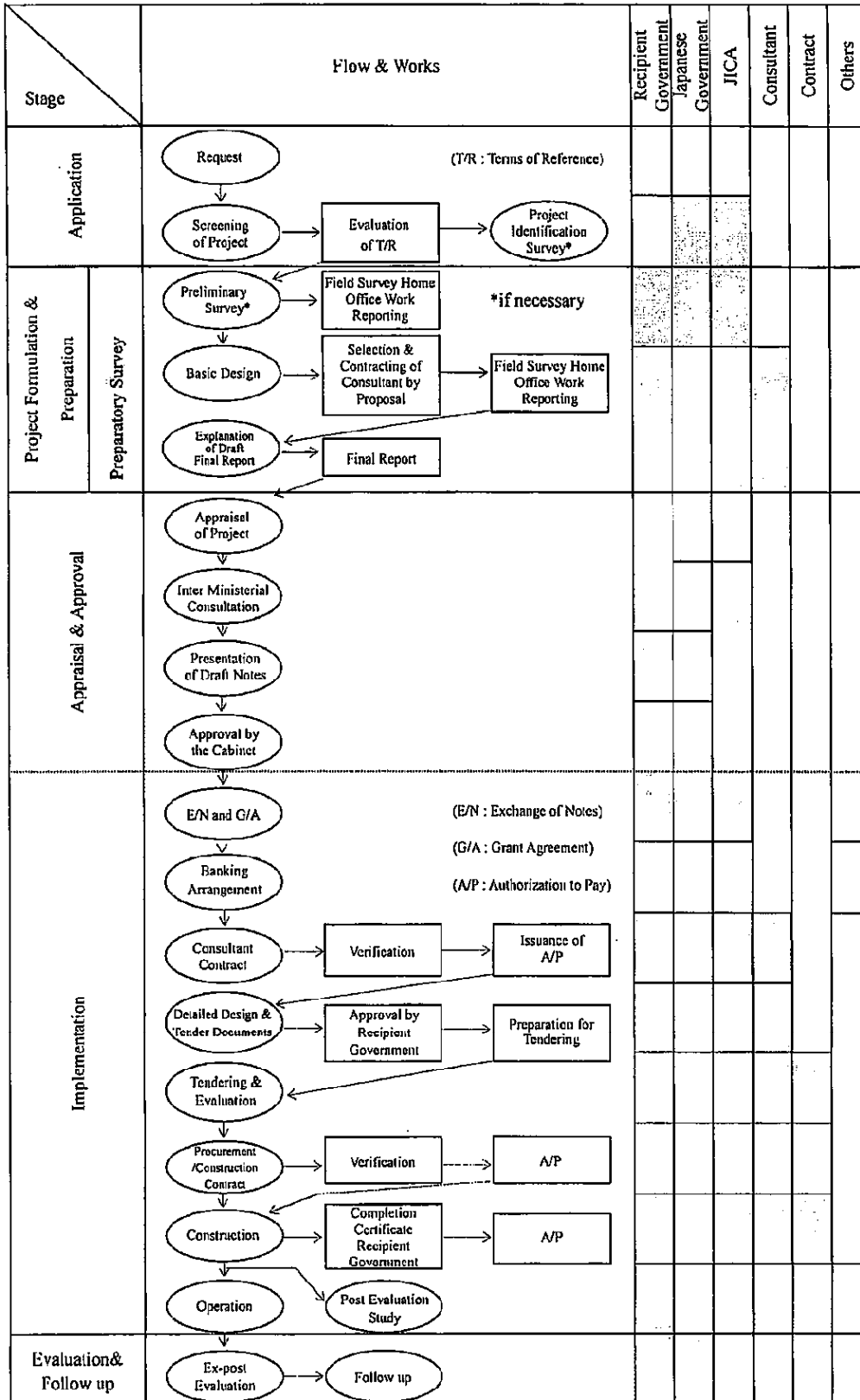
(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

(End)



FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



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Annex-4

Major Undertakings to be taken by Each Government

NO	Items	To be covered by the Grant	To be covered by Recipient side
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		●

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

2) Explanation of the Draft Final Report

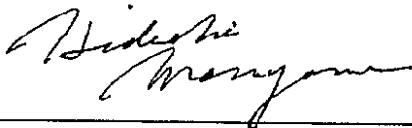
**Minutes of Discussions
on the Preparatory Survey
on the Project for Improvement of the Equipment for Road Maintenance
in Issyk-Kul and Chui Oblasts
in the Kyrgyz Republic
(Explanation on the Draft Report)**

In August 2009, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Team on the Project for Improvement of the Equipment for Road Maintenance in Issyk-Kul and Chui Oblasts (hereinafter referred to as "the Project") to the Kyrgyz Republic, and through discussions, field survey and technical examination of the results in Japan, JICA prepared a Draft Report of the study.

In order to explain and to consult with the officials concerned of the Government of the Kyrgyz Republic on the components of the Draft Report, JICA sent to the Kyrgyz Republic the Preparatory Survey Team (hereinafter referred to as "the Team"), headed by Mr. Hideaki MARUYAMA, Chief Representative of the JICA Kyrgyz Republic Office, from January 19 to 27, 2010.

In the course of the discussions, both sides confirmed the main items described in the attached sheets.

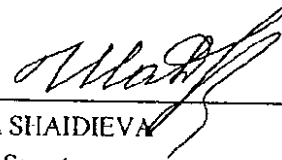
Bishkek, January 25th, 2010



Mr. Hideaki MARUYAMA
Leader
Basic Design Explanation Team
Japan International Cooperation Agency



Mr. Kubanychbek MAMAEV
Permanent Secretary
Ministry of Transport and Communications
Kyrgyz Republic



Ms. Dinara SHAIIDIEVA
Permanent Secretary
Ministry of Finance
Kyrgyz Republic

ATTACHMENT

1. Contents of the Draft Report

The Kyrgyz side agreed and accepted in principle the contents of the Draft Report explained by the Team.

2. Japan's Grant Aid Scheme

The Kyrgyz side reconfirmed the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of the Kyrgyz Republic explained by the Team as described in Annex-3 of the Minutes of Discussions (M/D) signed by both sides on August 24, 2009.

3. Schedule of the Survey

JICA will complete the Final Report in accordance with the confirmed items by the end of March 2010 and send it to the Kyrgyz side.

4. Other Relevant Issues

(1) The Kyrgyz side confirmed that they would implement asphalt repaving work (more than 10km per year for each Oblast) and Patching Work (150km for Chui Oblast, 300km for Issyk-kul Oblast,) from the fiscal year 2011 using the equipment supplied under the Grant Aid.

(2) The Kyrgyz side shall secure the sufficient budget and personnel so that the Equipment is utilized properly and effectively for the purpose of the Project.

(3) The Kyrgyz side confirmed to take necessary measures for tax exemption and custom clearance.

(4) MOTC shall complete the necessary procedures concerning the Environmental and Social Considerations of the laws and regulations of the Kyrgyz Republic and report it in writing to the JICA Kyrgyz Republic Office.

(5) The Kyrgyz side shall provide land for the asphalt plant and the aggregate plant.

(6) The Kyrgyz side shall undertake necessary preparation work, such as equipping facilities for power feeding, water supply and drainage, securing the parking space, before the delivery of the equipment supplied under the Project.

(7) Both sides agreed that this draft design handed to the Kyrgyz side from the Team is confidential and should not be disclosed to any outside party in order to secure the fair and competitive tender in case the Project will be implemented.

(8) Both sides agreed that if the Kyrgyz side identifies any road maintenance-related projects by other donors which could affect on the target road of the Project, the Kyrgyz side shall report it to JICA Kyrgyz Republic Office.



(9) Both sides agreed that if there is any important progress regarding the public governance reform (especially MOTC, PLUAD and DEP) in the Kyrgyz Republic, the Kyrgyz side shall report it to JICA Kyrgyz Republic Office.

(End)

