

PART III: Urban Development Program And Actions for the Master Plan

14 CITY DEVELOPMENT PROGRAM

14.1 General

Based on the revised City Master Plan and the proposed city planning system, a draft of the “Ulaanbaatar City Development Program,” with 2020 and 2030 as its targets periods, has been compiled. It addresses a strategic framework to achieve the city’s development goals and objectives. In the process of the formulation of the program, the close discussion and coordination with the Mongolian Side and other donors were made to make the program as the most common base for the development of Ulaanbaatar City. Nevertheless, the program as presented herewith is still subject to changes based on the further elaboration of processes and procedures.

The Ulaanbaatar City Development Program consists of three (3) components, that is hardware, software, and human capital. The hardware shall include the improvement and/or development of social and economic infrastructures. In particular, two projects are provisionally given high priority: one is transportation to enhance people’s mobility with well-functioning public transportation system, road network and comprehensive traffic management measures; and the other is a water-related program to supply fresh water to all citizens and improve the sewerage capacity against degradation of the urban environment

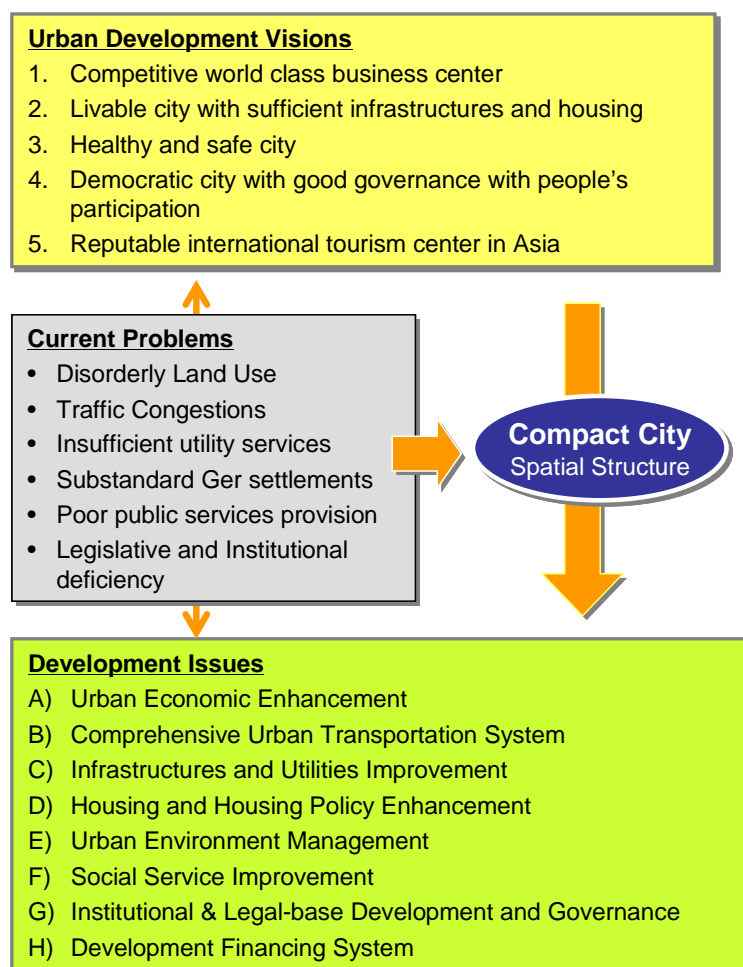
Meanwhile, the software component includes the improvement and/or development of legal system and financial mechanism to support efficient growth management and implement the programs proposed in the new Master Plan 2020 and 2030. The most vital and urgent issue is to prepare the supplemental institutional and administrative system in a comprehensive legal framework for the Urban Development Law which was recently amended in May 2008. The human capital component includes capacity building program in urban planning administration of both the central and city governments. This component should be incorporated into both the hardware and software components.

14.2 Overall Program until 2030 (Long List)

From the long-term perspective, and based on findings of current problems, development programs to be carried out for Ulaanbaatar City were considered for major sectors related to the urban planning issues such as (see Figure 14.2.1):

- Urban Economic Enhancement;
- Urban Transportation;
- Infrastructures and Utilities (Urban Water & Sanitation; Electric Power; Heating System; Telecommunication; Solid Waste Management);
- Housing and Housing Policy Enhancement;
- Urban Environment (Living Environment Improvement; Environmental Management; Urban Amenity & Disaster Management);
- Social Service Improvement;
- Institutional & Legal-base Development; and
- Development Financing System

Figure14.2.1 Overall Framework for Formulating Development Programs



Source: JICA Study Team

Since development issues were identified in consideration of how to achieve the development visions, there are close interrelations between both as shown in Figure 14.2.2. One vision cannot be achieved only with the solution of one issue, but needs composite solutions through their direct and indirect effects. On the same way, one program to solve one issue often brings multiple impacts on the achievement of multiple visions.

While, there are also inter-linkages among the development issues, as shown in Figure 14.2.3 and such mutual relations should be considered to formulate development programs. None of programs cannot be standing alone, but every program has explicit and implicit impacts to others.

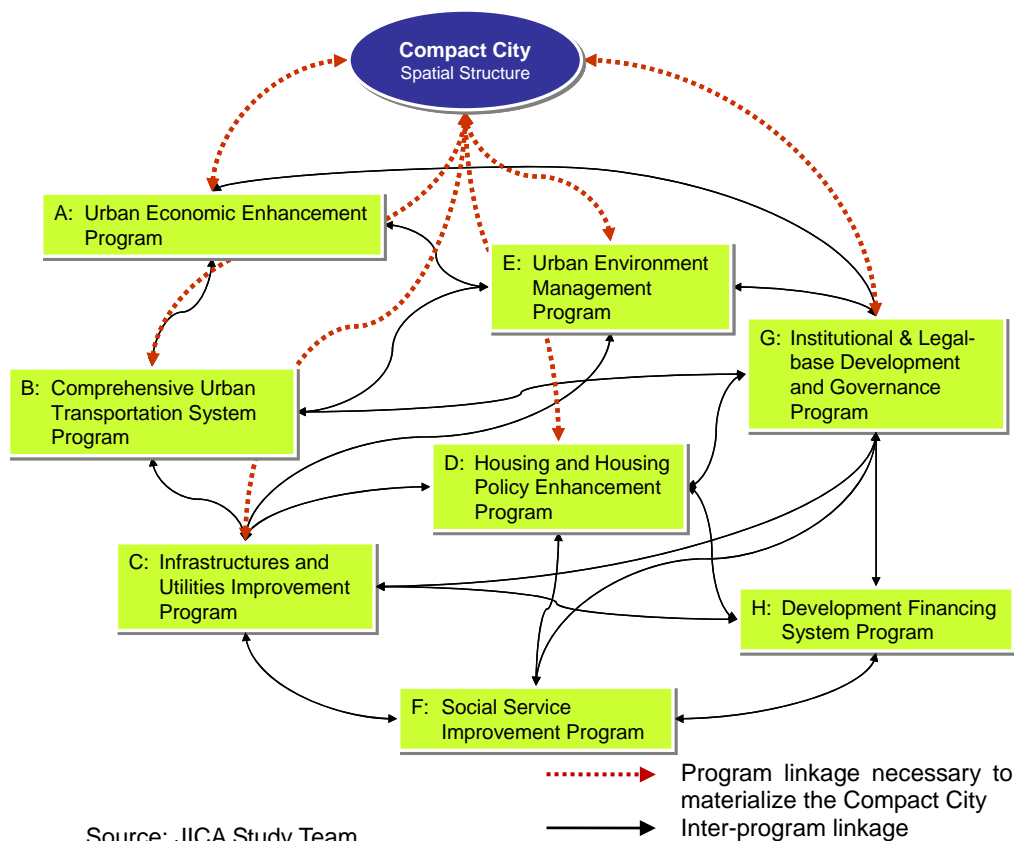
Figure 14.2.2 Inter-linkages between Development Visions and Issues

Development Issues \ Development Visions	A: Urban Economic Enhancement	B: Comprehensive Urban Transportation System	C: Infrastructures and Utilities Improvement	D: Housing and Housing Policy Enhancement	E: Urban Environment Management	F: Social Service Improvement	G: Institutional & Legal-base Development and Governance	H: Development Financing System
1. Competitive world class business center	■	■	■		■		■	■
2. Livable city with sufficient infrastructures and housing	■	■	■	■	■	■	■	■
3. Healthy and safe city		■	■	■	■	■	■	■
4. Democratic city with good governance with people's participation	■	■	■	■	■	■	■	■
5. Reputable international tourism center in Asia	■	■	■		■		■	■

Notes: ■ Direct interrelation ■ Indirect interrelation

Source: JICA Study Team

Figure 14.2.3 Mutual Relations among Development Programs



A total of **115** projects/programs, which are all essential to materialize the Master Plan 2020 and 2030, have been listed for the Ulaanbaatar City Development Program, as shown in Table 14.2.1. The following attributes of each project are presented in the table:

- **Support scheme:** types of support to be required are presented: Technical Assistance (TA), Financial Assistance (FA) and/or Private Participation under a Public Private Partnership (PPP).
- **Project Priority** is represented in the time framework such as:
 - the short-term: to be completed or in service by 2015;
 - the medium-term: to be completed or in service by 2020; and
 - the long-term: to be completed or in service by 2030 and/or beyond.

Some projects have long life on a long-term perspective. The volume and intensity of inputs are represented in this timeframe by “X”.

- **Investment cost** for each project is provisionally estimated. These costs are subject to further clarification. This cost indicates initial investment costs to be prepared by the public sector, or under a PPP scheme, including the private sector. Since some projects are of cost-recovery type, the total cost of the cash flow may be different from this cost.
- **Related projects** are presented in the last column. This means that the project should be prepared, or designed, in consideration with related ones.

The total cost of the proposed **115** projects/programs accounts for **US\$9,894 million**, as shown in Table 14.2.1. This investment needs to be allocated during the time period of 23 years up to 2030.

Looking into the sector allocation of the investment cost, the largest share of 43.3% is appropriated for the transport sector, followed by the infrastructure and utilities services (20.5%), the Living Environment and Social Services Improvement (15.1%), and Housing Development (14.2%).

The transport sector requires US\$ 4,283 million, out of which about US\$ 2,249.3 million (52.5%) shall be allocated for the Public Transport System, and US\$ 1,901.1 million (44.4%) for Road Improvement. Almost equal distribution is made for both. Also important is the investment on Traffic Management. Although it shares only 3% of the transport sector, it will bring great impacts on alleviation of traffic congestion in the short-term.

The sector of Infrastructure and Utilities requires about US\$ 2,032.7 million in total, out of which US\$ 661.5 shall be allocated for Heating System Program, and US\$ 480 million, for Electric Power Supply, US\$ 440.0 million for Sewerage System and US\$ 413.0 for Water Supply System.

As for the Housing Sector, a total of US\$ 1,407 million of public investment shall be necessary, out of which US\$ 730 million is assumed to be allocated for the land development of two (2) new towns; and US\$ 410 million, for social housing development of 20,000 units which shall be initiated by the Social Housing Corporation (to be newly established) until 2020. This cost will be recovered by selling housing units, and revenues may be reinvested for additional social housing development.

For the Living Environment and Social Services Improvement, a total of US\$ 1,498.2 million will be needed up to 2030. The largest amount of public investment, or US\$ 600 million, is assumed to be appropriated for the “Rehabilitation of Degraded Apartments and Public Service Facilities”, including approximately 65,800 units. This cost shall be recovered through the payment of individual owners and private real estate agents. The revenues may be utilized for additional rehabilitation projects as a revolving fund. The second largest investment, or US\$ 230 million, should be allocated for “Enforcement of Relocation from Flood Prone Areas” which aims to move high risky settlements (about 15,000 households) to safer land areas, or new town areas. In order to uplift the level of social services, a total of US\$ 400 million of public investment is necessary to be allocated for development of a sufficient number of educational and health facilities in communities, under a planning and design norm/standard to be newly reviewed.

In order to strengthen **the institutional, legal basis, and financial structure**, a great amount of the investment is not required, but the impacts of the development will be extremely large and important. The necessary budget will be only US\$28 million, out of which US\$ 8.0 shall be used for a training program for urban planning administration and capacity building for the realization of the Master Plan, and US\$10.0 million shall be allocated to facilitate technologies and the skills of the construction sector through a capacity development program.

Table 14.2.1 Summary of Public Investment Cost (Draft)

Sector/Sub-sector		No. of Projects	Public Investment (Million US\$)	Sector Allocation (Million US\$)	Share (%)
1	Urban Economic Enhancement Program	6	645.0	645.0	6.5%
2	Urban Transportation Program (Road Projects)	17	1,901.7	4,283.0	43.3%
3	Urban Transportation Program (Public Transport Projects)	5	2,249.3		
4	Urban Transportation Program (Traffic Management Projects)	3	132.0		
5	Urban Water & Sanitation Program (Water)	7	413.0	2,032.7	20.5%
6	Urban Water & Sanitation Program (Sewerage System)	7	440.0		
7	Electric Power Program	6	480.0		
8	Heating System Program	9	661.5		
9	Solid Waste Management Program	8	38.2		
10	Housing and Housing Policy Enhancement Program	9	1,407.0	1,407.0	14.2%
11	Living Environment Improvement Program	7	722.2	1,498.2	15.1%
12	Environmental Management Program	4	10.0		
13	Urban Amenity & Disaster Management Program	6	365.0		
14	Social Service Improvement Program	4	401.0		
15	Institutional & Legal-base Development Program	10	21.5	28.0	0.3%
16	Development Financing System	7	6.5		
Total		115	9,893.9		100.0%

Source: JICA Study Team

Table 14.2.2 Classification of Program Categories and Project Code

Sector/Program	Sector Code	Sub-sector	Sub-sector Code
Urban Economic Enhancement	UED	Sub-center Development	Sc
		Business & Commercial	Bc
		Industrial	Id
		Tourism	Tm
Urban Transportation	UTR	Road	Rd
		Public Transportation	Pt
		Traffic Management	Tm
		Safety Improvement	Sf
Urban Water & Sanitation	UWS	Water Resource	Wr
		Water Supply	Ws
		Sewage System	Ss
Electric Power	EPW	Electric Supply	Es
		Electric Network	En
		Institutional Mechanism	Im
Heating System	HTS	Heating Supply	Hs
		Heating Network	Hn
		Heating Efficiency	He
		Institutional Mechanism	Im
Solid Waste Management	SWM	Garbage Collection	Gc
		Recycle system	Rs
		Institutional Mechanism	Im
Telecommunication	TCM	Capacity Enhancement	
Housing and Housing Policy Enhancement	HSG	Low-cost Housing	Lh
		Social Housing	Sh

Sector/Program	Sector Code	Sub-sector	Sub-sector Code
Living Environment Improvement	LEV	Technical Standard	Ts
		Capacity Development	Cd
		Housing Quality	Hq
		Education and Promotion	Ep
Environmental Management	EVM	Public Facilities	Pf
		Community Empowerment	Ce
		Natural Environment	Ne
		Pollution Control	Pc
Urban Amenity & Disaster Management	ADM	Environmental Assessment	Ea
		Drainage and Flooding	Df
		Green and Open Space	Go
Social Service Improvement	SSI	Education	Ed
		Health	He
Institutional & Legal-base Development	ILG	Urban Development	Ud
		Housing Standard	Hs
		Construction	Cs
Development Financing System	DFS	Financial System	Fs

Table 14.2.3 Ulaanbaatar City Development Program for UBMPS 2020 & 2030

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Urban Economic Enhancement Program											
UED-Id-01	Relocation and Collectivization Project for Local Processing Industries (Industrial Park Development)	Business entrepreneurs and employees of leather processing and cashmere processing industries, etc	Financial and technical support to relocate more efficient land and infrastructure use for leather processing industry and cashmere processing industry. It is necessary that both industry associations agree with the project as a precondition.	X	X	X	XXX	XX	XX	80.0	UED-Bc-01
UED-Bc-01	Improvement of Incubation Facility Project	Small & medium scale industries and employees	Capacity expansion of current business incubation facility, and financial and technical support to tenants of the incubation facility.	X	X	X	XXX	XX	X	20.0	UED-Id-01 UED-Sc-02
UED-Sc-01	Commercial & Business Sub-centers Development	Commercial, business and service sectors and UB citizens	New urban sub-center development in association with development of the Mass Rapid Transit Systems in the major corridors of Peace Avenue. (3 sub-centers)	X	X	X	X	XX	XXX	150.0	UED-Sc-03
UED-Sc-02	Development of ICT and Knowledge Industry Center	Business entrepreneurs and employees of ICT/ business process outsourcing (BPO) industries	To develop one sub-center as a center for incoming industries for Ulaanbaatar city such as the ICT industry and those involving higher education.	X	X	X	X	XXX	XX	50.0	UED-Bc-01
UED-Sc-03	Development of Underground Shopping Arcade	Commercial and service sectors, UB citizens and tourists	To develop "UB Underground Shopping Arcade" as a new urban attraction in the central district in association with development of stations of the MRT system.	X	X	X		XXX	XX	340.0	UED-Sc-01 UED-Tm-01
UED-Tm-01	Improvement of Tourism Information Provision Project	Foreign and Mongolian tourists and local tourism business entrepreneurs and employees	Relocation of current Tourism Information Center in Ulaanbaatar and improvement information provision functions to visitors. Development city circuit tour program and improvement of signage. Beautification of surroundings of tourist sites.	X	X	X	XXX	X	X	5.0	UED-Sc-03

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Urban Transportation Program (Road Projects)											
UTR-Rd-01	Network Development of EW-1: Gachuurt to 22Km-post through Peace Avenue	All road users in UB	Improvement of the east-west transport corridor to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and urban rapid transit.	X			XXX			185.8	
UTR-Rd-02	Network Development of EW-3: from Bayanzurkh to Road to Thermal Power Station No.4 through Naryn Zam	Road users in southern area of UB	Improvement of east-west arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.	X			XXX			164.9	UTR-Pt-01
UTR-Rd-03	Network Development of NS-2: Eastern section of Middle Ring Road	Road users in central area of UB	Improvement of north-south arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.	X			XXX			37.6	
UTR-Rd-04	Network Development of NS-6: from Ikh Toyruu to Engels Street	Road users in central area of UB	Improvement of north-south arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.		X		XXX			12.3	On-going Japan Grant Aid Crossing
UTR-Rd-05	Network development of NS-7: from Chinggis Avenu to Ard Ayush Avenue through Ajilchin Street	Road users in central area of UB	Improvement of north-south arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.		X		XXX			57.5	
UTR-Rd-06	Development of Highway to Connect Ulaanbaatar City to New Airport and Zuunmod	Road users in south of UB Metropolitan area and for airport	Improvement of access to new international airport in the Khushigt valley and Zuunmod, Aimag center in Tov province.	X	X	X	XXX			90.0	On-going New Airport Project
UTR-Rd-07	Network Development of EW-2: from B. Dorj Street to Tolgoit Road through Ard Ayush Avenue	Road users in northern area of UB	Improvement of east-west arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.	X				XXX		86.4	UTR-Rd-01
UTR-Rd-08	Network Development of Disaster Prevention Roads	Road users in northern area of UB and residents	Prevention of housing area and roads from storm water run-off or flash floods.	X			X	XXX		109.6	UTR-Rd-07
UTR-Rd-09	Network Development of NS-3: Western dyke road of the Selbe River	Road users in central area of UB and residents	Construction of a new road along the western dike of the Selbe River to strengthen the road network in UB-CBD.	X				XXX		7.9	

Code	Project	Beneficiaries	Project Description [Implementing Agencies]	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
UTR-Rd-10	Network Development of NS-4: from Ikh Surguul Street to Olympic Street	Road users in central area of UB	Improvement of north-south arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.	X	X			XXX		67.3	
UTR-Rd-11	Network Development of NS-5: (from Sukhbaatar Street to Chinggis Avenue)	All road users in UB	Improvement of the north-south transport corridor to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and urban rapid transit.	X				XXX		102.5	UTR-Rd-01
UTR-Rd-12	Network Development of NS-9: from Chinggis Avenue to Tolgoit Road through Sonsgolon Road	Road users in western area of UB	Improvement of the north-south arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.	X	X			XXX		87.6	
UTR-Rd-13	Network Development of NS-1: from Dari Ekhiin Ovoo to Naryn Zam	Road users in eastern area of UB	Improvement of the north-south arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.	X	X				XXX	25.1	
UTR-Rd-14	Network Development of NS-8: from Trade Union Street to Chinggis Avenue	Road users in western area of UB	Improvement of the north-south arterial road to strengthen mobility in Ulaanbaatar City, as well as to secure land and space for infrastructure development and public transport.	X					XXX	107.3	
UTR-Rd-15	Development of Urban Expressway	All road users in UB	Development of full-control access road to secure mobility in Ulaanbaatar City.	X	X	X			XXX	500.0	
UTR-Rd-16	Development of Asian Highway No. 3	All road users in UB	Development of Asian Highway to an international standard to complete international highway network.	X					XXX	93.9	UTR-Pt-02
UTR-Rd-17	Capacity Development of Road Maintenance	All road users in UB	A comprehensive program to enhance the overall road maintenance capacity for UB city and the nation as a whole, including updating road inventories, technical improvement for betterment and upgrading works, restructuring of institutional and organizational systems. Modernization of machines and equipment for road maintenance is also facilitated.	X	X		XXX	XX	XX	166.0	

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Urban Transportation Program (Public Transport Projects)											
UTR-Pt-01	LRT/BRT Development of the East-West Line (Red Line: Phase 1)	Public transport passengers	Development of a mass-transit system along the main East-West Transport Corridors (27 km long), including stations s sub-centers, inter-modal facilities, workshop and related facilities/equipment.	X	X	X	XXX	XXX	X	1,107.3	UTR-Pt-03 UTR-Pt-08
UTR-Pt-02	LRT/BRT Development of the North-South Line (Blue Line: Phase 2)	Public transport passengers	Development of mass-transit system along main north-southward transport corridors serving the city of Ulaanbaatar with the North-South Transport Corridor (18 km long).	X	X	X		XX	XXX	792.0	UTR-Pt-01 UTR-Pt-03
UTR-Pt-03	Development of New Railway Bypass	Railway cargo consignors, consignees, and forwarders of rail cargo, and passengers	Development of new railway line bypassing UB in the south of Bogd Khan Mountain.	X		X			XXX	200.0	UTR-Pt-04
UTR-Pt-04	Development of Railway Depots/Terminals at Tolgoit /Tolgoit	Railway cargo consignors, consignees, and forwarders of rail cargo	Development of cargo terminal and logistic center in the suburbs of Ulaanbaatar.	X	X	X		X	XXX	80.0	UTR-Pt-02
UTR-Pt-05	Bus Service Improvement Program	Bus passengers	Improvement of Smart Bus Stops: Replace 77 bus stops with newly designed better bus stop.	X			XXX			70.0	UTR-Pt-06 UTR-Pt-07 UTR-Pt-08 UTR-Pt-09
			Bus Location Information System: Provide bus location information at bus stop and through Internet.	X	X		XXX	X			
			Installment of Transit Signal Priority System: Reduce delay of bus at signal by transit signal priority.	X			XXX				
			Bus Route and Operation Schedule Rationalization Project: Develop mechanism to review and revise bus routes and schedules and implement them.	X			XXX				
			Modernization Program of Bus Operators Fleet Renewal Program: Develop financial mechanism to introduce new bus fleets and study bus operating costs, impacts of bus fare hikes and other factors and revise bus fares.	X	X	X	XXX				

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Urban Transportation Program (Traffic Management Projects and Others)											
UTR-Tm-01	Traffic Congestion Reduction Program (Comprehensive Traffic Management Improvement Project)	Road users, Vehicle users and bus passengers and citizens in UB	One-way System in CBD: Modify and expand one-way system around Sukhbaatar Square. Signals will be updated and intersection geometry will be modified. Turning Restriction along Peace Avenue: Prohibit left turn along Peace Avenue except at signalized intersections with left turn signal. On-street Parking Management at CBD: Designate parking and no-parking sections along streets in the CBD. Collect parking fees from on-street parking. Enforce no-parking regulation. Intersection Geometric and Engineering Improvement: Modify and improve intersection geometry and sidewalk at 45 selected intersections.	X			XXX			30.0	UTR-Tm-03
UTR-Tm-02	Removal of Traffic Bottlenecks and Construction of Missing Links	All road users using the intersections and Shoppers and vehicle users around market.	Traffic Management Improvement in & around public markets: Apply traffic engineering solutions to ease traffic congestion in public market. <ul style="list-style-type: none">Narantuul: Relocate entry and exit points and install signal.Bar's: Construct parking and pedestrian crossing.100 Ail: Improve sidewalk and construct parking at open spaces. Traffic Management Improvement <ul style="list-style-type: none">Undsen Huuli–Engels Bridge: Improve West Cross by upgrading signal and modifying geometry. Improve Seoul St – Undsen Huuli intersection. Improve sidewalk and green spaces.Peace Ave – Sukhbaatar St.: Modify intersection geometry and signal phase.Opening of Juulchin Street; and Widening of Western Section of Namy Zam. Elimination of 4 Staggered Intersections. Construction of 4 Flyovers: at Sapporo; Bayanburd, Tuul Jin Pan, and Eastcross. Construction of 3 New Primary Links: Western Dike of Selbe River, Unur; Ajilchin to Chinggis.	X	X		XXX	XX		82.0	UTR-Tm-03

UTR-Tm-03	Capacity Development of Traffic Management and Traffic Safety Promotion Program	General public & road users; transport-related officials & agencies	Establishment of “Mongolian National Transportation Research Center (MoNTREC)” <ul style="list-style-type: none"> • A center of knowledge and experience in traffic and transportation. • Human Resource Development: Develop training curriculum and conduct training for both road administrators and enforcers. 	X			XXX			20.0	UTR-Tm-01 UTR-Tm-02
			Establishment of a Traffic Management Coordination Committee for: <ul style="list-style-type: none"> • Coordination among the agencies concerned for better traffic management. • Education and upgrading social norms on general public and drivers, etc. 	X			XXX				
			Formulation of a Traffic safety program , including: <ul style="list-style-type: none"> • Accident analysis • Development of Road safety audit and improvement measures. Road amenity green space: Improve sidewalk and provide green spaces to make walking and NMV more attractive and pleasant.	X			XXX	XX	XX		

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Urban Water & Sanitation Program (Water)											
UWS-Wr-01	Water Resource Protection	UB City citizen	To establish integrated watershed management including enforcement of water resource protection, conservation of water resource, development of monitoring network.	X			XX	XXX		4.0	UWS-Wr-02 UWS-Ws-02 EVM-Pc-02
UWS-Wr-02	New Water Supply Source Development	UB City citizen	To investigate new water resource area. To study possibility of surface water use. To construct a new water resource.	X	X		XXX	XX		290.0	UWS-Wr-01
UWS-Ws-01	Improvement of Water Supply Capacity	UB City citizen	To renovate old pumps to improve water intake capacity (300,000 ton/day)	X	X		XXX	XX	XX	30.0	UWS-Wr-02
UWS-Ws-02	Water Quality Monitoring and Management	UB City citizen	To establish water quality management guideline. To establish and strengthen of the inspection system. To raise incentives on water quality protection.	X			XXX			4.0	EVM-Pc-02
UWS-Ws-03	Water Supply Distribution Network Rehabilitation & Enhancement Project	UB City citizen	To expand water supply network to serve new areas. To rehabilitate old pipes to improve capacity.	X	X		XXX	XX		50.0	UWS-Ws-01
UWS-Ws-04	Water Demand Management Program	UB City citizen	To promote installation of water meters, tariff reform, and “Save Water” campaign to citizens to conserve water.		X		XXX	XX		10.0	UWS-Ws-01
UWS-Ws-06	Provision of Water in Ger areas	UB City citizen in Ger area	To construct water kiosks through track where water is not supplied within urbanization area		X		XXX	X		25.0	UWS-Ws-01 UWS-Ws-04

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Urban Water & Sanitation Program (Sewerage System)											
UWS-Ss-01	Central Wastewater Treatment Plant (CWWTP) Capacity Enhancement	UB City citizen	To extend capacity of existing CWWTP. To develop sewage sludge treatment facility. To rehabilitate existing sewage pipelines, channels and drainage system.	X	X		XXX			120.0	UWS-Ss-02
UWS-Ss-02	New Wastewater Treatment Facility Development	UB City citizen	To develop new wastewater treatment facility (300,000 ton/day).	X	X		XX	XXX		110.0	UWS-Ss-01
UWS-Ss-03	Industrial Wastewater Facility Improvement	UB Citizen, Business sector and factory	To renovate Khargia industrial wastewater treatment facility, To develop a new industrial waste-water treatment facilities in the newly developed industrial estate.	X	X		XX	XXX		60.0	UWS-Ss-02
UWS-Ss-04	Sludge Treatment and Bio-energy Facility Development	UB City citizen	To develop sewage sludge treatment facility including bio-gas generation.	X	X		XX	XXX	XX	40.0	UWS-Ss-01 UWS-Ss-02 UWS-Ss-03
UWS-Ss-05	Rehabilitation of old pipelines of sewerage	UB City citizen	To rehabilitate old pipes to improve capacity.		X		XX	XXX		50.0	UWS-Ss-01
UWS-Ss-06	Household-based sewerage treatment	UB City citizen in Ger area	To study environmental friendly household-based system such as combined type septic tank, ECOSAN. To promote above system including establishment of financial supporting system.	X	X		XXX			40.0	-
UWS-Ss-07	Water Recycling Promotion Program	UB City citizen	To install water recycling system in wastewater treatment facilities (10,000 ton/day). To make guideline on water recycling and public awareness.	X	X		XX	XXX	XX	20.0	UWS-Ss-01 UWS-Ss-02
Electric Power Program											
EPW-Es-01	Improvement of Electric Power Capacity	UB City citizen	To renovate the existing power supply facilities.	x	X		XXX	XX		55.0	EPW-En-01
EPW-Es-02	New Power Supply System Development	UB City citizen	To study a new electric power source and develop feasible power system.	X	X	X	XXX	XX	XX	400.0	EPW-Es-01
EPW-En-01	Electric Distribution Network Enhancement	UB City citizen	To expand electric network and replace power cables to larger ones.		X	X	XX	XXX	X	6.5	EPW-Es-01 EPW-Es-02

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
EPW-En-02	Construction and Rehabilitation of Power Substations	UB City citizen	To construct and rehabilitate power substations.		X	X	XXX	XX	XX	14.5	EPW-En-01
EPW-En-03	Installation of Solar System to Governmental Facilities	UB City citizen	To save power by installing solar system devices, to begin with government buildings. To conduct a pilot project to introduce solar system.	X	X	X	XXX	XX		2.0	EPW-Es-02
EPW-Im-01	Electric Demand Management Program	UB City citizen	To reform the tariff structure, and promote a campaign for citizens to conserve water.		X		XXX	XX		2.0	EPW-En-03
Heating System Program											
HTS-Hs-01	New Heating Source Development	UB City citizen	To establish heating supply facilities. To study renewable energy.	X			XXX	XXX	XXX	400.0	EPW-Es-02
HTS-Hs-02	Rehabilitation of Heat-only –Boiler	UB City citizen	To prioritize old type heat-only-boiler to be rehabilitated. To rehabilitate old type heat-only-boilers	X	X		XXX	XX		-	
HTS-Hs-03	Local Cluster Heating System Development	UB City citizen in Ger area	To develop small scale local network in residential area including: • Construction of facilities. • Development of a feasible operation and maintenance mechanism.	X	X		XX	XXX		120.0	
HTS-Hn-01	Rehabilitation of Old Pipelines for Heating	UB City citizen	To renovate the old heating pipes.		X		XXX	X		80.0	HTS-Hs-02 HTS-Hn-02
HTS-Hn-02	Heating Distribution network Enhancement	UB City citizen	To expand heating network and replace pipes to larger ones.		X		XXX	X		50.0	HTS-Hn-01
HTS-He-01	Improvement of Heat-efficiency of Buildings	Building contractor, UB City Citizen	To improve heat insulation materials and construction techniques for air condition improvement of buildings.	X			XXX			2.0	
HTS-He-02	Coal Quality Improvement Project	UB City citizen in Ger area	To study feasible coal improvement technologies. To establish semi-cokes, briquette production facility. To standardize coal quality. To promote improved coal including financial supporting system.	X	X	X	XXX			6.0	HTS-Hs-01 HTS-He-01 HTS-Hn-02

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
HTS-He-03	Dissemination of Improved Quality Stove	UB City citizen in Ger area	To study stove improvement technology. To standardize coal quality. To promote improved coal including financial supporting system.	X	X	X	XXX			3.5	
HTS-Im-01	Heating Tariff Structure Reform	UB City citizen	To reform existing heating tariff structures to improve financial status of the heating company.	X			XXX			-	
Solid Waste Management Program											
SWM-Gc-01	Improvement of Solid Waste Dumping Sites and Enhancement of the Management	UB City citizen	To construct sanitary landfill facilities including bio-gas generation system. To establish guidelines on a monitoring and inspection system. To develop and strengthen regulation on waste dumping.	X	X		XX	XXX		5.7	
SWM-Gc-02	Construction of Solid Waste Separation Facilities	UB City citizen	To sort out recyclable waste and non-recyclable ones. To separate combustible and non-combustible waste.	X	X	X	XX	XXX		9.0	
SWM-Gc-03	Garbage Collection System Improvement	UB City citizen	To establish garbage collection network with procurement of garbage trucks and employment of necessary personnel. To study an appropriate collection fee system. To promote a campaign on the benefits of waste reduction.	X	X	X	XXX	XX	XX	15.0	
SWM-Rs-01	Solid Waste Recycling System Development	UB City citizen	To establish a feasible waste recycling system, including institutions, waste separate facilities, recycle markets, people's awareness to recycling, etc.	X	X	X	XXX	XX		-	
SWM-Rs-02	Waste-to-Energy Generation Project	UB City citizen	To establish a bio-gas power generation plan, using solid waste.	X	X	X		XX	XXX	-	
SWM-Rs-03	Coal-ash Recycling Project	UB City citizen	To study coal ash recycling technology. To establish coal ash collection network. To promote coal ash recycling.	X	X	X	XX	XXX		-	
SWM-Rs-04	Construction Waste Recycling Project	UB City citizen	To recycle construction waste including those from demolished buildings and construction works	X	X	X	XX	XXX		6.5	

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
SWM-Im-01	Education and campaign of solid waste management	UB City citizen	To establish guideline on education and campaign program. To provide education materials.	X			XXX			2.0	
Housing and Housing Policy Enhancement Program											
HSG-Lh-01	Guideline Development of Low-cost Housing	Building contractor, UB City Citizen in Ger area	To study and develop functional guidelines for low-cost housing supply.	X		X	XXX			-	HSG-Ts-01 HSG-Ts-02, HSG-Sh-03, LEV-Ep-01
HSG-Lh-02	New Town Development by a Public Entity	UB citizens and migrants, including all income groups.	Two new town developments (UB West:700ha; and UB South: 750ha) to be initiated by a public entity for all segments from low- to high-income groups with sufficient infrastructures and urban functions such as higher education institutes and commercial and business areas to create employment. Housing financing scheme shall be linked with this project.	X	X	X	X	XXX	XXX	730.0	HSG-Lh-01, HSG-Sh-03, HSG-Sh-01, HSG-Hq-02
HSG-Sh-01	Social Housing Development Project (20,000 units)	UB citizens, particularly low and middle income groups and migrants	Provision of 20,000 social housing units to be constructed by Social Housing Corporation until 2020 along with new town development and in association with ger area improvement projects.	X	X	X	XX	XXX		410.0	HSG-Lh-02, HSG-Sh-03
HSG-Sh-02	Provision of Rental Apartments	Low income households, students and single families	To provide rental apartments for residents in the short-term to meet different patterns of housing demands (10,000 units).			X	XX	XX		180.0	HSG-Lh-01, HSG-Sh-03
HSG-Sh-02	Temporary Housing Area Development for Resettled Households	Migrants, resettled households	To provide special land areas with minimum utilities and services until permanent settlements (8,000 units).	X	X	X	XXX			84.0	LEV-Ce-01, ADM-Df-01, ILG-Ud-04,
HSG-Sh-03	Reform/Restructure of Mongolian Housing Financing Company (MHFC)	Low income households, Migrants, resettled households	To enhance social housing provision and supply capacity while reforming of the financing system for low income households. To enhance the housing development fund with financial engineering methodologies such as housing bond issuance.	X			XXX			-	HSG-Lh-01, HSG-Sh-01, HSG-Sh-02

Code	Project	Beneficiaries	Project Description [Implementing Agencies]	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
HSG-Ts-01	Reform of “Building Code” and Construction Supervision System	Building contractors and UB City citizens	To reform the existing building code and update modern standards to apply present building structure and materials, in consideration of “ <i>anti-earthquake</i> ” structures. To introduce design and supervision system to monitor and improve construction process.	X			XXX			-	HSG-Lh-01 HSG-Ts-02 LEV-Hq-01 LEV-Ep-01
HSG-Ts-02	Improvement of Heat efficiency of Housing Buildings	Building contractor, UB City Citizen	To improve heat insulation material and construction techniques for air condition improvement of buildings.	X		X	XXX			3.0	HSG-Lh-01 HSG-Ts-01 LEV-Hq-02 LEV-Ep-01
HSG-Cd-01	Management guideline of apartments	UB City Citizen in apartment area	To strengthen and enhance capacity and activities of apartment management bodies to maintain and improve buildings, facilities and communities.	X			X			-	HSG-Sh-02 LEV-Hq-01
Living Environment Improvement Program											
LEV-Hq-01	Rehabilitation of Old Apartments	UB City Citizen in apartment area	To rehabilitate degraded apartments and facilities (65,800 units up to 2030)		X	X	XX	XX	XX	600.0	HSG-Ts-01, HSG-Cd-01
LEV-Hq-02	Promotion of New Technologies for Energy-saving and Eco-housing Development	UB City citizen in Ger area	To study appropriate technology for Eco-house. To promote Eco-house system. To establish financial supporting system for installing Eco-house system.	X		X	XX	XXX	XX	20.0	HSG-Lh-02, HSG-Ts-02
LEV-Ep-01	Raising Awareness of Environmental and Living Condition Improvement	UB City citizen	To provide guideline of education and public awareness raising for environmental protection.	X			XXX			2.0	HSG-Lh-01, HSG-Ts-01, HSG-Ts-02
LEV-Pf-01	Community & City Parks and Open Space Development	Children, UB City citizen	To plan community parks and open space in land readjustment plan and urban redevelopment plan To share land plots to secure community park and open spaces (a total of 200 ha)	X	X		XX	X	X	40.0	ADM-Go-01
LEV-Pf-02	Promotion of Community-based School Facilities	Children, UB City citizen	To plan multiple usage and rules of schools for neighborhood	X			XX	X	X	50.0	HSG-Ep-01, SSI-Ed-01, SSI-Ed-02, ADM-Df-03

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
LEV-Ce-01	Establishment of Support to Community-based Organizations for Environmental Improvement and Social Activities	UB City citizen in Ger area	To activate community activities based on CBO for living condition improvement.	X			XXX	XX	XX	10	LEV-Ep-01, LEV-Pf-01, DFS-Fs-02
LEV-Ce-02	Establishment of A Participatory Land and Immovable Asset Assessment System	UB City citizen in Ger area	To formulate an agreeable system for land and immovable assets value assessment to facilitate Community-driven Ger area improvement activities	X			XXX	X	X	0.2	LEV-Ep-01, LEV-Pf-01, DFS-Fs-02
Environmental Management Program											
EVM-Ne-01	Development of Forest Protection Management and Monitoring System	Government staff in charge of forest protection management	To clarify and classify land degraded areas on natural environmental conditions. To provide and promote guidelines for natural environmental protection. To regulate land use in the designated protection areas. To establish and strengthen a monitoring system with enforcement power against illegal use.	X			XXX	XX	X	4.0	
EVM-Pc-01	Development of Air Quality Management and Monitoring System	Government staff in charge of air quality management	To develop emission standard enforcement. To establish and strengthen air quality monitoring system with power on enforcement against violators.	X			XXX	XX	X	3.0	
EVM-Pc-02	Development of Water Quality Management and Monitoring System	Government staff in charge of water quality management	To develop discharged water standard enforcement. To establish and strengthen water quality monitoring system with enforcement power against violations	X			XXX	XX	X	2.0	
EVM-Ea-01	Capacity Development on Management of the EIA System	Government staff in charge of EIA	To coordinate among Ministry of Natural and Environment, other government bodies and private sector. To promote necessity of environmental assessment. To increase number of inspectors for EIA inspector.	X			XX	XX	XX	1.0	

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Urban Amenity & Disaster Management Program											
ADM-Df-01	Enforcement of Relocation from Flood Prone Areas	UB City citizen	To examine and prepare a hazard map indicating flood prone risky areas and environmentally vulnerable areas. To prepare regulations to prohibit human settlements in high risky areas. To prepare a resettlement plan to relocate residents in high risky areas (15,000 units).	X	X		XXX	XX	X	200.0	
ADM-Df-02	Rehabilitation of Strom Water Drainage Canals and the Entire System	UB City citizen	To rehabilitate and extend storm water drainage canals and the entire system. To facilitate drainage canal protection from waste dumping. To construct disaster prevention roads. To construct and rehabilitate flood dams, reservoirs and/or dykes. To establish underground reservoir under road.	X	X		XXX	XX	X	60.0	UTR-Rd-08
ADM-Df-03	Promotion Program of “Community-based Preparedness” against Disaster	UB City citizen	To provide a hazard map, indicating flood prone areas To develop a <i>community-based evacuation manual</i> , including an information dissemination system, locations of evacuation route and places, stocking of basic commodities and rehabilitation assistance in case of occurrence of disaster such as flood and earthquake. To provide awareness of the importance of the community-based preparedness against disasters. To prepare regulations and/or a legal enforcement system against human settlements and economic activities in disaster-risky areas. To develop a <i>flood warning system</i> .	X			XXX			3.0	

Code	Project	Beneficiaries	Project Description [Implementing Agencies]	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
ADM-Df-04	Road Improvement and Emergency Vehicles Procurement Program	UB City citizen in Ger area	To improve road network and widen roads for emergency vehicles in the Ger areas. To reform and strengthen regulations on land use and maintain adequate roads and open space.	X	X		XX	XX	XX	60.0	
ADM-Go-01	City Parks and Green Network Development Project	UB City citizen	To facilitate development of city parks, community parks, green areas and open space to be reserved. To develop a green network in UB City with these parks and green areas, based on the Master Plan. To monitor Land Use Zoning with enforcement against illegal construction and development activities. To regulate green area development by construction permission, development permission, etc.	X			XXX	XX		40.0	
ADM-Go-02	Promotion of a Campaign for “Greening Buildings and Streets”	UB City citizen	To study appropriate greening technique to meet UB’s natural climate and environment. To promote green building and street techniques. To establish a financial support system.	X	X	X	XX	XXX	XX	2.0	
Social Service Improvement Program											
SSI-Ed-01	Development of Planning Standard and Guidelines of Educational Facilities	UB City citizen	To develop planning standards and guidelines for educational facilities under a catchment service area concept.	X			XXX			0.5	HSG-Ts-01 LEV-Df-02 SSI-Ed-02
SSI-Ed-02	Acceleration Program for Pre-school and School Facility Development	Students	To facilitate construction of pre-schools and other schools to meet development guidelines (100 places for 6,000 pupils).		X		XX	XX	XX	200.0	HSG-Ts-01 SSI-Ed-01 LEV-Pf-02
SSI-He-01	Development of Planning Standard and Guidelines of Health Care Facilities	UB City citizen	To develop planning standards and guidelines for health care facilities under a catchment service area concept.	X			XX			0.5	HSG-Ts-01 SSI-He-02
SSI-He-02	Acceleration Program for Health Care Facility Development	Patients and UB City Citizens	To facilitate construction of clinics, hospitals and/or medical service facilities to meet the development guidelines above (120 primary Health Center).		X		XX	XX	XX	200.0	SSI-He-01

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Institutional & Legal-base Development Program											
ILG-Ud-01	Legal Enhancement of Urban Planning and Urban Development-related administration	MRTCUD, UB City	To assist the MRTCUD in reviewing existing laws: urban development laws, housing laws, and land law. And in the making of new laws on urban development: land readjustment, urban redevelopment, new town development, land compulsory expropriation, etc..	X			XXX			1.5	
ILG-Ud-02	Introduction of Property Assessment Land Valuation Systems	MRTCUD, UB City	To establish a new land valuation standards and introduce a declared land value system.	X			XXX			3.0	
ILG-Ud-03	Training Program for Urban Planning Administration and Capacity Building for Realizing the UB Master Plan 2030	MRTCUD, UB City, NGOs, and Related Agencies	To provide practical training for Urban Growth Management mechanisms applicable for the market economy. To provide basic knowledge of legal framework and guidelines related to urban planning administration and enforcement. To provide practical system's training on land readjustment project, urban redevelopment project, new town development project, community development. To provide appropriate and rational norms on permission and the monitoring of construction administration and land development activities.	X			XXX	XX	XX	8.0	
ILD-Ud-04	Development of Resettlement Policy and Plan	UB City citizen, UB City	To define clear resettlement conditions and enforcement measures including support measures. To develop a resettlement plan prioritizing resettlement areas and its implementation measures.	X			XX	XX		-	HSG-Sh-02, ADM-Df-01
ILD-Ud-05	Development of “Neighborhood Area Development Plan (NADEP)” for Ger Area Improvement	UB City citizen, UB City	To formulate the community and public service development guidelines under a neighborhood unit concept To facilitate a community-driven activities for public service provision in cooperation with UB City government.	X			XXX	XX		-	HSG-Sh-02, ADM-Df-01

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
ILD-Ud-06	Establishment of an Institutional System of Land Readjustment (Land Pooling) System	UB City citizen, UB City	To formulate institutional guidelines encouraging a Community-driven Ger Area improvement Projects based on a concept of "Land Readjustment" though Pilot Projects."	X			XXX	XX		-	HSG-Sh-02, ADM-Df-01
ILG-Hs-01	Institutional Development for Social Housing Policies and Programs	MRTCUD, MSWL, UB City, MOF, Bank of Mongolia, MHFC	To assist related ministries and agencies in establishing: <ul style="list-style-type: none"> Housing Development Financing Institution (HDFI); Social Housing Corporation (SHC); and, Community Organizations Development Institute (CODI). 	X			XXX	XX		1.0	
ILG-Hs-02	Financial Capacity Building Related to Social Housing Development	MRTCUD, MOF, Bank of Mongolia	To develop a framework on Financial Resources for Housing Development Fund to be utilized for social housing for low income households.	X			XXX			2.0	
ILG-Hs-03	Facilitation of a Self-Help Housing Construction System	MRTCUD, UB City, Building Material Manufacturer's Association and other construction-related business sector	To develop a self-help housing construction system for poor households. To facilitate R & D activities in the universities for affordable and energy-efficient construction materials. To provide a number of model houses to replace the Ger settlements.	X	X	X	XXX	XX	XX	6.0	
ILG-Cs-01	Business Development Policy to Strengthen the Construction-related Sector	MRTCUD, MOF, National Railway, Building Material Manufacturer's Association	To establish basic policies fostering the construction business sector in Mongolia. To encourage the production of basic construction materials such as cement & iron through the provision of incentives for the investment. To provide vocational education programs for the construction sector.	X	X	X	XXX	xx		10.0-	

Code	Project	Beneficiaries	Project Description 【Implementing Agencies】	Support Scheme			Priority			Cost (mil. US\$)	Related Projects
				TA	FA	PPP	S ~2015	M ~2020	L ~2030		
Development Financing System											
DFS-Fs-01	Financial Basis Enhancement Program of UB City Government	UB City and UB Citizens	Property-related Taxation: To examine the possibility of imposing a “property related tax” on property owners and to formulate an imposition system. Urban planning taxation: To examine the possibility of imposing an “urban planning tax” on property owners and to formulate an imposition system. Fiscal management system: To formulate an efficient fiscal management system to improve the City’s credit worthiness and allow it the ability to borrow on a long term basis from capital markets.	X			XXX	XX		2.0	DFS-Fs-05 DFS-Fs-06 DFS-Fs-07 DFS-Fs-08 DF-Fs-09
DFS-Fs-02	Formulation of Community-based Financing System	Ger Area residents, UB City residents in general	To formulate a <i>community fund system</i> for improvement of the Ger areas and the redevelopment of built-up areas.	X		X	XXX	XX		-	DFS-Fs-07
DFS-Fs-05	Formulation of Value Capture Methods for UB City	UB City, General tax payers	To formulate various value capture methods imposed on beneficiaries of infrastructure development such as mass rapid transit, expressway, and integrated urban corridor, including the application of Transfer of Development Right (TDR).	X		X	XX	XXX	XX		DFS-Fs-01 DFS-Fs-08 DF-Fs-09
DFS-Fs-06	Exploration of Long-term City Bond Issuance by UB City	UB City, General tax payers	To examine the feasibility of bond issuance by UB City for capital financing of infrastructure projects.	X			X	XXX			DFS-Fs-01 DFS-Fs-07
DFS-Fs-07	Establishment of the “UB Infrastructure Financing Public Corporation”	UB City, General tax payers	To examine the feasibility of establishing a UB Infrastructure Financing Public Corporation that shall specialize in financing infrastructure development in UB City. Possible fund sources: 1) mining revenues; 2) bonds; 3) pension funds, and 4) external donors’ funds.	X			XX	XXX		1.5	DFS-Fs-01 DFS-Fs-02 DFS-Fs-05 DFS-Fs-06
DFS-Fs-08	Comprehensive Policy Reform of “Public Service Tariff Structure”	UB City residents and all public service providers and managers	To examine thoroughly existing public service tariff structures (water, heating, power, sewage, solid waste disposal, etc) and come up with an adequate subsidy system in consideration of: <ul style="list-style-type: none">• Full or partial cost recovery structures under the market mechanism; and,• Public Service Privatization.	X			XXX			1.0	DFS-Fs-01 DFS-Fs-05
DF-Fs-09	Preparation of Implementation Framework for PPP-based Public Service and Urban Development Projects	UB City, General tax payers, private sector	To formulate an appropriate and applicable implementation framework on a Public Private Partnership (PPP) public service and urban development projects, including institutional and legal frameworks and procurement procedures.	X			XXX	XXX	XXX	2.0	

14.3 Priority Projects (Short-List) and Profiles

1) Short-term Development Targets

An intermediate milestone in the short-term toward the final goal in 2030 was considered to be the year 2015. General targets in the short-term are twofold: (a) to make steady steps toward the final goals; and (b) to establish a fundamental institutional mechanism to ensure a sustainable and balanced growth with the implantation of the Master Plan. Attainments to be realized by 2015 are envisaged as follows:

- (1) Officially approved “Ulaanbaatar City Master Plan 2030” functions well as guidelines of the rational and transparent administration for issuance of permissions of land registration building construction, development projects and environmental management.
- (2) Some of laws, regulations and institutional systems necessary for urban planning and land use management have been built as effective and workable administrative tools.
- (3) Ulaanbaatar City has a responsible urban planning section to facilitate citizens’ participation in improvement of living conditions in Ger areas and pursue the Public Private Partnership (PPP) to accelerate development and provision of infrastructures, urban utilities and public services.
- (4) Steady steps to solve chronic and crucial urban problems in Ulaanbaatar City have been made by implementing the Master Plan 2030. In particular, there are noteworthy progress in the following four (4) sectors:
 - With the implementation of the short-term program addressed in the Master Plan, traffic congestion is somewhat alleviated. A notable change appears in the modernized traffic control system, with which traffic flows are rectified, thereby resulting in safe transport in the city. In addition, new mass transit system (Ulaanbaatar Rapid Transit: URT) is under construction along Peace Avenue, and development activities at/around the station areas appear active.
 - The water supply system has been improved in Ger areas in particular along with living environmental improvement projects. One of the most important projects in the water sector, which is the development of new water resources, is steadily carried out in association with the progress of afforestation in the comprehensive water-shed conservation program.
 - Social Housing Cooperation functions to provide low-income households with affordable housing units and rental houses under a Comprehensive Social Housing Program which includes housing financial supports. The housing market efficiently and stably works, as the construction industry have been encouraged with a strong government policy.
 - Environmental projects are going-on with a few donors supports. Among them, it is

noted that the Central Waste Water Treatment Plant have been rehabilitated and expanded in its treatment capacity, and that cluster systems for industrial waste water treatment to serve the designated industrial zones are being developed. In addition, a people's movement for 3Rs (reduction, recycling, reuse) is proactive.

- (5) Some practical models for improvement of Ger areas, which are based on a “community-driven approach”, have been built and a number of projects using the models are being carried out in collaboration with communities and Ulaanbaatar City.

Priority projects need to contribute to attainment the status as described above.

2) Sector Priority Concept

The proposed projects have been identified for respective planning issues or eight (8) sector categories such as:

- Urban Economic Enhancement
- Urban Transportation
- Infrastructures and Utilities
- Housing and Housing Policy Enhancement
- Urban Environment
- Social Service Improvement
- Institutional & Legal-base Development and Governance
- Development Financing System

Since the city is a composite urban agglomeration, all sectors are equally important and mutually related with each other. Therefore, sector priority will not be considered. Instead, a priority concept is envisaged as follows, taking into account the most crucial subsectors for respective planning issues:

Table 14.3.1 Concept of Sector Priority

Code	Planning Issue Sector	Highest Priority Subsectors
UED	Urban Economic Enhancement	<ul style="list-style-type: none"> • Industrial Relocation and Collectivization • Tourism Sector Enhancement • Sub-center Development
UTR	Urban Transportation	<ul style="list-style-type: none"> • Road Traffic Bottlenecks Alleviation and Traffic Management • Public Transport System Improvement
IFR	Infrastructures and Utilities	<ul style="list-style-type: none"> • Water-related Utilities (Water Supply and Sewerage) • Energy Supply Management System
HSG	Housing and Housing Policy Enhancement	<ul style="list-style-type: none"> • Ger Area Improvement • Social Housing Development
UEM	Urban Environment	<ul style="list-style-type: none"> • Air Pollution Mitigation • Disaster Management • Urban Amenity Improvement
SSI	Social Service Improvement	<ul style="list-style-type: none"> • Education and Health Care Facilities Development in Communities
ILG	Institutional & Legal-base Development and Governance	<ul style="list-style-type: none"> • Development of Urban Planning-related Acts • Capacity Development in Urban Planning and Development Management
DFS	Development Financing System	<ul style="list-style-type: none"> • Enhancement of Municipal Financing Capacity • Housing Financing Mechanism for Lower Income Households

Source: JICA Study Team

3) Criteria of Prioritization

The prioritization process is important to envision a rational phased development under limited budgets and capacities. In general, the most crucial criterion is economic feasibility of the investment, based on a cost/benefit analysis. However, it is not easy to economically evaluate all projects over different sectors. Instead, an implicit evaluation is carried out based on five (5) criteria, as follows:

- Coherence with Visions;
- Urgency;
- Necessity (needs);
- Implicit Feasibility; and
- Social Acceptance.

Coherence with Visions: Although all proposed projects must be relevant to the visions for Ulaanbaatar City, which were envisaged in the first stage of the planning process, the more relevant projects to achieve the visions should be given higher priority.

Urgency: Needless to say, projects that are expected to contribute to more urgent issues should be given higher priority.

Necessity: All proposed projects are considered based on the needs of Ulaanbaatar citizens which were identified through the household surveys and a series of technical

working group meetings and community consultation meetings. However, projects that can more widely and more greatly respond to people's needs may be given a higher priority.

Implicit Feasibility: Technical and institutional feasibilities need to be considered for prioritization, because these factors are closely related to the implementability and sustainability of a project. This criterion is not necessarily tangible but implicit.

Social Acceptance: Projects which are accepted by all may be given a higher priority. However, there are projects that are highly necessary for society, but are not welcome by the public. The restructuring of tariff structures for public services, such as bus fares or electric bills, is a case in point. Priority shall be considered in balancing both sides of these needs.

Each project proposed in the long list (Table 14.2.3) was evaluated through a **scoring method**, referring to these five (5) criteria, as shown in Table 14.3.2. Projects that are the most relevant to the respective criteria are given the highest score, **3**. On the contrary, those whose impacts are not necessarily expected are given the lowest score, **1**. In cases where neither 3, nor 1, is given a middle score, **2**, applied. Thus, each project has a total score when summed up. However, the score of "Urgency" is counted double in consideration of the importance of the time factor in the priority.

4) Priority Programs/Projects

Priority projects were selected, taking into account the total score derived from the scoring method as well as the sector priority concept. A total of **50** projects, as summarized in Table 14.3.3, are proposed to be urgently implemented. For the 50 projects, the investment cost will total US\$2,700 million, or 27% of the total cost estimated for all projects/programs.

Strategic budget is expected to be appropriated to commence the preparation of these projects by the Mongolian Government and Ulaanbaatar City Government as soon as practicable. These priority programs/projects are to be accomplished until, or be in service, by **the target year 2015**. The donor community is also expected to support in initiating the project implementation in close collaboration with the government.

5) Profiles of Priority Programs/Projects

The selected priority programs/projects are profiled as attached in Volume 3. The profile sheet indicates a number of items and assumptions to feature the project.

Name of Project:	Not necessarily identical to Table 14.3.3
Type of Project:	Technical Assistance, Financial Assistance or some other type
Indicative Capital Cost (mil.US\$):	Total investment cost for the project or the program, without considerations of private contribution or cash flow from revenues from the cost recovery-type of projects. Exchange rate is used as of May 2008
Executing Agency:	Prime responsible agency
Relevant Agencies:	Secondary responsible or closely related agencies to be coordinated
Main Objectives:	Issues to be solved
Subprojects/Components:	Components and elements to be involved in/under the project/program
Expected Beneficiaries:	Those who will benefit directly from the project/program
Time Requirements:	Necessary time duration of preparatory work, main work and target year when the project complete
Rationales:	Background conditions to justify the project in terms of relevance with "Visions of UBMP 2030", identified planning issues and existing national policies
Private Sector Engagement:	Requirement of private groups' involvement in forms of: 1) PPP; 2) Community involvement; and 3) other parties to be engaged. The expected degree of the involvement is scaled in 5 ranks: i.e., A: must; B: highly required; C: needed; D: conditional; and E: not necessary
External Supports:	Required or expected assistance from donors in terms of : 1) Technical assistance; 2) Financial assistance; or 3) Other forms. The degree of the necessity is envisaged in five (5) ranks, i.e., A: must; B: highly required; C: needed; D: conditional; and E: not necessary
Drawings and others:	Indications of relevant drawings, figures and maps necessary to explain the project/program

Table 14.3.2 Scoring Priority Evaluation for Proposed Projects

(1/5)

Sector	Code	Project	Criteria for Priority ¹⁾						Environ'tl Impact ²⁾	Schedule		
			Coherence with Visions	Urgency	Needs	Feasibility	Social Acceptance	Total Weighted Score		Short ~2015	Medium ~2020	Long ~2030
UED: Urban Economic Enhancement	Id-01	Relocation and Collectivization Project for Local Processing Industries (Industrial Park Development)	1	1	2	2	2	9	P			
	Bc-01	Improvement of Incubation Facility Project	3	3	3	3	2	17	-			
	Sc-01	Commercial & Business Sub-centers Development	3	1	2	2	2	11	n			
	Sc-02	Development of ICT and Knowledge Industry Center	3	2	3	3	3	16	-			
	Sc-03	Development of Underground Shopping Arcade	3	1	3	2	3	13	n			
	Tm-01	Improvement of Tourism Information Provision Project	3	3	3	3	3	18	-			
UTR: Urban Transportation (Road)	Rd-01	Network Development of EW-1 (from Gachuurt to 22Km-post through Peace Avenue)	2	3	2	2	2	14	n			
	Rd-02	Network Development of EW-3 (Bayanzurkh to Road to Thermal Power Station No.4 through Naryn Zam)	2	3	2	2	2	14	n			
	Rd-03	Network Development of NS-2 (Eastern section of Middle Ring Road)	2	3	2	2	2	14	n			
	Rd-04	Network Development of NS-6 (from Ikh Toyruu to Engels Street)	2	3	2	2	2	14	n			
	Rd-05	Network development of NS-7 (from Chinggis Avenue to Ard Ayush Avenue through Ajilchin Street)	2	3	2	2	2	14	n			
	Rd-06	Development of Highway to Connect Ulaanbaatar City to New Airport and Zuummod	3	3	3	2	2	16	N			
	Rd-07	Network Development of EW-2 (from B. Dorj Street to Tolgoit Road through Ard Ayush Avenue)	2	1	2	2	2	10	n			
	Rd-08	Network Development of Disaster Prevention Roads	2	1	2	2	2	10	P			
	Rd-09	Network Development of NS-3 (Western dyke road of the Selbe River)	2	1	2	2	2	10	n			
	Rd-10	Network Development of NS-4 (from Ikh Sarguul Street to Olympic Street)	2	1	2	2	2	10	n			
	Rd-11	Network Development of NS-5 (from Sukhbaatar Street to Chinggis Avenue)	2	1	2	2	2	10	n			
	Rd-12	Network Development of NS-9 (from Chinggis Avenue to Tolgoit Road through Songolon Road)	2	1	2	2	2	10	n			
	Rd-13	Network Development of NS-1 (from Dari Ekhiin Ovoo to Naryn Zam)	2	1	2	2	2	10	n			
	Rd-14	Network Development of NS-8 (from Trade Union Street to Chinggis Avenue)	2	1	2	2	2	10	n			
	Rd-15	Development of Urban Expressway	2	1	2	3	2	11	N			
	Rd-16	Development of Asian Highway No. 3	2	1	2	2	2	10	N			
	Rd-17	Capacity Development of Road Maintenance	3	3	3	3	3	18	P			

Notes: 1) Decision of Scoring:

3 Most relevant and/or suitable
2 Moderately relevant and/or suitable
1 Fairly relevant and/or suitable

2) Environmental Impact:

PP Greatly positive impact or improved
P Positive impact or improved
- None
n Slightly negative impact anticipated
N Negative impact anticipated
NN Crucially negative impact anticipated

3) Those written in bold letters with shaded cell stand for selected "Priority Projects/Programs"

(2/5)

Sector	Code	Project	Criteria for Priority ¹⁾						Environment Impact ²⁾	Schedule		
			Coherence with Visions	Urgency	Needs	Feasibility	Social Acceptance	Total Weighted Score		Short ~2015	Medium ~2020	Long ~2030
UTR: Urban Transportation (Public Transport)	Pt-01	LRT/BRT Development of the East-West Line (Phase 1)	3	3	3	2	3	17	PP			
	Pt-02	LRT/BRT Development of North-South Line (Phase 2)	3	1	2	2	2	11	PP			
	Pt-03	Development of New Railway Bypass	2	1	3	2	2	11	P			
	Pt-04	Development of Railway Depots/Terminals at Tolgoit/Tolgoit	3	2	2	3	3	15	P			
	Pt-05	Bus Service Improvement Program	3	3	3	3	3	18	-			
UTR: Urban Transportation (Traffic Management and Others)	Tm-01	Traffic Congestion Reduction Program (Comprehensive Traffic Management Improvement Project)	3	3	3	3	3	18	PP			
	Tm-02	Removal of Traffic Bottlenecks and Construction of Missing Links	3	3	3	3	3	18	P			
	Tm-03	Capacity Development of Traffic Management and Traffic Safety Promotion Program	3	3	3	3	3	18	P			
UWS: Urban Water & Sanitation (Water)	Wr-01	Water Resource Protection	3	3	3	2	2	16	PP			
	Wr-02	New Water Supply Source Development	3	3	3	3	3	18	n			
	Ws-01	Improvement of Water Supply Capacity	3	3	3	3	3	18	n			
	Ws-02	Water Quality Monitoring and Management	3	2	2	2	3	14	-			
	Ws-03	Water Supply Distribution Network Rehabilitation & Enhancement Project	3	2	2	3	3	15	P			
	Ws-04	Water Demand Management Program	2	3	3	3	2	16	-			
	Ws-05	Provision of Water in Ger areas	2	3	3	2	3	16	P			
UWS: Urban Water & Sanitation (Sewerage System)	Ss-01	Central Wastewater Treatment Plant (CWWTP) Capacity Enhancement	2	3	3	2	3	16	PP			
	Ss-02	New Wastewater Treatment Facility Development	2	2	3	1	2	12	P			
	Ss-03	Industrial Wastewater Facility Improvement	2	3	3	1	2	14	PP			
	Ss-04	Sludge Treatment and Bio-energy Facility Development	1	2	2	2	2	11	P			
	Ss-05	Rehabilitation of old pipelines of sewerage	2	3	3	2	3	16	PP			
	Ss-06	Household-based sewerage treatment	2	2	3	2	3	14	P			
	Ss-07	Water Recycling Promotion Program	3	1	2	2	2	11	PP			

Notes: 1) Decision of Scoring:

- 3 Most relevant and/or suitable
2 Moderately relevant and/or suitable
1 Fairly relevant and/or suitable

2) Environmental Impact:

- PP Greatly positive impact or improved
P Positive impact or improved
- None
n Slightly negative impact anticipated
N Negative impact anticipated
NN Crucially negative impact anticipated

3) Those written in bold letters with shaded cell stand for selected "Priority Projects/Programs"

(3/5)

Sector	Code	Project	Criteria for Priority ¹⁾						Environ ¹⁾ Impact ²⁾	Schedule		
			Coherence with Visions	Urgency	Needs	Feasibility	Social Acceptance	Total Weighted Score		Short ~2015	Medium ~2020	Long ~2030
EPW: Electric Power	Es-01	Improvement of Electric Power Capacity	2	3	3	3	2	16	-			
	Es-02	New Power Supply System Development	3	3	3	3	2	17	NN			
	En-01	Electric Distribution Network Enhancement	2	2	3	2	3	14	-			
	En-02	Construction and Rehabilitation of Power Substations	2	2	2	3	3	14	-			
	En-03	Installation of Solar System to Governmental Facilities	3	1	2	2	3	12	P			
	Im-01	Electric Demand Management Program	2	3	3	3	2	16	-			
HTS: Heating System	Hs-01	New Heating Source Development	2	2	3	1	3	13	NN			
	Hs-02	Rehabilitation of Heat-only -Boiler	2	3	2	2	2	14	P			
	Hs-03	Local Cluster Heating System Development	2	1	3	2	2	11	P			
	Hn-01	Rehabilitation of Old Pipelines for Heating	2	3	3	2	3	16	P			
	Hn-02	Heating Distribution network Enhancement	2	2	3	2	3	14	P			
	He-01	Improvement of Heat-efficiency of Buildings	2	1	3	2	2	11	PP			
	He-02	Coal Quality Improvement Project	2	3	3	1	3	15	P			
	He-03	Dissemination of Improved Quality Stove	2	3	3	1	2	14	P			
	Im-01	Heating Tariff Structure Reform	2	3	3	3	1	15	-			
SWM: Solid Waste Management	Gc-01	Improvement of Solid Waste Dumping Sites and Enhancement of Management	2	2	3	2	2	13	P			
	Gc-02	Construction of Solid Waste Separation Facilities	2	2	3	2	2	13	P			
	Gc-03	Garbage Collection System Improvement	2	3	3	3	3	17	-			
	Rs-01	Solid Waste Recycling System Development	2	2	3	3	3	15	P			
	Rs-02	Waste-to-Energy Generation Project	2	1	2	2	2	10	P			
	Rs-03	Coal-ash Recycling Project	2	2	2	1	1	10	-			
	Rs-04	Construction Waste Recycling Project	2	1	2	3	2	11	P			
	Im-01	Education and campaign of solid waste management	2	2	3	3	3	15	PP			

Notes: 1) Decision of Scoring:

3 Most relevant and/or suitable
2 Moderately relevant and/or suitable
1 Fairly relevant and/or suitable

2) Environmental Impact:

PP Greatly positive impact or improved
P Positive impact or improved
- None
n Slightly negative impact anticipated
N Negative impact anticipated
NN Crucially negative impact anticipated

3) Those written in bold letters with shaded cell stand for selected "Priority Projects/Programs"

(4/5)

Sector	Code	Project	Criteria for Priority ¹⁾						Environ'tl Impact ²⁾	Schedule		
			Coherence with Visions	Urgency	Needs	Feasibility	Social Acceptance	Total Weighted Score		Short ~2015	Medium ~2020	Long ~2030
HSG: Housing and Housing Policy Enhancement	Lh-01	Guideline Development of Low-cost Housing	2	3	3	3	3	17	-			
	Lh-02	New Town Development by a Public Entity	3	1	3	2	2	12	N			
	Sh-01	Social Housing Development Project (20,000 units)	2	2	3	3	3	15	-			
	Sh-02	Provision of Rental Apartments	2	2	3	2	3	14	-			
	Sh-02	Temporary Housing Area Development for Resettled Households	2	3	3	1	2	14	n			
	Sh-03	Reform/Restructure of Mongolian Housing Financing Company (MHFC)	3	2	3	3	3	16	-			
	Ts-01	Reform of "Building Code" and Construction Supervision System	1	3	3	1	2	13	-			
	Ts-02	Improvement of Heat efficiency of Housing Buildings	3	2	3	1	2	13	P			
	Cd-01	Management Guideline of Apartments	2	2	2	2	2	12	-			
LEV: Living Environment Improvement	Hq-01	Rehabilitation of Old Apartments	3	2	3	3	2	15	P			
	Hq-02	Promotion of New Technologies for Energy-saving and Eco-housing Development	2	1	2	2	2	10	PP			
	Ep-01	Raising Awareness of Environmental and Living Condition Improvement	3	3	3	3	3	18	P			
	Pf-01	Community & City Parks and Open Space Development	3	2	3	2	3	15	P			
	Pf-02	Promotion of Community-based School Facilities	2	2	2	2	3	13	-			
	Ce-01	Establishment of Support to Community-based Organizations for Environmental Improvement and Social Activities	2	3	3	3	3	17	-			
	Ce-02	Establishment of Participatory Land and Immovable Asset Assessment System	2	3	3	2	1	14	-			
EVM: Environmental Management	Ne-01	Development of Forest Protection Management and Monitoring System	3	2	3	2	2	14	PP			
	Pc-01	Development of Air Quality Management and Monitoring System	3	3	3	2	3	17	PP			
	Pc-02	Development of Water Quality Management and Monitoring System	3	2	3	2	3	15	P			
	Ea-01	Capacity Development on Management of the EIA System	3	3	2	2	2	15	-			
ANM: Urban Amenity & Disaster Management	Df-01	Enforcement of Relocation from Flood Prone Areas	2	2	3	1	1	11	n			
	Df-02	Rehabilitation of Storm Water Drainage Canals and the Entire System	2	2	3	1	2	12	P			
	Df-03	Promotion Program of "Community-based Preparedness" against Disaster	2	3	2	1	2	13	P			
	Df-04	Road Improvement and Emergency Vehicles Procurement Program	2	2	3	2	3	14	-			

Notes: 1) Decision of Scoring:

3 Most relevant and/or suitable
2 Moderately relevant and/or suitable
1 Fairly relevant and/or suitable

2) Environmental Impact:

PP Greatly positive impact or improved
P Positive impact or improved
- None
n Slightly negative impact anticipated
N Negative impact anticipated
NN Crucially negative impact anticipated

3) Those written in bold letters with shaded cell stand for selected "Priority Projects/Programs"

(5/5)

Sector	Code	Project	Criteria for Priority ¹⁾						Environment Impact ²⁾	Schedule		
			Coherence with Visions	Urgency	Needs	Feasibility	Social Acceptance	Total Weighted Score		Short ~2015	Medium ~2020	Long ~2030
ANM: Urban Amenity & Disaster Management (cont'd)	Go-01	City Parks and Green Network Development Project	3	2	3	2	3	15	P			
	Go-02	Promotion of a Campaign for "Greening Buildings and Streets"	3	1	3	2	3	13	PP			
SSI: Social Service Improvement	Ed-01	Development of Planning Standard and Guidelines of Educational Facilities	2	3	3	3	3	17	-			
	Ed-02	Acceleration Program for Pre-school and School Facility Development	2	2	2	2	3	13	-			
	He-01	Development of Planning Standard and Guidelines of Health Care Facilities	2	3	3	3	3	17	-			
	He-02	Acceleration Program for Health Care Facility Development	2	2	3	2	3	14	-			
ILG: Institutional & Legal-base Development	Ud-01	Legal Enhancement of Urban Planning and Urban Development-related administration	3	3	3	2	2	16	-			
	Ud-02	Introduction of Property Assessment Land Valuation Systems	3	3	3	2	2	16	-			
	Ud-03	Training Program for Urban Planning Administration and Capacity Building for Realizing the UB Master Plan 2030	3	3	3	3	3	18	-			
	Ud-04	Development of Resettlement Policy and Plan	2	1	2	2	2	10	-			
	Ud-05	Development of "Neighborhood Area Development Plan (NADEP)" for Ger area improvement	2	3	3	2	2	15	P			
	Ud-06	Establishment of Institutional System for Land Readjustment/ Land Pooling (by Implementing of Pilot Projects)	2	3	3	2	2	15	-			
	Hs-01	Institutional Development for Social Housing Policies and Programs	3	3	3	2	3	17	-			
	Hs-02	Financial Capacity Building Related to Social Housing Development	3	3	3	2	3	17	-			
	Hs-03	Facilitation of a Self-Help Housing Construction System	1	1	2	2	2	9	-			
	Cs-01	Business Development Policy to Strengthen the Construction-related Sector	2	2	3	3	2	14	-			
DFS: Development Financing System	Fs-01	Financial Basis Enhancement Program of UB City Government	1	2	3	2	2	12	-			
	Fs-02	Formulation of Community-based Financing System	1	3	3	2	3	15	-			
	Fs-03	Formulation of Value Capture Methods for UB City	1	2	3	3	1	12	-			
	Fs-04	Exploration of Long-term City Bond Issuance by UB City	3	2	2	2	2	13	-			
	Fs-05	Establishment of the "UB Infrastructure Financing Public Corporation"	2	2	3	3	2	14	-			
	Fs-06	Comprehensive Policy Reform of "Public Service Tariff Structure"	2	3	3	3	1	15	-			
	Fs-07	Preparation of Implementation Framework for PPP-based Public Service and Urban Development Projects	3	3	3	3	3	18	-			

Notes: 1) Decision of Scoring:

- 3 Most relevant and/or suitable
2 Moderately relevant and/or suitable
1 Fairly relevant and/or suitable

2) Environmental Impact:

- PP Greatly positive impact or improved
P Positive impact or improved
- None
n Slightly negative impact anticipated
N Negative impact anticipated
NN Crucially negative impact anticipated

3) Those written in bold letters with shaded cell stand for selected "Priority Projects/Programs"

Table 14.3.3 Summary of the Priority Programs/Projects

(1/2)

Sector	Code	Project	Executing Schedule			Cost Estimate (US\$ mill.)
			Short ~2015	Medium	Long ~2030	
UED: Urban Economic Enhancement	Bc-01	Improvement of Incubation Facility Project				20.0
	Sc-02	Development of ICT and Knowledge Industry Center				50.0
	Tm-01	Improvement of Tourism Information Provision Project				5.0
UTR: Urban Transportation (Road)	Rd-01	Network Development of EW-1 (from Gachuurt to 22Km-post through Peace Avenue)				185.8
	Rd-02	Network Development of EW-3 (Bayanzurkh to Road to Thermal Power Station No.4 through Naryn Zam)				164.9
	Rd-03	Network Development of NS-2 (Eastern section of Middle Ring Road)				37.6
	Rd-04	Network Development of NS-6 (from Ikh Toyruu to Engels Street)				12.3
	Rd-05	Network development of NS-7 (from Chinggis Avenue to Ard Ayush Avenue through Ajilchin Street)				57.5
	Rd-06	Development of Highway to Connect Ulaanbaatar City to New Airport and Zuunmod				90.0
	Rd-17	Capacity Development of Road Maintenance				166.0
UTR: Urban Transportation (Public Transport)	Pt-01	LRT/BRT Development of the East-West Line (Phase 1)				300.0
	Pt-05	Bus Service Improvement Program				70.0
UTR: Urban Transportation (Traffic Management and Others)	Tm-01	Traffic Congestion Reduction Program (Comprehensive Traffic Management Improvement Project)				30.0
	Tm-02	Removal of Traffic Bottlenecks and Construction of Missing Links				82.0
	Tm-03	Capacity Development of Traffic Management and Traffic Safety Promotion Program				20.0
UWS: Urban Water & Sanitation (Water)	Wr-02	New Water Supply Source Development				290.0
	Ws-01	Improvement of Water Supply Capacity				30.0
	Ws-04	Water Demand Management Program				10.0
UWS: Urban Water & Sanitation (Sewerage System)	Ss-01	Central Wastewater Treatment Plant (CWWTP) Capacity Enhancement				120.0
	Ss-03	Industrial Wastewater Facility Improvement				30.0
	Ss-05	Rehabilitation of old pipelines of sewerage				30.0
	Ss-06	Household-based sewerage treatment				40.0
EPW: Electric Power	Es-02	New Power Supply System Development				250.0
HTS: Heating System	Hs-01	New Heating Source Development				100.0
	Hs-02	Rehabilitation of Heat-only -Boiler				0.0
	Hn-02	Heating Distribution network Enhancement				40.0
	He-02	Coal Quality Improvement Project				6.0

(2/2)

Sector	Code	Project	Executing Schedule			Cost Estimate (US\$ mill.)
			Short ~2015	Medium	Long ~2030	
SWM: Solid Waste Management	Gc-01	Improvement of Solid Waste Dumping Sites and Enhancement of Management				5.7
	Gc-03	Garbage Collection System Improvement				10.0
	Rs-01	Solid Waste Recycling System Development				0.0
HSG: Housing and Housing Policy Enhancement	Sh-01	Social Housing Development Project (20,000 units)				150.0
	Sh-02	Temporary Housing Area Development for Resettled Households				84.0
	Sh-03	Reform/Restructure of Mongolian Housing Financing Company (MHFC)				0.0
LEV: Living Environment Improvement	Ep-01	Raising Awareness of Environmental and Living Condition Improvement				2.0
	Ce-01	Establishment of Support to Community-based Organizations for Environmental Improvement and Social Activities				10.0
	Ce-02	Establishment of Participatory Land and Immovable Asset Assessment System				0.2
EVM: Environmental Management	Ne-01	Development of Forest Protection Management and Monitoring System				4.0
	Pc-01	Development of Air Quality Management and Monitoring System				3.0
	Pc-02	Development of Water Quality Management and Monitoring System				2.0
ANM: Urban Amenity & Disaster Management	Df-01	Enforcement of Relocation from Flood Prone Areas				50.0
	Go-01	City Parks and Green Network Development Project				30.0
SSI: Social Service Improvement	Ed-01	Development of Planning Standard and Guidelines of Educational Facilities				0.5
	Ed-02	Acceleration Program for Pre-school and School Facility Development				50.0
	He-01	Development of Planning Standard and Guidelines of Health Care Facilities				0.5
	He-02	Acceleration Program for Health Care Facility Development				50.0
ILG: Institutional & Legal-base Development	Ud-01	Legal Enhancement of Urban Planning and Urban Development-related administration				1.5
	Ud-03	Training Program for Urban Planning Administration and Capacity Building for Realizing the UB Master Plan 2030				4.0
	Ud-05	Development of "Neighborhood Area Development Plan (NADEP)" for Ger Area Improvement				0.0
	Hs-01	Institutional Development for Social Housing Policies and Programs				1.0
	Hs-02	Financial Capacity Building Related to Social Housing Development				2.0
DFS: Development Financing System	Fs-02	Formulation of Community-based Financing System				0.0
	Fs-06	Comprehensive Policy Reform of "Public Service Tariff Structure"				1.0
	Fs-07	Preparation of Implementation Framework for PPP-based Public Service and Urban Development Projects				1.0
Total						2,700

Source: JICA Study Team

14.4 Financial Affordability Assessment

The total cost of the proposed **115** projects/programs accounts for **US\$9,894 million**, as shown in Table 14.2.1. This investment needs to be allocated during the time period of 23 years up to 2030.

As of 2007, it is estimated that the central government spends approximately Tg. 70,000 per capita for the capital expenditures, while Ulaanbaatar City spends Tg.12,000 per capita for its capital expenditures, as well. In total, Tg.82,000 (or US\$70) is being appropriated for capital investment. Since it is forecasted that GRDP per capita in 2030 will increase by about 3 times as much as those in 2007, it can be safely said that the per capita expenditures for capital investment will be three (3) times; at least through the government sector's budget increase along with the economic growth. The affordable expenditures of the governments will at least be Tg.246,000 (US\$210) per capita. The future population in 2030 will be 1,740 thousand, an increase from the 1,030 thousand in 2007.

Based on the above assumptions, the affordable line of the government expenditures will be computed at approximately **US\$5,030 million** over the coming twenty-three (23) years. This is a trend scenario, which means that no financial reforms will be carried out in future. Given the maximum effort to strengthen the financial capacity based on the measures proposed in the Master Plan, this affordable level will be greatly uplifted.

Moreover, large-scale projects such as the development of the LRT system will be supported by international donors with long-term soft loans as well as involvement of the private sector under a **PPP** scheme (Public Private Partnership).

Other large-scale projects, that require huge initial investments, are the underground shopping arcade, the expressway, the electric power generation project, New Town Development, social housing project and so on. These projects are cost-recovery types, which means that total cash flows will not require as much funds as estimated in the project list.

Taking into account these factors, it can be said that the proposed Master Plans for 2020 and 2030 are practicable and implementable in terms of budgetary affordability.

15 IMPLEMENTATION OF PUBLIC AND PRIVATE PARTNERSHIP (PPP)

15.1 General

Recommendations of UBMPS are composed of 115 projects which should be implemented through 2030 for the development of UB City. There will be a large gap of financial resources when the requirement and the available public budget envelop are compared as illustrated in the Financial Affordability Assessment in Chapter 14.

Therefore it is essential for realizing the recommendations of UBMPS to utilize the potential private sector resources as much as possible. Public and Private Partnership (PPP) will be one of the effective tools for leveraging such private sector resources in the provision of public services that will be needed for UB City in the future.

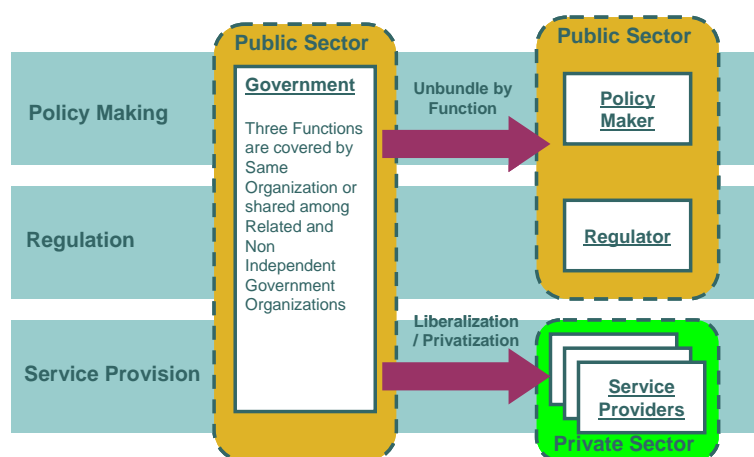
The following will be the orientation and methodology to adopt the PPP scheme for implementing some of the strategic projects proposed by UBMPS.

15.2 Sector Reform as Prerequisite for PPP

As stated earlier GOM has been implementing the sector reform for various utility sectors based on the following basic scenarios:

STEP 1: Unbundle the service market by separating the basic functions into policy making, regulation and service provision with instituting appropriate regulatory framework and corporatizing the public service provider (see Figure 15.2.1).

Figure 15.2.1 Unbundling of Market Functions

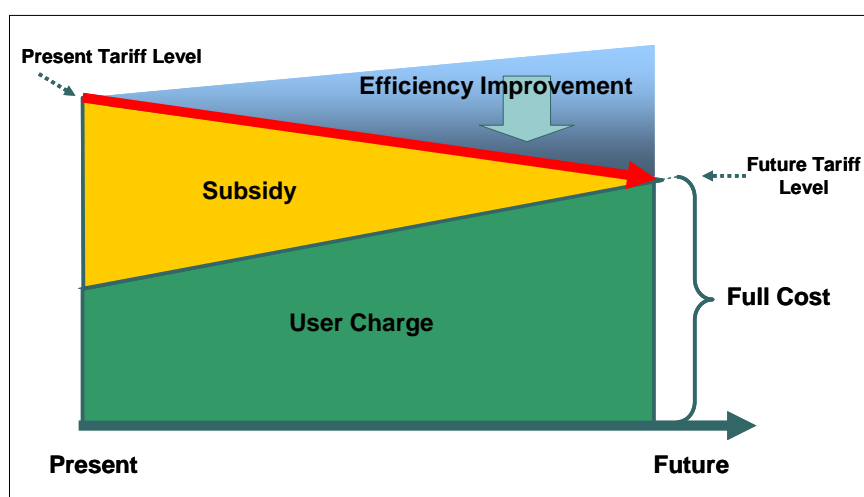


Source: JICA Study Team

STEP 2: Further unbundle the service provision when required by further separating and corporatizing service functions (ex. power: generation, transmission and distribution).

STEP 3: Adjust the tariff to the full cost recovery level with appropriate subsidy system during the transition period (see Figure 15.2.2).

Figure 15.2.2 Adjustment to Full Cost Recovery Tariff



Source: JICA Study Team

STEP 4: Prepare fair, transparent and foreseeable rules and regulatory framework for competition.

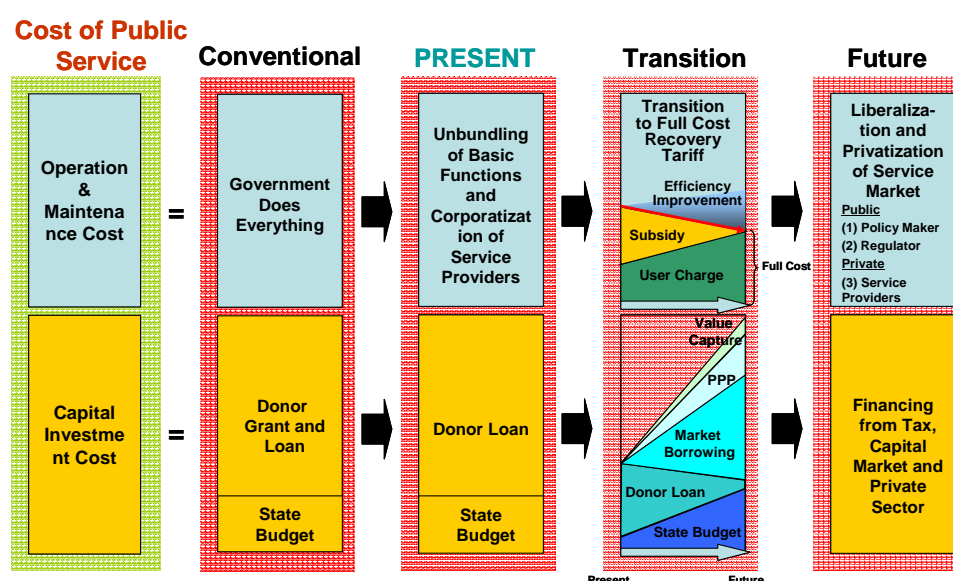
STEP5: Privatize the public service providers, facilitate market entry of new private service providers and materialize service competition based on the market mechanism with an

independent regulator for the market.

Current Status of the sector reform in UB City utilities market is at the above mentioned STEP 3.

Figure 15.2.3 shows a typical transition process of market liberalization for the public service in the developing countries. In Mongolia, the direction of the sector reform is set similarly toward full liberalization and privatization of the service markets in which the private sector shall be responsible for both capital investment and operation & maintenance. However, due to the heavy capital investment required in the development of basic infrastructure for service provision and people's affordability for purchasing public services, it is a general tendency for the public service market of the developing countries that the full liberalization and privatization of the market is rather difficult or the transition period prolongs for long time.

Figure 15.2.3 Transition to Liberalized Service Market



Source: JICA Study Team

Public and Private Partnership (PPP) shall become an effective method in order i) to solicit active private sector participation in the public service provision during such transition period, and ii) to offer complementary function for the market to become fully liberalized and privatized in the future.

PPP can be structured in various ways depending on the degree of risk allocation between the public sector and the private sector. However, it would require good preparation before its implementation. The good preparation becomes possible only when the following elements are satisfied:

- (i) Firm policy commitment by the GOM and UB City government on implementing PPP projects (COMMITMENT)
- (ii) Thorough understanding of the private sector behavior by the public sector (UNDERSTANDING)
- (iii) Adequate sector reform and institution of regulatory framework based on the above understanding (FRAMEWORK)
- (iv) Capability of the public sector to structure and prepare for PPP project (CAPACITY)

15.3 Various Modalities for Implementing PPP Project

In PPP the government function shall shift from providing public services itself towards becoming a “manager of the service providers”. As illustrated in Figure 15.3.1, the government would concentrate its resources on the overall management of the service market (policy making and regulation control) and partially shoulder the capital investment cost while the private sector would finance a part of capital investment and conduct total service provision. Degree of risk allocation would differ depending on the modality of PPP implementation.

Figure 15.3.1 What is PPP?

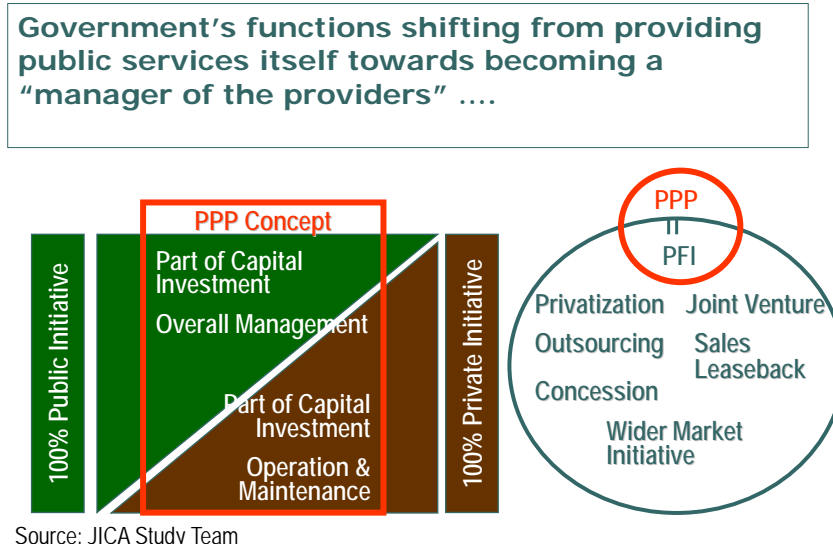
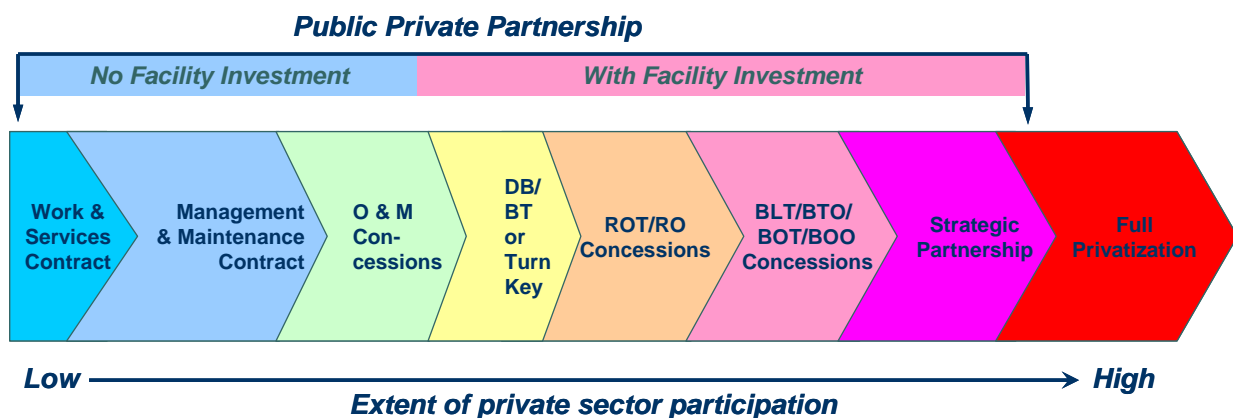


Figure 15.3.3 shows various PPP modalities corresponding to the extent of private sector participation. As illustrated in the Figure, facility investment is the key factor to determine the degree of private sector participation. If the private sector is required to conduct facility investment, a need of financing arises and consequently the involvement of financier is necessitated, who assesses various risks, robustness of project structure and its profitability. In other words, successful financial closure for the project would indirectly endorse the viability of the PPP project.

Figure 15.3.2 Various PPP Modalities



Note:

DB: Design-Build, BT: Build-Transfer, ROT: Rehabilitate-Operate-Transfer, RO: Rehabilitate-Operate, BLT: Build-Transfer-Operate, BTO: Build-Transfer-Operate, BOT: Build-Operate-Transfer, BOO: Build-Operate-Own

Source: JICA Study Team

15.4 Possible PPP Methodologies for UBMPs Projects

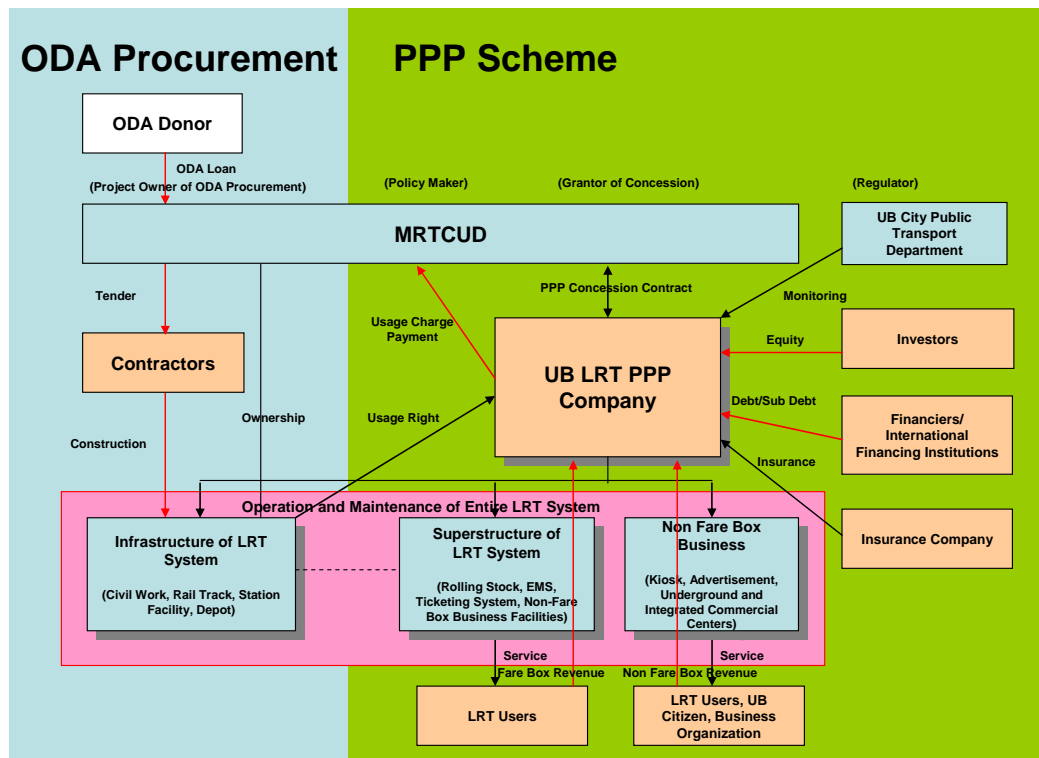
1) Development of Light Rail Transit System

UBMPS proposes two (2) LRT lines, the East-West Line (Line-1) and the North-South Line (Line-2) as a corridor of public transport in the City. MRTCUD will play a role of managing entire development of this PPP project (see Figure 15.4.1). The project will be composed of two different procurements, namely ODA procurement of the infrastructure of the LRT system such as civil work, rail track, station facility and depot, and PPP procurement in which MRTCUD will become an implementing agency for the PPP tender and the grantor of the PPP concession to a private concessionaire who will use the infrastructure and design, build and finance the super structure such as rolling stock, Electric Multiple System (EMS), ticketing system, non fare box business facilities, etc, and operate the entire LRT system to provide LRT service to the UB citizens under the arrangement of the PPP concession.

The infrastructure which is to be financed and built by ODA funding will be owned by MRTCUD and will be used on the usage charge basis by the PPP concessionaire to provide the LRT service. The reason why to separate the infrastructure and the superstructure (so called “grade separation method”) is to provide the concessionaire viability gap funding by letting use the infrastructure at low usage charge for the PPP project to become financially viable.

It will be necessary also to utilize ODA technical assistance for preparing a feasibility study of the PPP project and a master plan for the integrated urban development with major LRT stations and the developments along the LRT corridor and also to tap ODA funding for developing the feeder facilities such as station square, feeder road, bus connection facility, parking facility and so on in order to facilitate the growth of ridership in the future.

Figure 15.4.1 Development of LRT System under PPP



Source: JICA Study Team

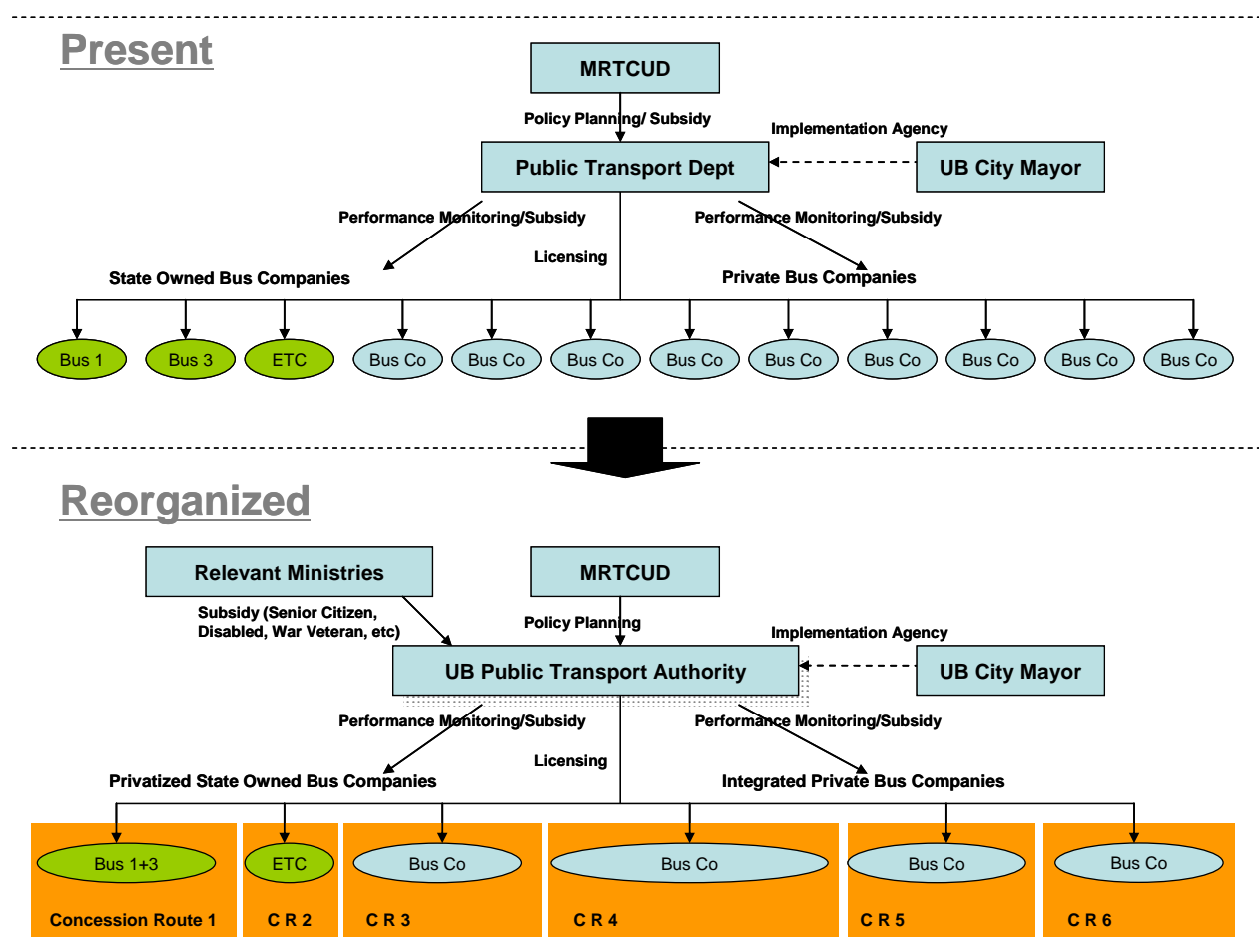
2) Reorganization of Bus Transport

Bus services in UB City are being provided by three (3) state owned bus companies and many private bus companies. Basic operating route is determined for each bus company but change of routing is taking place frequently for gathering passengers. In order to facilitate the growth of financially sound and credible bus operators and materialize good quality bus service reorganization of the market structure is essential.

It is recommended to reorganize the market into several large concession service districts by integrating small private bus companies into several bus operation concessionaires under the umbrella of newly created “UB Public Transport Authority” (see Figure 15.4.2). The Authority will give each concessionaire a bus operation concession (license) for the provision of each service district (group of bus routes). As a result cash flow of the bus operation will be bundled and will have sufficient size for the commercial bank to recognize it as collateral and extend long term commercial loan for the renewal of bus fleet of each concessionaire.

Subsidy system should also be reorganized so that instead of the UB City public transport department manage the bus operation subsidy from MRTCUD, each relevant ministry and agency will finance the bus service subsidy for each subsidy purpose such as senior citizen, disabled, students, war veterans and so on, so that risk assumption regarding the subsidy of each bus operator will become transparent and minimal.

Figure 15.4.2 Reorganization and Consolidation of Bus Transport



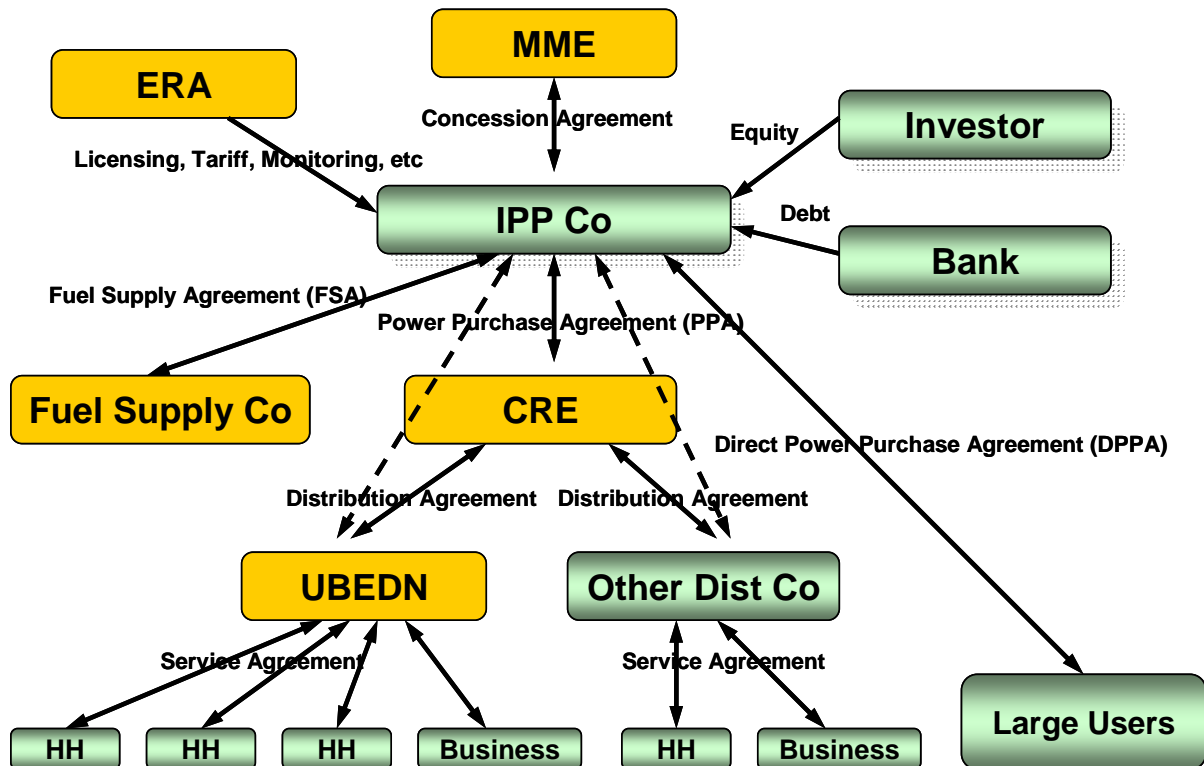
Source: JICA Study Team

3) Independent Power Producer (IPP) Model for Power Generation

In order to materialize the introduction of IPP Model into the Mongolian Energy Market, GOM still needs further reform of the market such as changing the current single purchaser model to more commercially viable market structure which would enable the multi-year tariff increase to the level of full economic cost recovery, bilateral power purchase agreement between the IPPs and the distribution companies and the large end users, appropriate subsidy system targeting at the low income households and so on.

In the IPP Model as illustrated in Figure 15.4.3, Ministry of Minerals and Energy (MME) would be the grantor of the project concession and enter into Concession Agreement with the IPP Company which is a SPV (Special Purpose Vehicle) established by the private sector investors who are selected on the basis of IPP tender. The IPP Company also enters into Power Purchase Agreement (PPA) with Central Regional Electricity Transmission Grid State Owned Joint Stock Company (CRE) or when the further sector reform is materialized, direct and bilateral PPAs with the distribution companies and the large end users. Energy Regulatory Authority (ERA) will function as the regulator for licensing, setting tariff, business monitoring etc.

Figure 15.4.3 IPP Model for Power Generation



Note:

CRE: Central Regional Electricity Transmission Grid State Owned Joint Stock Company
UBEDN: Ulaanbaatar Electricity Distribution Network State Owned Joint Stock Company
SPIA: State Professional Inspection Agency
UBDH: Ulaanbaatar District Heating State Owned Joint Stock Company
CSM: Center of Standardization and Measurement
CMPUA: City Maintenance Public Utility Agency (UB City)
ERA: Energy Regulatory Authority

Source: JICA Study Team

The IPP Company will design, build, finance, maintain and operate the power generation plant by using the investors' equity and debt from the financiers including commercial banks, export credit agencies and possibly multi-lateral financing institutions and also by selling the electricity. The electricity produced by the IPP Company will be purchased based on the PPA with the capacity charge and the energy charge components and appropriate tariff adjustment formula.

Currently the tender for the business concession of the Thermal Power Plant #5 is on going. However, the methodology and the contents of the tender seem far from the globally standardized IPP tender process. If GOM continues to proceed with this kind of tender procedure, it would be inevitable for GOM to lose its trustworthiness in the international investors community. It is strongly recommended that the following prerequisites should be satisfied before introducing the IPP Model into the Mongolian Energy Market:

- (i) Implementation of above-mentioned further sector reform of the market
- (ii) Preparation and implementation of IPP tender based on the globally standardized IPP tender process.

Similar IPP Model could be applied to renewable energy type electricity generation such as wind power generation. However, appropriate subsidy system should be adopted in order to supplement inefficiency of power generation during the launching phase, such as subsidized (higher) purchase price system, subsidy in the facility development, etc.

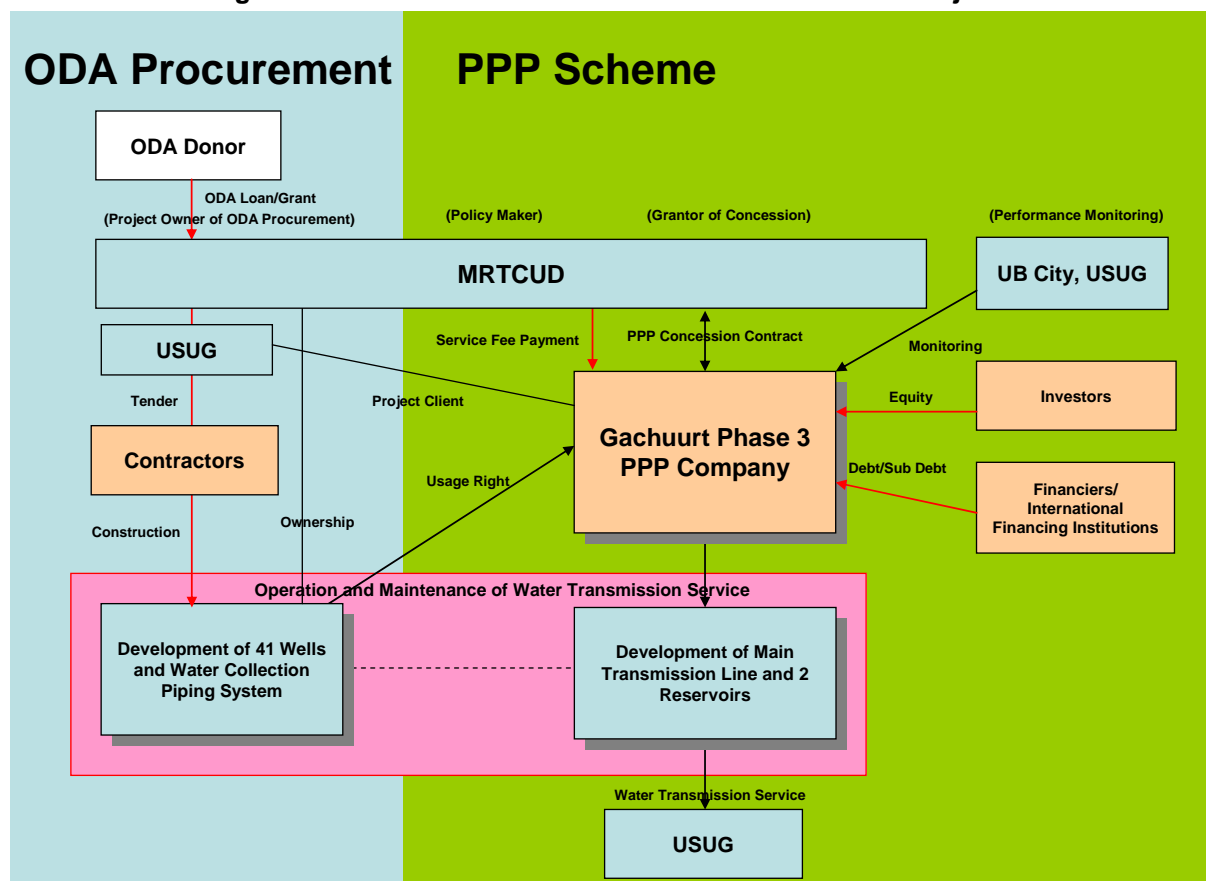
4) New Water Resource Development

Water supply is the most important issue for the future development of UB City. There will be new water source development needed in near future for the City. Gachuurt Phase 3 is one of the new water resource development projects which has been envisaged in the past. The details of the project could be referred to in the infrastructure section of this report. The project is composed of drilling of 41 wells along the Tuul River, water collection piping system, development of main transmission pipe line and two reservoirs. USUG is requesting through MRTCUD the financial assistance of Japanese Government for the development of the wells and the water collection piping system. The remaining element of the project, the main transmission pipe line and the reservoirs, would supposedly be covered by the funding from GOM.

The project could be structures as a PPP project based on the scheme illustrated in Figure 15.4.4. The water source development, namely the drilling of forty-one (41) wells and the water collection piping system, could be implemented as a public procurement utilizing ODA Donor funding, in this case the of Japanese Government, while the remaining portion of the project, namely the development of main transmission pipe line, two reservoirs, maintenance of the entire facility constructed in the project and provision of water transmission service, would be outsourced to the private sector on the basis of the PPP concession contract signed between the private sector and MRTCUD as the grantor of this concession.

In this scheme, the private sector company, Gachuurt Phase 3 PPP company, established for the project could recover its investment by install payment over the contract periods, say 15 years by MRTCUD and also by the service payment from USUG for the transmission service.

Figure 15.4.4 Gachuurt Phase 3 Water Transmission Project



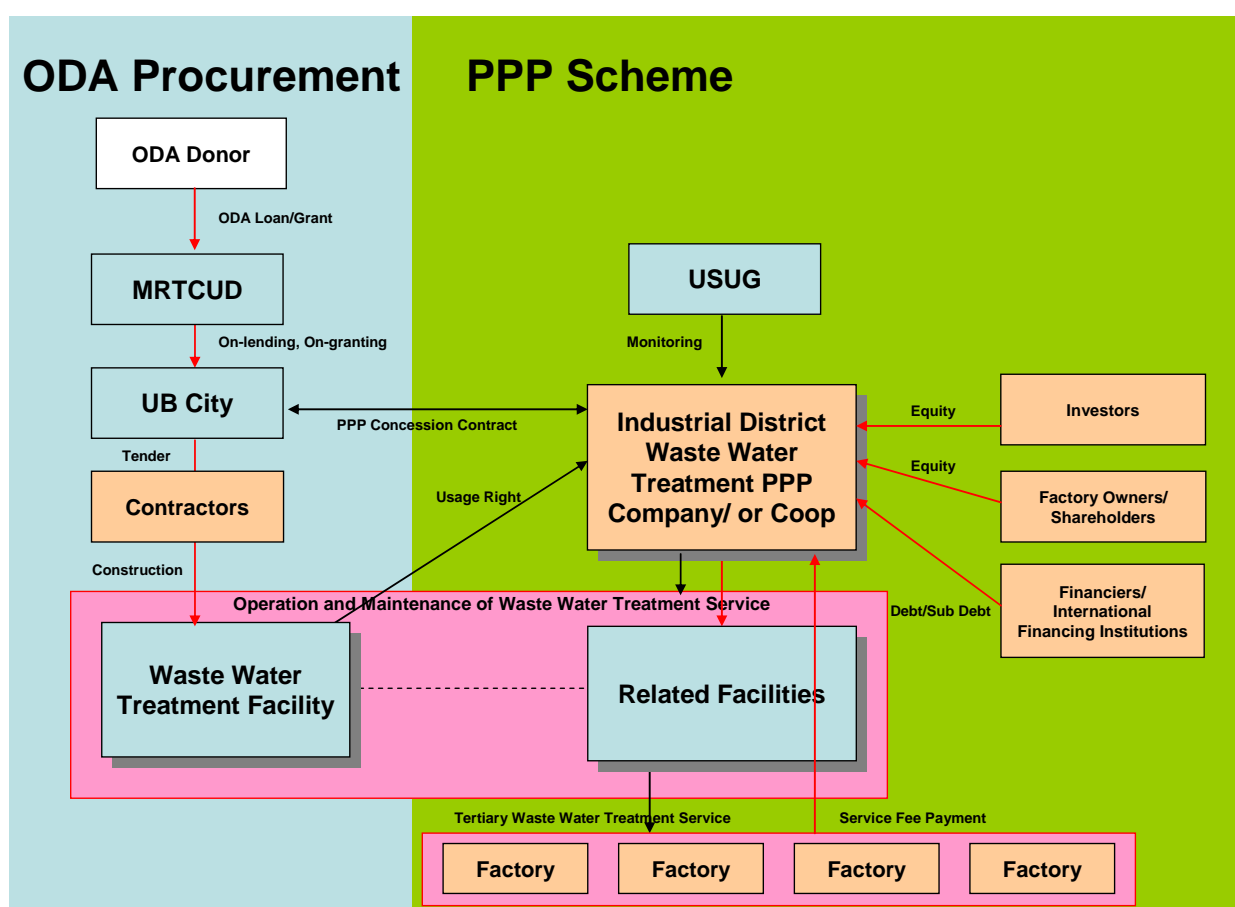
Source: JICA Study Team

5) Industrial Waste Water Treatment

In similar scheme of grade separation as described above, a PPP project for industrial waste water treatment can be structured (see Figure 15.4.5). The purpose of this PPP project is to treat the industrial waste water from the factories in the industrial zone. Construction of basic waste water treatment facility will be financed by ODA funding with MRTCUD as the project owner of this ODA procurement. Ownership of the facility will be either with MRTCUD or will be handed over to UB City and the usage right of the completed facility will be given to a private concessionaire who will be selected on the basis of competitive PPP tender. A special purpose vehicle (SPV) or a cooperative will be established possibly by related factory owners, stakeholders and investors to design, build, finance the related facility and operate and maintain the entire treatment facility for the industrial waste water from the factories. The factories will pay treatment service fee to the SPV.

UB city will implement the PPP tender to select the private concessionaire and will grant the PPP concession to the concessionaire. USUG will monitor the project throughout the concession period.

Figure 15.4.5 Industrial Waste Water Treatment Project



Source: JICA Study Team

6) Social Housing Development

Provision of social housing to low income house holds will be composed of the following four (4) components as illustrated in Figure 15.4.6:

- (i) Social Housing Subsidy Program
- (ii) Social Housing Corporation (SFC)
- (iii) Social Housing Finance Institution (SHFI)
- (iv) Tax Incentive Program for Private Developers and Contractors

The social housing subsidy program will be developed by earmarking the fund available from such sources as Mongolian Development Fund, Pension Fund and so on and will be managed by MOF/MRTCUD to extend subsidy funding to the provision of the social housing units to the low income households.

The Social Housing Corporation (SHC) will be newly established or MHFC will be reorganized into SHC to initiate the Research and Development Program for the development of low cost housing technology and supply methodology. Based on that the following two (2) housing supply programs will be prepared:

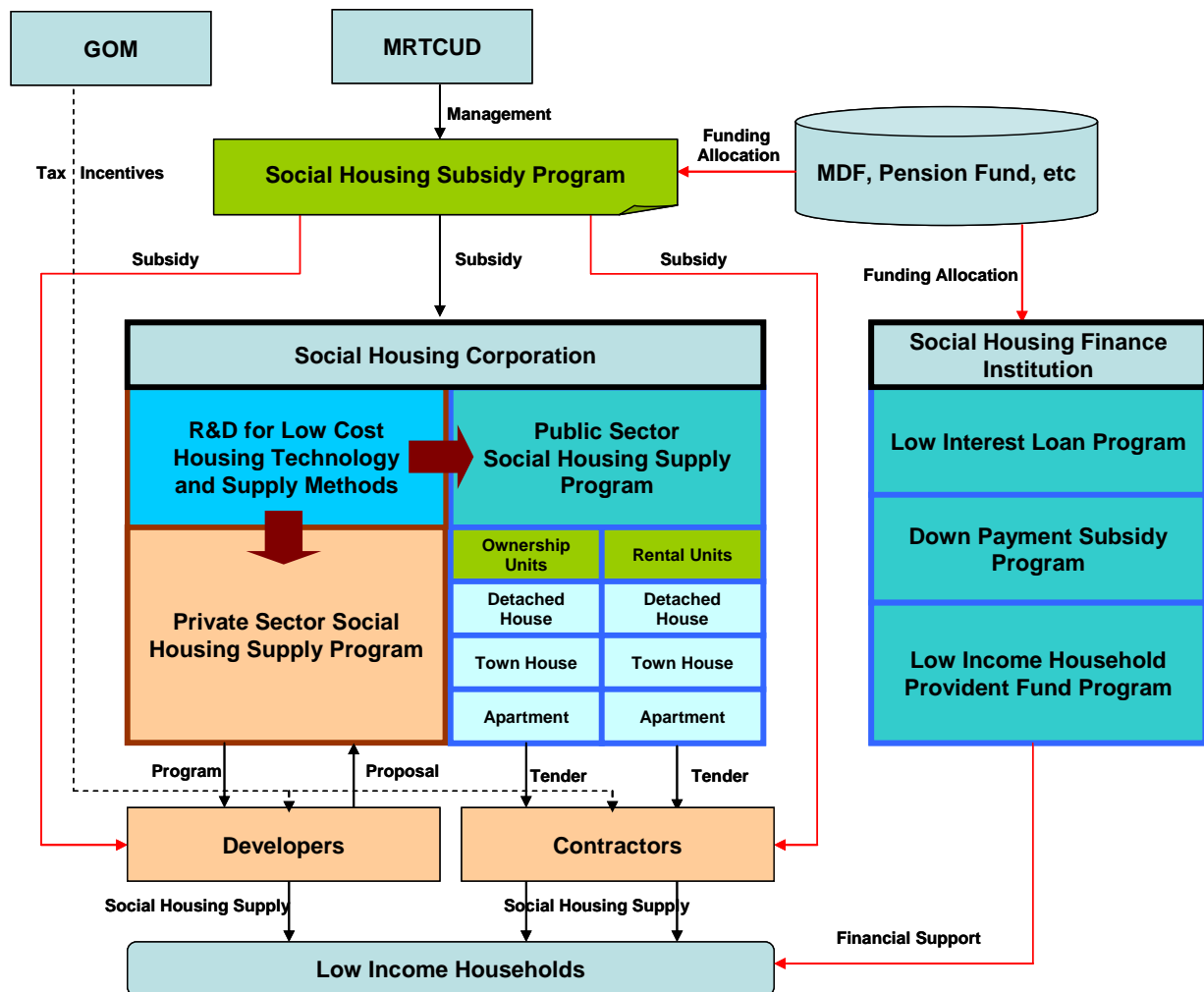
- (i) Public Sector Social Housing Supply Program to be implemented directly by SHC
- (ii) Private Sector Social Housing Supply Program to be implemented by Private Sector Developers on proposal basis.

The SHFI will be newly established or MHFC will be reorganized into SHFI to provide

financial supports to the low income households such as low interest loan program, down payment subsidy program and low income household provident fund program utilizing the funding sources at the Central government level as Mongolian Development Fund (MDF), Pension Fund and so on.

The tax incentive program by GOM such as income tax exemption will be needed for the private sector developers and the contractors who will be involved in the provision of the social housing units in order to facilitate their participation in the social housing market.

Figure 15.4.6 Social Housing Development Program



Source: JICA Study Team

7) Ger Area Development - Cluster Type Utilities Network – Dambadarjaa

Since the Ger Area of Dambadarjaa is remote from the central utilities network of the Capital City, an independent cluster type utilities network should be developed to service the area. The details of the system could be referred to in the infrastructure section of this report. The Ger Area of Dambadarjaa could be developed using this cluster type utilities network system as a core element of the development under a PPP scheme.

On the private sector side, two new organizations shall be established for the development as illustrated in Figure 15.4.7. One is Ger Area Improvement & Development Company (GAID Co) which is established by private sector investors for provision and management

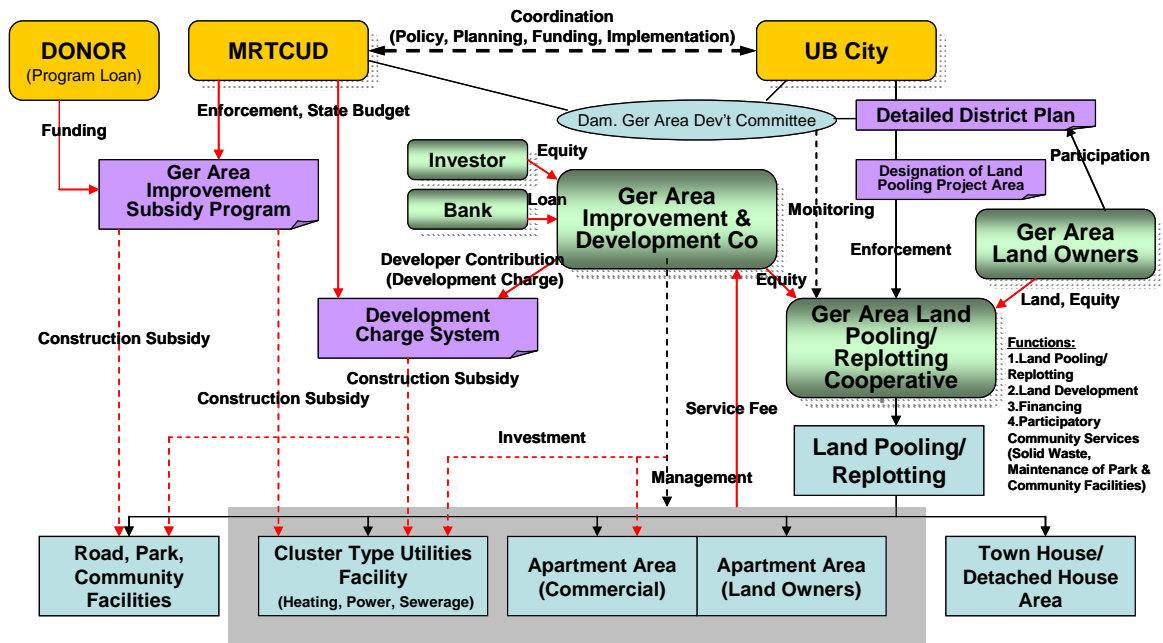
of both the cluster type utilities network and the apartment development. The other organization is Ger Area Land Pooling Cooperative (GALP Coop) which is a cooperative established by the equity of the land owners of the Ger Area and GAID Co for the land pooling of the land tracts owned by the residents, land development and the provision of participatory community services such as solid waste collection, daily maintenance for the parks and other community facilities, which do not require special expertise, and at the same time, which is easily conducted on the basis of participatory approach by the community residents.

The public sector, on the other hand, shall provide various supporting measures and implementing framework for this PPP project. MRTCUD shall institutionalize the Ger Area Improvement Subsidy Program (GAISP) for the provision of basic infrastructure such as district roads, parks and community facilities by utilizing its state budget and Donor Program Loan specifically designed for the Ger Area Improvement for UB City Area, and at the same time for the construction of the cluster type utilities network facility which provides heating service, electricity for the public facilities in the area such as school and community facilities and sewerage service for the area. MRTCUD shall also establish Development Charge System with special account under the Ministry, which institutionalizes the requirement of developer contribution for partly shouldering the cost of infrastructure provision for large private sector urban/residential development such as this project. The system shall be designed to universally apply to the large development projects.

UB City in turn shall give the project its legal background by preparing the detailed district plan for the Dambadarjaa Area and designate the land pooling project area for the land pooling procedure. The City shall also need to extend various administrative supports to GALP Coop for the implementation of the land pooling. The City together with MRTCUD will establish “Dambadarjaa Ger Area Development Committee” for various advices and monitoring on the project implementation for the accountability of public benefit. MRTCUD and UB City will need effective coordination on policy, planning, funding and implementing issues for materializing this large scale PPP project.

GAID Co shall recover its investment by collecting service fees for the heating, electricity and sewerage services and by selling and leasing the apartment units developed on the land created by the land pooling. Concession right for a part of town house and detached house area development may be given to GAID Co in order to supplement its investment recovery.

Figure 15.4.7 Cluster Type Ger Area Development - Dambadarjaa



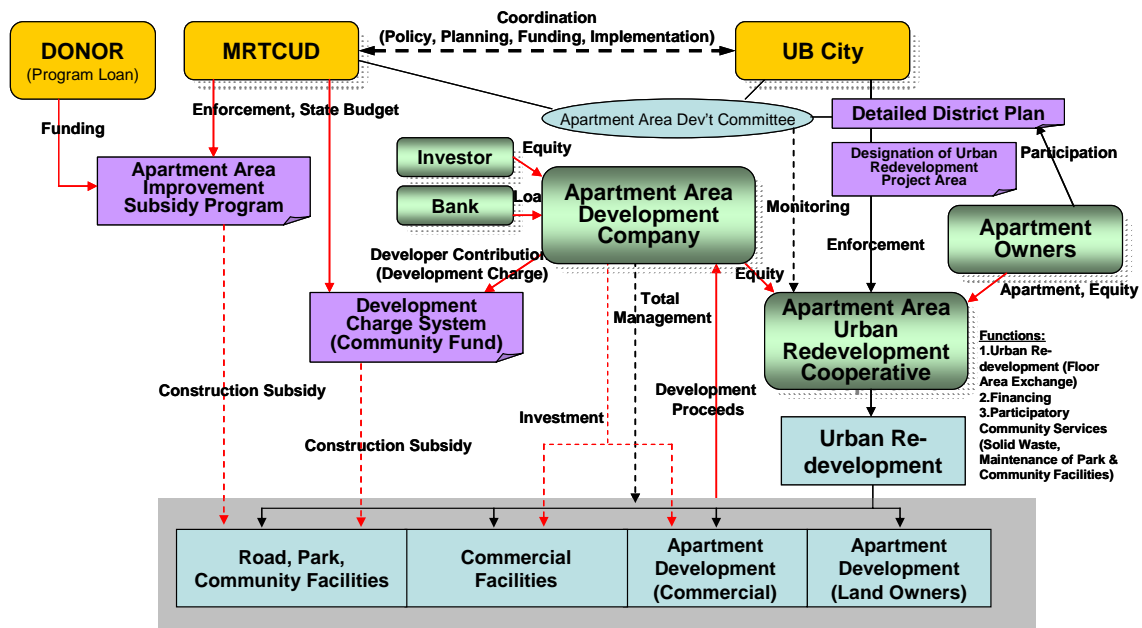
Source: JICA Study Team

8) CBD Apartment Area Redevelopment

In similar scheme as Dambadarjaa Ger Area development as described above, CBD apartment area can be developed utilizing the private sector resources (see Figure 15.4.8). Only difference is that the CBD apartment area has higher commercial development potential and the area is connected with the centralized utilities system for power, water, sewer and heating.

Unlike the Dambadarjaa Ger Area development, core of the development will be urban redevelopment based on the renewal of the old apartments. Therefore, utilization of potential floor area will be critical for the development.

Figure 15.4.8 CBD Apartment Area Redevelopment



Source: JICA Study Team

9) Airport City Urban Development

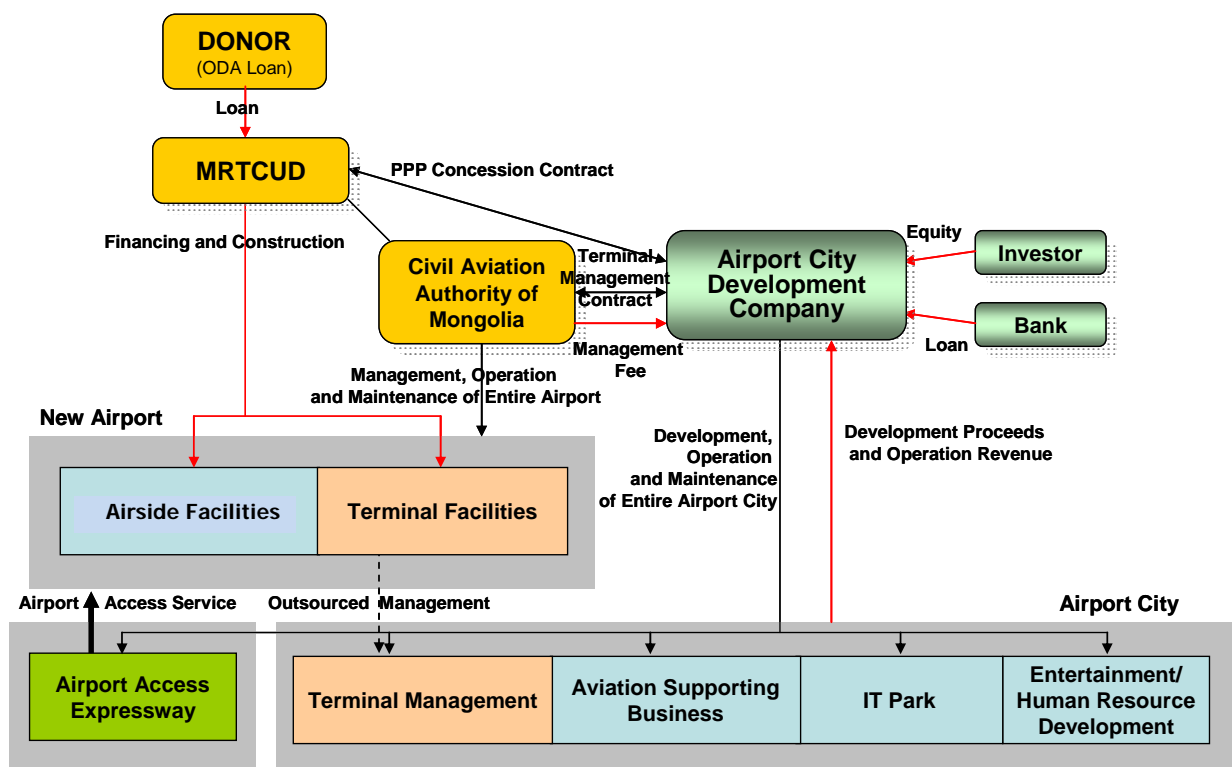
The new airport including both airside and terminal facilities will be developed by ODA funding in the future with MRTCUD as the project owner (see Figure 15.4.9). The project of Airport City Urban Development will involve the operation and management of the terminal facilities and the development a new city on the basis of this new airport development. The Civil Aviation Authority of Mongolia (CAAM) will be monitoring the development and will be entering into the PPP contract with the concessionaire who will be selected by a competitive PPP tender.

The Airport City Urban Development will be composed of the following five components:

- (i) Terminal Management
- (ii) Aviation Supporting Business Development
- (iii) IT Park
- (iv) Entertainment/Human Resources Development
- (v) Airport Access Expressway

A Special Purpose Vehicle (SPV) will be established by the concessionaire, monitored by CAAM and operate and manage the entire Airport City Urban Development. SPV will recover its investment by the development proceeds and the operation revenue.

Figure 15.4.9 Airport City Urban Development



Source: JICA Study Team

16 STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

16.1 General

The current environmental impact assessment (EIA) system in Mongolia is characterized as “project-based assessment” as in most other developing countries. Project-based EIA is taken during or after a feasibility study; therefore it is difficult to drastically modify or cancel the project. Although public consultation is required in the regulations, the socialist system has not fostered public communication and information disclosure. In addition, no negative impacts were identified because of the low population density in most of Mongolia.

Master plans for urban development cover various sectors, such as public transportation, housing development, social infrastructure, and environmental improvement. There are a wide range of stakeholders, and development associated with rapid population growth can cause environmental and social impacts to accumulate.

Recent international trends in environmental impact assessment are towards Strategic Environmental Assessment (SEA). The main features of SEA are as follows:

- (a) Comprehensive impact assessment
 - Overall evaluation of the environmental consequences of policies, plans or program initiatives encompassing potentially multiple projects.
 - Aims at cumulative impact, not detailed evaluation of individual projects.
- (b) Public involvement for consensus building
 - Partnership with residents, NGOs, academics, and other stakeholders
- (c) Feedback to planning
 - Evaluation of alternatives, with/without projects
- (d) Informs the project-level assessment process
 - Scoping for EIA for environmental permission

SEA can be summed up as being the part of EIA that was previously conducted, starting the planning stage with public disclosure and consensus building.

SEA Study for development of the master plan involves the following processes:

- (1) Understanding the existing Mongolian environmental permission process
- (2) Grasping current environmental issues through desk study and IEE (Initial Environmental Examination) study
- (3) Public consultation and stakeholder meetings
- (4) Environmental impact evaluation and mitigation plans for proposed programs in the master plan.

16.2 Legal Structures for Environmental Permission in Mongolia

1) Environmental Impact Assessment

The national government's Ministry of Environment and Tourism (MET) is responsible for environmental permission based on the "Law on Environmental Impact Assessments" issued in 1998. Before a project is commenced, the project developer must request MET to undertake a general assessment. The purpose of the general assessment is to decide whether detailed EIA is required.

First of all, the project developer must submit an application requesting a general assessment. The general assessment involves a brief evaluation by the MET. The following documents must be attached to the application:

- Project location map
- Project feasibility study
- Result of research regarding consistency with annual land management plan, land permission, and suggestion for land utilization in protected area
- Project description
- Technical solutions for environmental impact mitigation
- Copy of license of certification of the developer
- Report of exploration of mining (in the case of mining projects)

The MET evaluates the application and judges whether detailed EIA is needed based on "The Handbook for EIA Inspectors" which was published by the World Bank and the MET. A decision is to be released within twelve (12) working days. The project is categorized based on its type and scale whether central government or local government shall be responsible. However, there are no specific criteria by which the type and scale of projects should be judged to determine the necessity of detailed EIA. The MET shall decide whether a detailed EIA shall be taken or not based on the application submitted by the developer. It seems that the recent focus of EIA has been on projects in the mining sector, in which the project scale is relatively large. According to interview to the MET, they supposed that road construction except residential road basically requires detailed EIA.

The possible outcomes of the brief project evaluation are:

- (a) The project can be approved without any study
- (b) The project can be approved pursuant to specific conditions
- (c) A detailed EIA is required for environmental permission
- (d) The project is rejected on the ground of non-conformity with the relevant legislation.

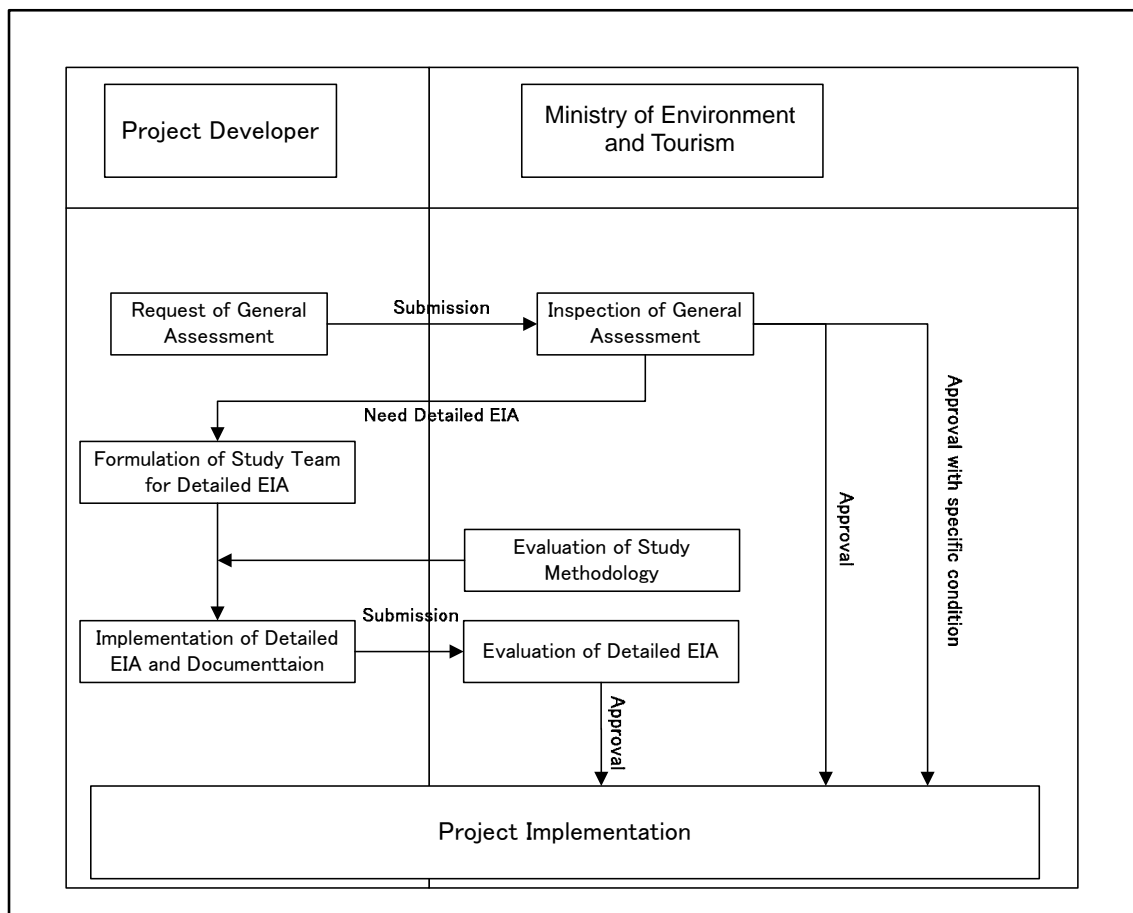
In the case of projects in categories a) and b), the developer can commence the project. In the case of projects in category c), the developer must undertake detailed EIA. Detailed EIA must be undertaken by an entity legally authorized to perform such work.

A detailed EIA report must include the following contents:

- Environmental baseline
- Project alternatives
- Recommendation on minimizing, mitigating measures
- Analysis and calculation of magnitude, extent and duration
- Risk assessment
- Environmental protection plan and monitoring plan
- Opinions from PAPs (Project Affected Persons), and others

After submission of the detailed EIA report, the MET must review the reports and make a decision within eighteen (18) working days. The MET makes a decision to permit the said project upon conclusion on the statement on the detailed EIA.

Figure 16.2.1 Procedure for Environmental Permission under the Law



Source: JICA Study Team based on Law on Environmental Impact Assessments, 1998

2) Land Acquisition System

Until a dozen years ago, private possession of land was not admitted under the socialist system. In addition, land possession was not a part of the traditional nomadic lifestyle. Recently privatization has proceeded. Mongolian citizens now have the right to subdivide maximum 700 m² of land in Ulaanbaatar City. The possession and use of land in Ulaanbaatar must be in accordance with the city land use plan and the owners must apply for permission for their land possession according to the Land Law. However it is assumed that most cases of land possession are transacted without being reported to the government.

Land procurement process for public development is regulated by the Land Law. Basically this process is based on the provision of alternative land and financial compensation for resettlement and assets. Therefore, it seems that the major issue in the negotiation process is to determine an appropriate compensation price that will be acceptable to the affected residents.

The following cases are recent examples of land acquisition.

- (a) ADB Housing Project: This project was for housing development and improvement of infrastructures such as local roads and a water supply system in Dari Ekh district. At that time, land possession had not progressed, so the land acquisition process targeted resettlement cost and asset compensation price. It took around two (2) years to complete the land acquisition process. Advanced low-interest rate loans for purchasing new houses were offered.
- (b) New Road Construction: The project purpose was new road construction in the Ger area of the northern city. The project site had not been subject to much land privatization. Therefore the land acquisition process was based on financial compensation.
- (c) New Road Construction and Extension: The project aimed at extension and new road construction between Iku Surlkh Surguul Street and Doloon Buudal Road. This project area was public land with residents having land use rights; hence the negotiation process focused on the release of the land use rights. Land acquisition needs a long time to go through various processes: “estimation of standard compensation price”, “budgetary steps”, and “various legal processes”. Recent rapid economic growth has raised commodity prices and land value. The gap between the proposed compensation price and demand of affected residents stagnated the land acquisition process.

Although government policy is aimed at land privatization, most land has belonged to the public/government and residents simply have land use rights. The nomadic lifestyle had not led to an obsession with owning land. The current land acquisition system is therefore able to focus on monetary compensation. However, it is predicted that as the intensity of land possession increases along with changes in lifestyle, an increase in social conflict caused by loss of land/property values and job opportunities and increasing conflict between newcomers and original residents can be expected.

16.3 Current Environmental Aspects

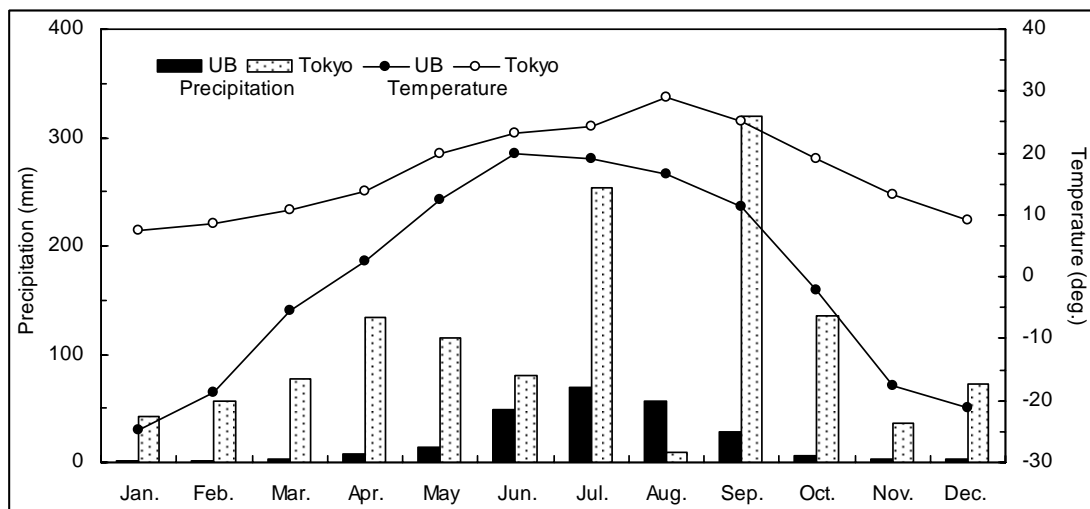
1) Natural Environment

(1) Climate

Ulaanbaatar city is located in northeast Mongolia. The average altitude is approximately 1,400 m. The city is dominated by mountain ranges as high as 2,000 m.

The climate of Ulaanbaatar can be described as “a severe continental climate with a cold long winter and short summer, and with little rainfall”. Figure 16.3.1 shows the main features of the climate.

Figure 16.3.1 Annual Change of Precipitation and Monthly Average of Temperature



Source: JICA (2002), Atlas of Urban Geology and Japan Meteorological Agency (2007)

(2) Geological and Hydrological Conditions

Ulaanbaatar City is mainly underlain by Cambrian, Devonian, and Carboniferous sandstone and mudstone. Ulaanbaatar City is located on an alluvial plain. The major rivers are the Tuul River, which flows through the southern urban area from east to west, and the Selbe River and the Uliastai River, which both flow from north to south to the north of the urban area. Subterranean flow of the Tuul River is a major water resource for Ulaanbaatar City, so it is very important to protect this river basin.

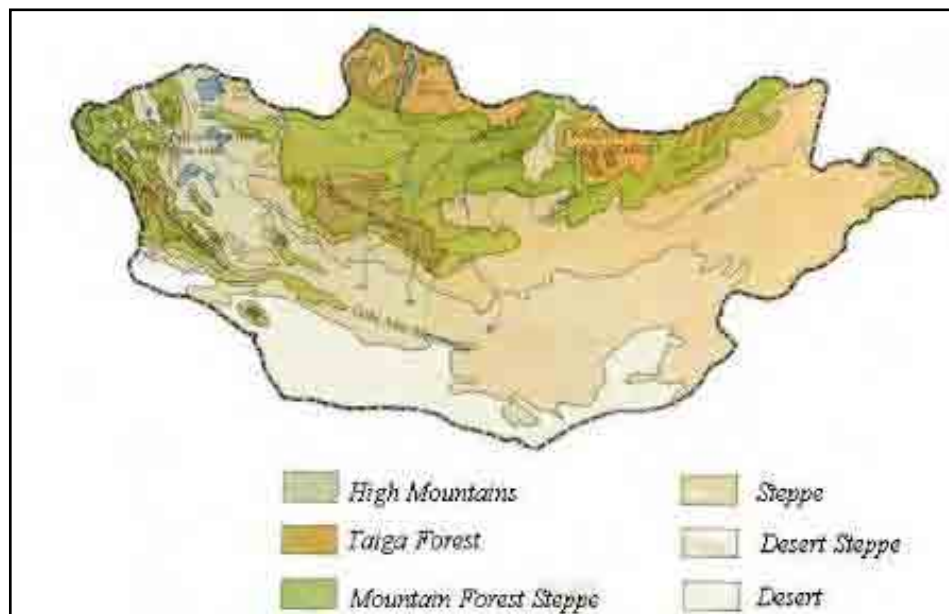
The annual average of discharge in Ulaanbaatar City was calculated at approximately 28 m³/s, with maximum value of monthly average 80 m³/s in July and a minimum value of 0 m³/s in winter (JICA, 1995). These values parallel the distribution of precipitation.

Groundwater exists in unconfined aquifers “Alluvial sediments of late quaternary to recent period” at depths between two (2) and thirty (30) m. The static water level in the Tuul River valley is from two (2) to six (6) m in winter and 0.5 to five (5) m in summer if there are no wells in operation. However, extraction of groundwater in the water supply zone causes the static water level to drops from ten (10) to thirteen (13) m in winter and from fifteen (15) to nineteen (19) m in summer.

(3) Biota and Ecosystems

Approximately 40% of the land in Mongolia is occupied by desert or dry-steppe. Forest accounts for approximately 30% of the area. The Ulaanbaatar area includes both steppe and forest. Forest is mainly located in the northern area along the rivers. The total area of forest in the city accounts for approximately 15%. Recently, illegal tree cutting, inappropriate land use, and forest and steppe fires have accelerated land degradation. This is a major environmental problem in Mongolia. It is reported that more than 60,000 ha of forest area were lost between 1990 and 2000, with 7,000,000 ha affected by fire.

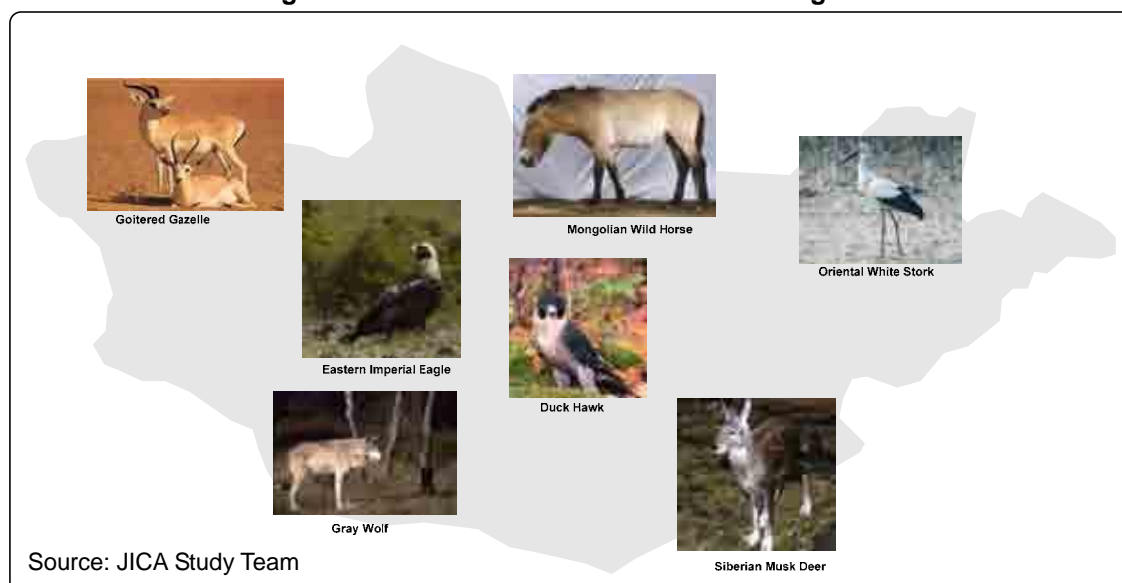
Figure 16.3.2 Vegetation Structure in Mongolia



Source: Country Profile on Environment 2002, JICA

Table 16.3.1 and Figure 16.3.3 show the part of important endangered fauna in Mongolia stated in Convention on International Trade in Endangered Species (CITES). Eagles and gazelles are common in the area surrounding Ulaanbaatar.

Figure 16.3.3 Pictures of Wild Life in Mongolia



Source: JICA Study Team

Table 16.3.1 Endangered Fauna and Flora in Mongolia

Family	Scientific Name	Common Name
BOVIDAE	<i>Gazella subgutturosa</i>	Goitered Gazelle
URSIDAE	<i>Ursus thibetanus</i>	Asian Black Bear
FERIDAE	<i>Uncia uncia</i>	Snow Leopard
EQUIDAE	<i>Equus hemionus</i>	Asian Wild Ass
	<i>Equus przewalskii</i>	Mongolian Wild Horse
BOVIDAE	<i>Ovis ammon</i>	Asian Wild Sheep
CICONIIDAE	<i>Ciconia boyciana</i>	Oriental White Stork
GRUIDAE	<i>Grus japonensis</i>	Red-crowned Crane
	<i>Grus leucogeranus</i>	Siberian Crane
LARIDAE	<i>Larus relictus</i>	Relict Gull
ACCIPITRIDAE	<i>Aquila heliaca</i>	Eastern Imperial Eagle
FALCONIDAE	<i>Falco peregrinus</i>	Duck Hawk
CANIDAE	<i>Canis lupus</i>	Gray Wolf
MUSTELIDAE	<i>Lutra lutra</i>	Common Otter
MOSCHIDAE	<i>Moschus moschiferus</i>	Siberian Musk Deer
PELECANIDAE	<i>Pelecanus crispus</i>	Dalmatian Pelican

Source: CITES WEB site

The conservation/protection of reserved lands is the responsibility of the MET. Such land is divided into four (4) categories:

- Special Protected Area
- Nature Park
- Natural Reserved Area
- Historical Area.

There is one Special Protected Area “Bogdkhan Uul Special Protected Area” and one Nature Park “Gorkhi-Terelj Nature Park” in Ulaanbaatar City as shown in Figure 15.3.4. In addition, Ulaanbaatar City has registered two locations as natural resource conservation areas.

Habitat for the red deer and gray wolf exist in and surrounding the above lands, and studies have shown that the areas are important parts of wildlife migration routes. The area of such wildlife corridors are known as existing between Gorxi-Terelj, Bogdkhan and Khustai Nuruu protected areas, and red deer and wolves have been found to move in larger migration cycles than previously thought. The World Bank and researchers have warned that housing and/or transport development risks disrupting wildlife corridors.

2) Social Environment

The Mongolian people originally lived a nomadic life style and did not own land for permanent residences. Therefore they tend not to be strongly drawn towards land possession, and their lifestyle does not raise a sense of community. However, urbanization has progressed in recent decades and many people have immigrated to Ulaanbaatar.

Community perception of Ulaanbaatar citizens were analyzed in the HIS. Ulaanbaatar citizens are typified by the following two (2) types:

- People who settled a long time ago live in apartments in the inner city. Only less than 5% of immigrants in 2007 had a chance to live in an apartment. These apartment-dwellers have relatively high incomes.
- Most of immigrants live in the Ger areas which have expanded rapidly and disorderly. Residents in this area belong to relatively middle- to low-income classes. Some people live in areas that are not suited to habitation or in areas prone to disasters such as flooding and landslides. In addition, improvement of infrastructure and social services cannot keep up with demand in the expanding Ger areas, and this is accelerating environmental degradation.

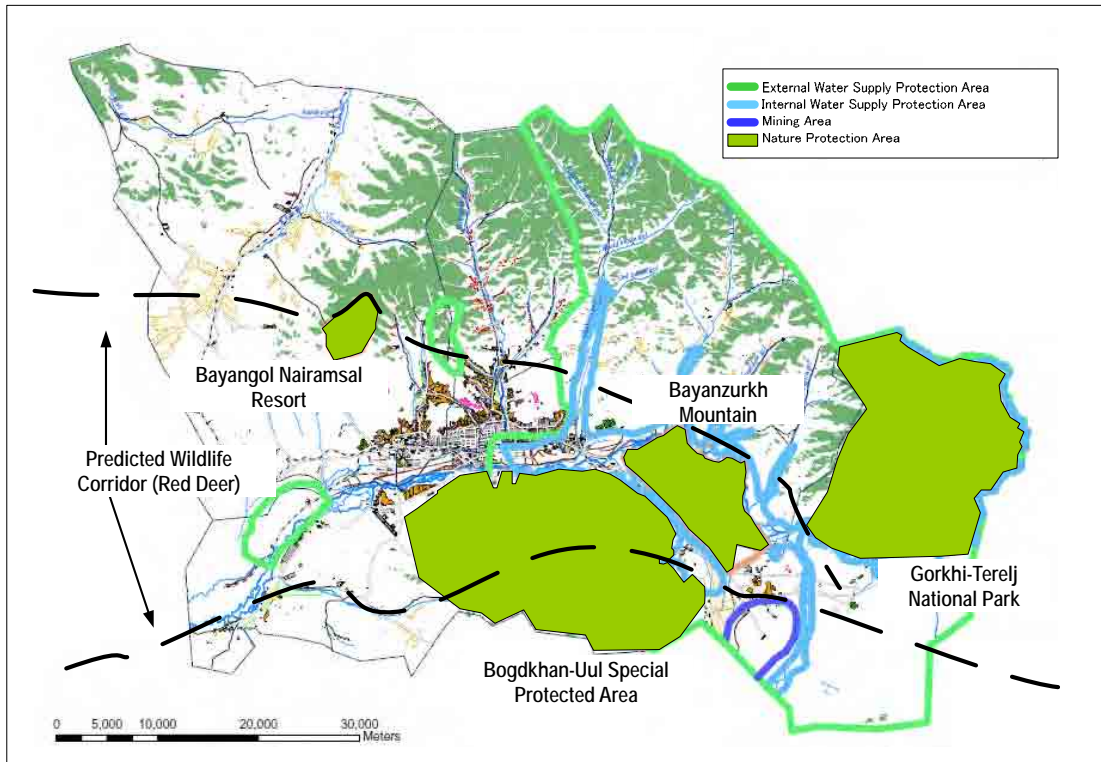
Gandan Temple and Sukhbaatar Square are famous in Ulaanbaatar as important cultural heritage sites and are major tourist attractions. There are many items of heritage in the inner city and suburban area; however, some were destroyed under the socialist regime or were not well maintained and their significance is no longer recognized by the general public. Table 16.3.2 lists items of cultural heritage in Ulaanbaatar city.

Table 16.3.2 Cultural Heritages in Ulaanbaatar City

No.	Name of Heritage	No.	Name of Heritage
City Level			
1	Tsogtdambajavyn house	21	Kh. Choibalsan monument
2	First European style 2 storey building	22	B. Tserendorj monument
3	2 stone lion sculptures in Arslantai bridge	23	S. Zorig monument
4	Memorial park in Altan olgii	24	Y. Lkhagvasuren monument
5	Mongolian revolutionists house in Konsulyn denj	25	"Horse breaking" sculpture
6	House where lived Mongolian revolutionists	27	State ceremony palace
7	D. Sukhbaatar monument	28	State seal symbol monument
8	"Mongol ard" monument	29	B. Renchin monument
9	D.K. Jukov monument	31	Some buildings of the Bogd Khan's summer Palace Complex
10	Dandarbaatar monument	32	Monument for warriors
11	D. Sukhbaatar statue in his birth place	37	Monument for workers
12	House where lived N.K.Rerikh	39	First department store
13	Yu. Tsedenbal monument	40	2 stone lion sculptures in front of the Natural Historical Museum
15	2 stone lion sculptures in front of the Mongolian National University	41	Mongolian and Russian revolutionists house
16	Capital city foundation monument	43	Monument for political repression
17	Place where lived former prime minister P. Genden	44	P.E. Shetinkin monument
18	D. Natsagdorj monument		Rock with memorial historical words
19	D. Sukhbaatar monument (with horse)		Khunnu time graves in Belkhiin am
20	V.I. Lenin monument		
National Level			
45	Geser Temple		2 stone columns of the Dari Ekh Temple
46	Gandantegchilen Monastery		Rock painting in Ikh Tengeriin am
	Bogd Khaan's Green Palace		Megjid Janraisig monastery
	Rock painting in Gachuurtyn am		Graves in Songinokhairkhan mountain
	Ger shaped wooden monasteries		Chin Van Khanddorj's house
47	Dambadarjaa Monastery		Chojjin Lama Temple

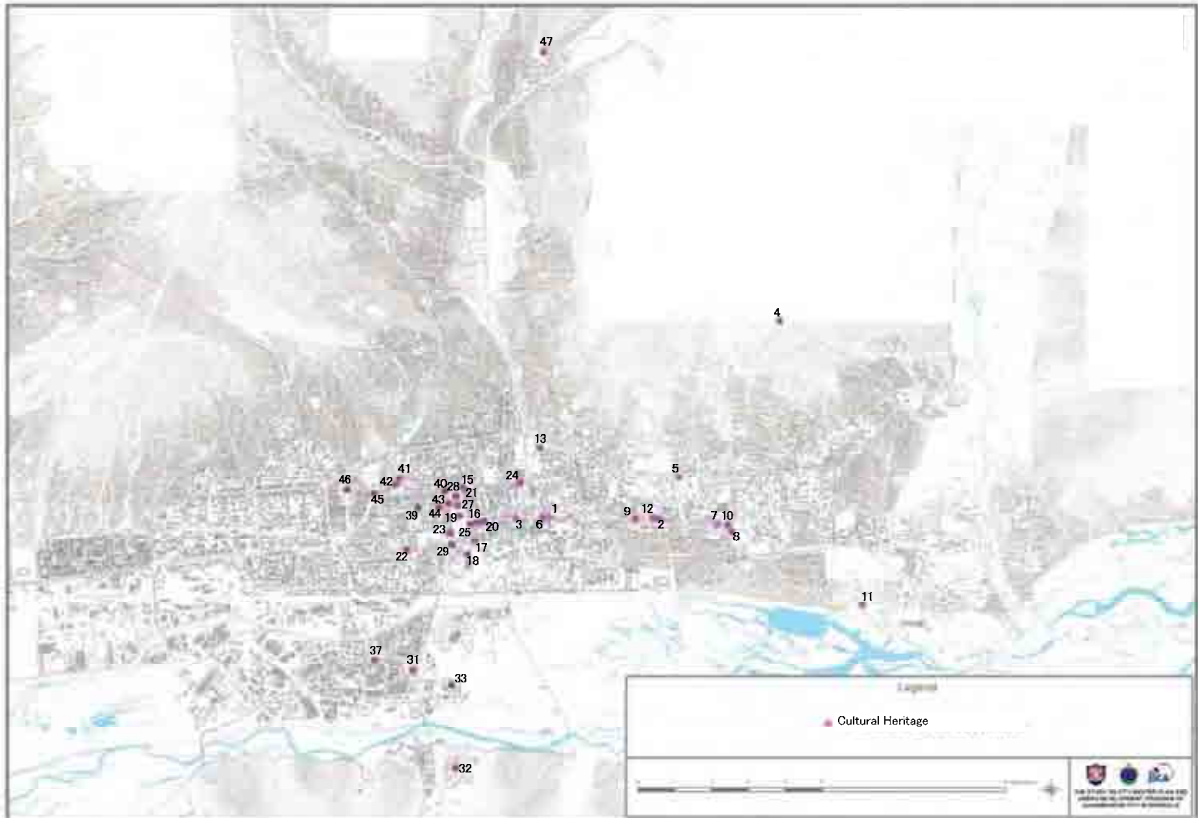
Source: JICA Study Team

Figure 16.3.4 Registered Natural Resource Conservation Area in Ulaanbaatar City



Source: JICA Study Team based on MET, UB City and World Bank

Figure 16.3.5 Location of Cultural Heritage



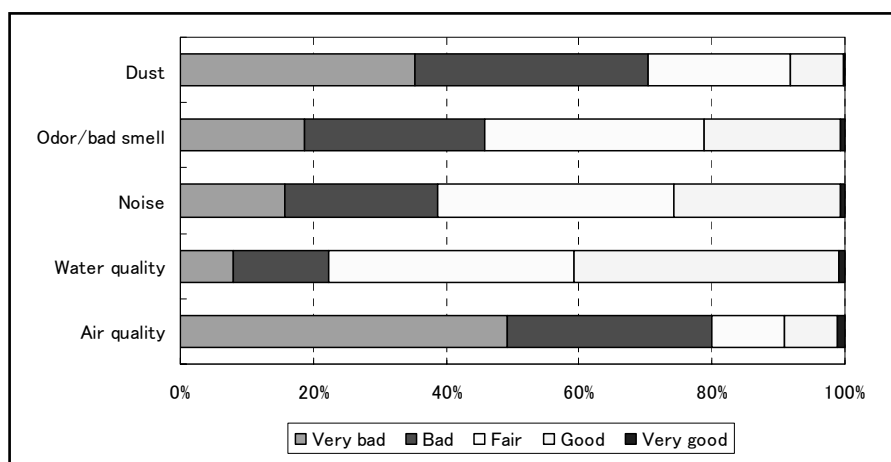
Source: JICA Study Team

3) Pollution

(1) Air Pollution

The Figure below describes public perceptions regarding environmental conditions. A total of 80% of respondents recognize that air quality in Ulaanbaatar City is “bad” or “very bad,” and 70% answered that dust pollution was a serious problem. This shows that air pollution is one of the most critical environmental problems in Ulaanbaatar.

Figure 16.3.6 Evaluation of Environmental Condition Based on HIS Results



Source: Household Interview Survey, 2007, JICA Study Team

Mongolian national standards for ambient air quality are shown in the Table 16.3.3.

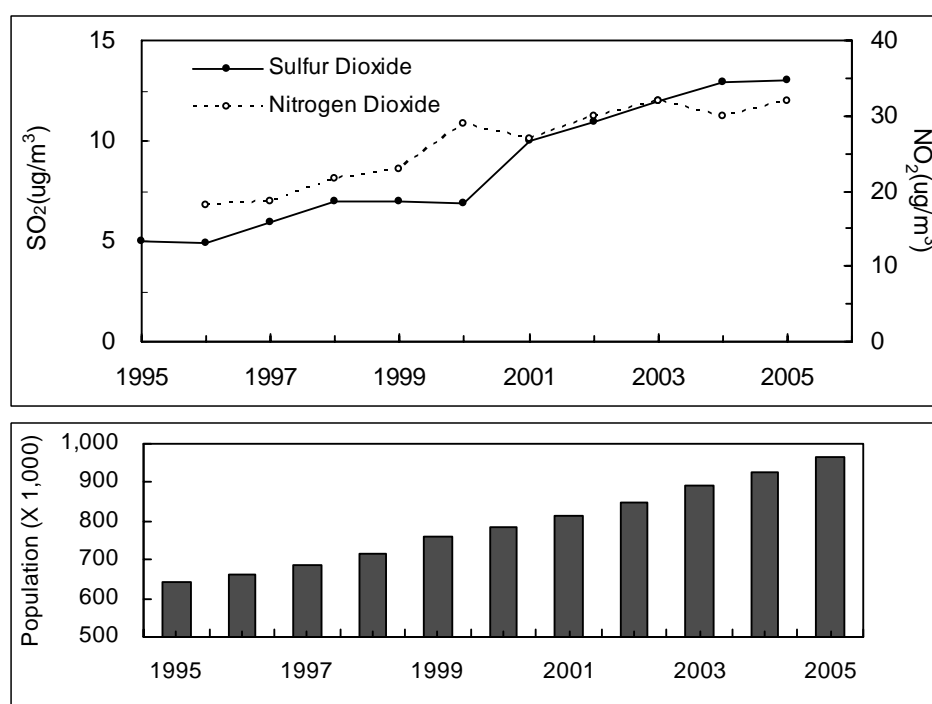
Table 16.3.3 Ambient Air Quality Standard

Parameter	Standard Value ($\mu\text{g}/\text{m}^3$)	Measuring Time
Sulfur Dioxide	500	20 min.
	30	24 hrs.
Hydro Carbon	8,000	20 min.
	3,000	24 hrs.
Nitrogen Dioxide	85	20 min.
	40	24 hrs.
Ozone	120	1 hr.
PM 10	500	20 min.
	150	24 hrs.
Lead	1	24 hrs.
Benzo - α - pyrene	0.001	24 hrs.

Source: MOE MNS4585-98

Figure 16.3.7 shows the annual changes in sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) concentrations together with population growth from 1995 to 2005. During the past 10 years, population has increased by more than 150%, while NO_2 has increased approximately 170%. SO_2 , which is mainly generated by coal-burning sources such as power plants and household stoves, has increased to extreme levels of more than 250%. This result suggests that a markedly increasing population will lead to increased human activities, causing further degradation of air quality.

Figure 16.3.7 Annual Changes in Sulfur Dioxide, Nitrogen Dioxide and Population Growth



Source: JICA Study Team, ADB 2006

Figure 16.3.8 shows the daily average of SO₂ and NO₂ concentrations in Ulaanbaatar City from 2002 to 2007. SO₂ concentration during winter was critically high and exceeded the national standards of Mongolia, but the trend in NO₂ concentration did not show seasonal variation. This might be due to the fact that SO₂ pollution is caused by the combustion process related to the heating of buildings, while NO₂ is a by-product of liquid fuel consumption such as driving vehicles.

The JICA Study Team conducted an Initial Environmental Examination (IEE) including ambient air pollution measurement. Methods of air quality survey are shown in Table 16.3.4, and dates of air quality and noise surveys are shown in Table 16.3.5.

Table 16.3.4 Method Air Quality Survey

Survey Parameter	Method
SO ₂ (Sulfur Dioxide)	Pararosaniline (Spectrophotometer) Method
NO ₂ (Nitrogen Dioxide)	Salzman Method
TSP (Total Suspended Particulate)	Gravimetric Method

Source: JICA Study Team

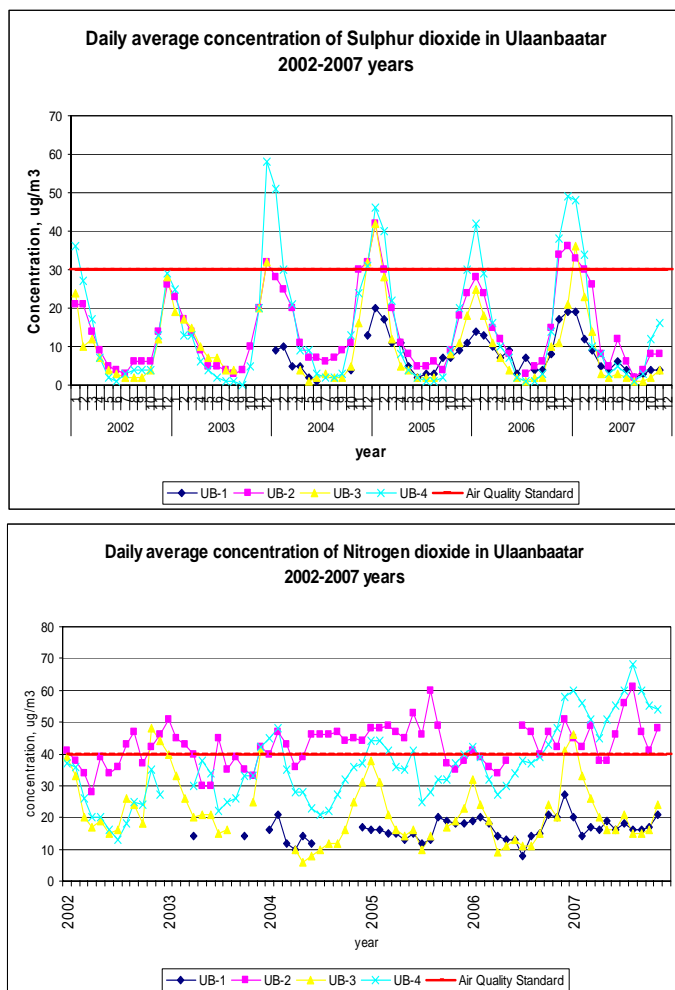
Table 16.3.5 Dates of Air Quality and Noise Surveys

	Sapporo Intersection of Bayangol District	Bayanburd Intersection of Chingeltei District
Weekday Measurement	18 th -19 th December, 2007	11 th -12 th December, 2007
Weekend Measurement	22 nd -23 rd December, 2007	15 th -16 th December, 2007

Source: JICA Study Team

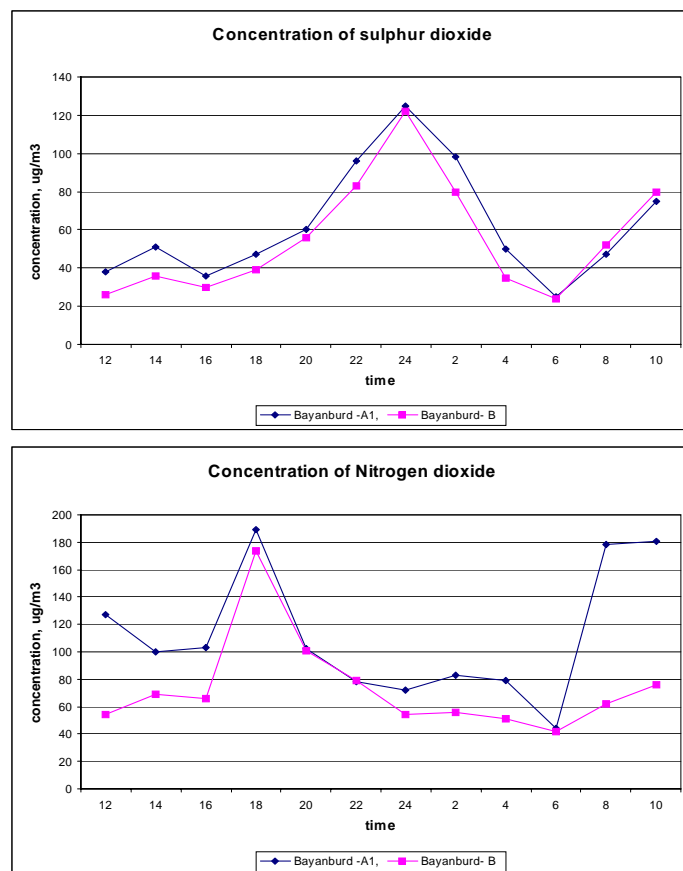
Figure 16.3.9 shows the hourly distribution of SO₂ and NO₂ at the Bayanburd Intersection. Survey point A1 was located beside the road, while point B was established to obtain background levels.

Figure 16.3.8
Daily Average Concentrations of
SO₂ and NO₂, 2002 - 2007



Source: Ulaanbaatar City, 2006

Figure 16.3.9
Hourly Average Concentrations of
SO₂ and NO₂



Source: JICA Study Team

The results show that concentrations of SO₂ increased from late afternoon, gaining maximum values at midnight before decreasing again. A major source of SO₂ is assumed to be the use of heating appliances at night. Since NO₂ did not show similar changes as SO₂, this means that the two have different sources.

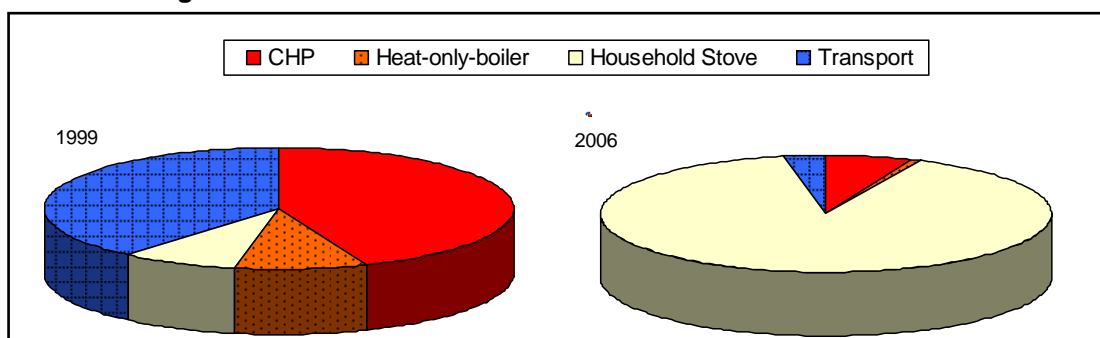
Major air pollution loads are identified below:

- Emission from CHPs (Combined Heat and Power Plants) and HOBs (Heat-only-Boiler)
- Emission from household stoves and burning of refuse
- Vehicle exhaust
- Dust from dry land, unpaved roads and waste disposal sites
- Forest and/or grass fires

Figure 16.3.10 shows sectoral share of air pollution by pollution source. The major pollution source was power plants in 1999, followed by the transportation sector. In 2006, pollution from household stoves was responsible for more than 90%. In addition, Figure 16.3.11 shows that pollution is mainly generated from Ger areas, especially those located

in the northern part of Ulaanbaatar City. Therefore it is concluded that a major source of air pollution is the inappropriate use of household stoves.

Figure 16.3.10 Sectoral Share of Air Pollution Sources



Source: World Bank calculation based on Ulaanbaatar, 2006

Figure 16.3.11 Distribution Map of Air Pollution in Winter



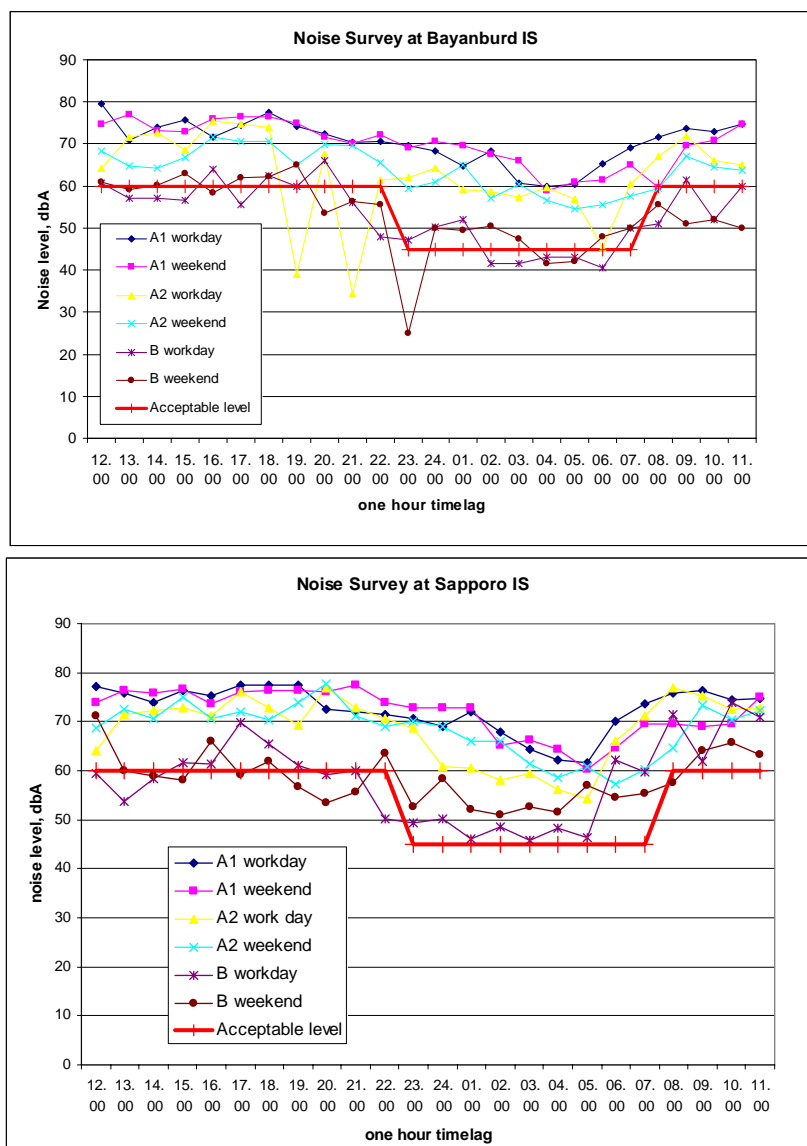
Source: Ulaanbaatar City, 2006

(2) Noise Disturbance

Mongolia does not currently have a regular monitoring system for noise. Therefore JICA Study Team conducted a noise measurement survey at two locations beside major intersections.

The noise survey was taken on the same days of air quality survey as shown in Table 16.3.5. The noise was measured directly used by noise meter. Figure 16.3.12 shows the hourly distribution of noise levels. In 2007, noise standard criteria were established in regulation MNS-4587-2007 based on standards recommended by WHO. Noise standard is classified into two levels: 60dB for day time and 45dB at night time.

Figure 16.3.12 Hourly Distribution of Noise Level



Source: JICA Study Team

Based on the results, it was found that there is a small but statistically significant difference between points A-1 (ground level beside road) and A-2 (mid air level) in noise levels, which exceeded the Mongolian standard for noise level at both locations. Meanwhile the background level at point B was lower than points A-1 and A-2, although the noise levels exceeded the standards. This suggests that the major source of noise is transportation activity. Therefore, it is required to install adequate mitigation such as sound barriers.

(3) Water Quality

Table 16.3.6 shows national standards for ambient water quality in Mongolia.

Table 16.3.6 Ambient Water Quality Standards in Mongolia

Parameter	Class				
	I	II	III	IV	V
pH	6.5-8.0	6.5-8.0	6.3-8.0	6.0-9.0	5.5-9.5
BOD (mg/L)	< 3	3-5	5-9	9-15	>15
COD (mg/L)	< 3	3-10	10-20	20-30	> 30
DO (mg/L)	> 8	8-6	6-4	4-3	< 3
Ammonia (mg/L)	< 0.02	< 0.05	< 0.01	< 0.3	< 0.5
Nitrite (mg/L)	< 0.002	< 0.005	< 0.02	< 0.05	> 0.1
Nitrate (mg/L)	< 1	< 3	< 5	< 10	<20
Organic Nitrogen (mg/L)	< 0.3	< 0.5	< 1.0	<2.0	> 2.0
Phosphate (mg/L)	< 0.02	< 0.05	< 0.1	< 0.5	> 0.5

Source: MOE MNS4586-98/MNS4943-2000

Surface water sampling points are located along the Tuul River. The table below shows concentrations of COD (Chemical Oxygen Demand), BOD (Biological Oxygen Demand) and DO (Dissolved Oxygen) in the Tuul River. As shown in the table, water quality in Terelj met the Mongolian national standards. However water quality in urban areas has deteriorated due to inefficient waste water treatment.

Table 16.3.7 Water Quality in the Tuul River

Location	COD (mg/L)	BOD (mg/L)	DO (mg/L)
Standard Value (Class II)	< 10	< 5	> 8
Terelj	9.8	5.43	9.9
Nalaikh Sewage Plant	116.6	6.82	12.09
Bayanzurkh	29	4.54	9.61
Zaisan	32.7	6.4	11.7
Yarmag	68.6	6.04	11.9
Songino Bridge	117.6	2.41	5.61

Source: Mongolia Environment Monitor 2004, The World Bank based on WHO (2003)

Underground water quality still meets drinking water standards but is showing signs of decline due to land degradation and pollution by inefficient waste water treatment and more intensive land use.

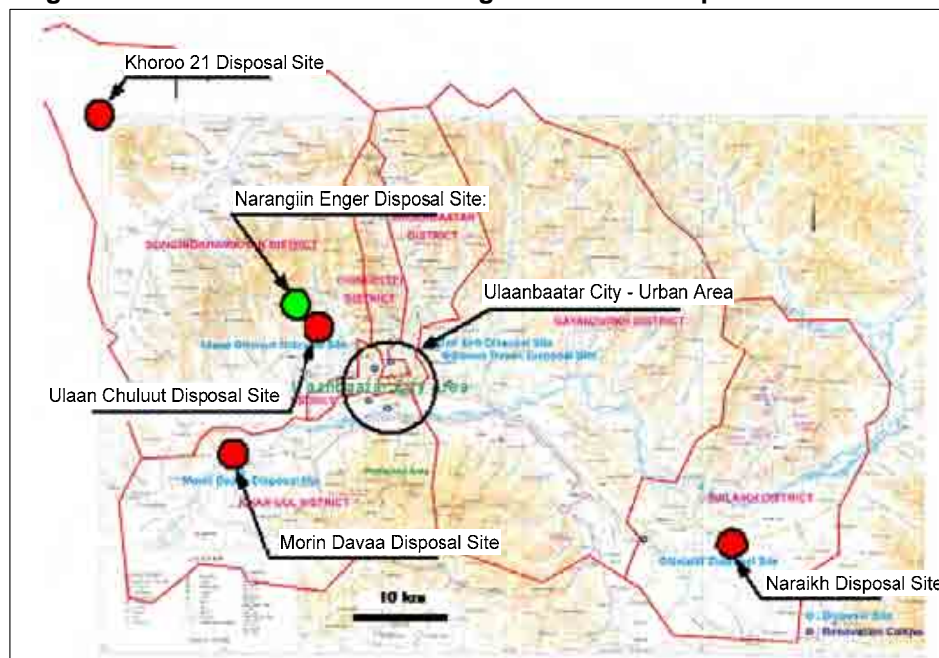
(4) Solid Waste

According to the a JICA Study conducted in 2007 for the Master Plan on Solid Waste Management, the following major issues were identified:

- Lack of capacity for waste disposal site: There are four existing disposal sites in Ulaanbaatar City. Ulaan Chuluut Disposal Site, which is the largest site, will be full by 2010. In addition, these disposal sites are open dumping type sites, not sanitary landfills, therefore leachate has contaminated water and soil.
- Low quality of collection network: The collection network is low quality due to lack of equipment and workers, especially in Ger areas. This issue also leads to illegal dumping, which has generated underground water and soil pollution.
- Improper treatment of construction waste and toxic/medical waste: At the moment,

construction waste has to be dumped in the above-mentioned open-dumping disposal sites; however, most of the waste could not be accepted due to a lack of capacity. Therefore most construction waste is illegally dumped beside the rivers. There are no special facilities for the treatment of medical and toxic waste.

Figure 16.3.13 Location of Existing Solid Waste Disposal Sites



Source: Recalculated based on the JICA Solid Waste Management Master Plan Project, 2007

16.4 Public Consultation

a) Results

Public consultation is a major component of the SEA Study. Public consultation is important to clarify people's perceptions, to share information, and to build consensus among stakeholders. In the Study, several workshops were conducted to coordinate the organizations concerned and to exchange information. During consultation in the pilot projects (NADEP), JICA Study Team conducted several meetings in both Dambadarjaa and Unur districts. Those model area projects were created in close discussions between communities. In addition, public hearings were held twice in order to disclose the policy on creating road improvement projects and to collect public opinion.

Table 16.4.1 summarizes public consultations under the Study.

Table 16.4.1 Summary of Public Consultations

(1/2)

Name	Date	Location	Target Area	Number of Participants and structure	Purpose
Technical Meeting					
Series of Learning Sessions	24 th to 30 th July 2007 22 nd August 2007	Mongol Japan Center	Ulaanbaatar City	-	<ul style="list-style-type: none"> To explain the basic policy on developing UBMPs To explain Japanese experiences To share methodology, current understandings To conduct 12 sessions by JICA Study Team
Road Priority Project					
Public Hearing I (Sapporo Intersection)	12 th January 2008	Onol Training Complex, Bayangol District	Bayangol District	Total 48 persons 5 from Khoroo and Kheseg Government 41 from residents	<ul style="list-style-type: none"> To explain road development in UBMPs To describe current environmental condition of the surroundings To collect public opinion
Public Hearing II (Bayanburd Intersection)	12 th January 2008	Secondary School #50, Chingeltei District	Chingeltei District	Total 42 persons 4 from Khoroo and Kheseg Government 35 from residents	<ul style="list-style-type: none"> To explain road development in UBMPs To describe current environmental condition of the surroundings To collect public opinion
Unur Model Area Project					
1 st residential meeting (kickoff meeting)	6 th June 2008	New Century NGO Office	Unur residents	25 participants	<ul style="list-style-type: none"> to introduce the UBMPs study and model area project to propose participation and cooperation of this project to local NGO
2 nd residential meeting	4 th July 2008	New Century NGO Office		12 participants/ 10 participants	<ul style="list-style-type: none"> Khashaa (plot) ownership issue Relocation and improvement of public service
3 rd residential meeting	30 th July 2008	New Century NGO Office		12 participants	<ul style="list-style-type: none"> Introduction of preliminary master plan of Unur project area Zoning and road network
Progress meeting	7 th August 2008	New Century NGO Office		6 participants	<ul style="list-style-type: none"> Future development approach of Ger area Cost of new accommodation for residents
4 th residential meeting	5 th September 2008	New Century NGO Office		15 participants	<ul style="list-style-type: none"> Residents desire of which type of housing they want to live in Public service
5 th residential meeting	19 th September 2008	Public library		40 participants including first participants	<ul style="list-style-type: none"> to introduce the project and propose future land use and housing types

(2/2)

Name	Date	Location	Area Target	Number of Participants and structure	Purpose
6 th residential meeting	20 th November 2008	New Century NGO Office		10 participants	<ul style="list-style-type: none"> New Unur planning relationship with "Neighborhood residential unit" planning concept
7 th residential meeting	24 th November 2008	New Century NGO Office		10 participants including households in 13 th Khoroo, Songinokhairkhan district	<ul style="list-style-type: none"> to introduce land pooling system Q&A
Dambadarjaa Model Area Project					
Preliminary meeting	5 th June 2008	17 th Khoroo Government Office, Sukhbaatar District	Dambadarjaa Residents	17 th Khoroo leader	<ul style="list-style-type: none"> to introduce the UBMPS study and model area project to propose participation and cooperation of this project to the leader of the 17th Khoroo
1 st residential meeting	10 th June 2008	People's Revolutionary Party Office of Sukhbaatar district 17 th Khoroo		25 participants	<ul style="list-style-type: none"> improvement of public service and infrastructure Residents land issue and usage
2 nd residential meeting	17 th June 2008	Lions Club building, Local CBO room Sukhbaatar district 15 th Khoroo		6 participants	<ul style="list-style-type: none"> New road network and duty to maintain it Water supply improvement implementation under the WB project
3 rd residential meeting	8 th July 2008	Lions Club building, Local CBO room		6 participants	<ul style="list-style-type: none"> Khashaa (plot) ownership situation Importance of survey each household
4 th residential meeting	29 th July 2008	Lions Club building, Local CBO room		10 participants	<ul style="list-style-type: none"> Location and type of public building Residents desire of which type of housing they want to live in
5th residential meeting	11h August 2008	Lions Club building, Local CBO room		9 participants	<ul style="list-style-type: none"> Planning relationship of Dambadarjaa monastery historic site Green zone
6th residential meeting	31st October 2008	Lions Club building, Local CBO room		10 participants	<ul style="list-style-type: none"> Land pooling system Improvement of cluster infrastructure
7th residential meeting	8th November 2008	Christian church meeting hall, Sukhbaatar district 15th Khoroo		18 participants including first participants	<ul style="list-style-type: none"> New planning of Dambadarjaa project area Land pooling system, Neighborhood residential unit planning to introduce the project and propose future landuse and housing types
8th residential meeting	25th November 2008	17th Khoroo Government Office, Sukhbaatar District		15 participants	<ul style="list-style-type: none"> Creation of model area planning with cluster infrastructure Public participation in the model planning Public understanding of LR system

Source: JICA Study Team

The following are conclusions from the evaluation of the public hearing for the priority road projects.

- Attendants of the public consultations mostly recognized traffic congestion as one of the most critical issues in Ulaanbaatar. They expect that road improvement will mitigate traffic congestion.
- Most residents with children strongly request adequate and better consideration for pedestrians and also suggest the installation of traffic signals and pedestrian crossings.
- As indicated in the HIS, participants strongly recognized air pollution as the most serious environmental issue. Residents living beside a road mentioned noise disturbance.
- On the other hand, issues of water pollution and water supply do not concern the residents in the Ger area despite the current deterioration.
- In the public consultations, especially the two public hearings, the issues of land acquisition and resettlement were not major topics; however, there were some opinions from participants suggesting careful consideration for building adequate compensation policy and consensus building.

16.5 Environmental Evaluation and Proposed Mitigation Measures

The UBMPS contains various proposed projects/programs in a wide variety of locations and sectors as described in Chapter 14. In this section, we provide an environmental evaluation and propose mitigation measures in reference to the following:

- (a) Overall Assessment for Ulaanbaatar City
- (b) Sector Evaluation
- (c) Model Area Projects (NADEP)

Environmental evaluation for the priority road projects is described in Appendix 3 of this main text.

a) Overall Assessment for Ulaanbaatar City

The major environmental issues facing Ulaanbaatar are summarized in the Table below. When development programs are established, it will be important to evaluate the impacts and propose measures to mitigate negative impacts and enhance positive impacts.

**Table 16.5.1 Environmental Issues in Ulaanbaatar City
and Proposed Countermeasures in Development Program**

Environmental Issue	Current Problems	Counter Measures
Inadequate Land-use and Land Acquisition System	<ul style="list-style-type: none"> • Land privatization is on going. • Perception on land privatization among the people is still low. • There is no legal system of social support for involuntary residents. • Some residents live in inappropriate areas such as disaster prone land or natural conservation areas. • Improvement of social services and infrastructures cannot keep pace with the rate of urban sprawl. 	<ul style="list-style-type: none"> • To establish legal system for supporting involuntary residents. • To raise public perception on land privatization regarding both rights and responsibilities. • To establish better public announcement and disclosure system. • To establish an organization that controls and evaluates land acquisition and resettlement.
Air Pollution	<ul style="list-style-type: none"> • Air quality exceeds standards. • Most pollution load is generated by independent stoves, small/medium heat-only-boilers. • Dust pollution is generated from unpaved roads. • Leads to respiratory illnesses. 	<ul style="list-style-type: none"> • To use energy-saving and/or low-emission gas equipment and vehicles for civil works. • To design with enhanced ability to reduce air pollution. • To install central or cluster heating networks in housing developments.
Water Pollution	<ul style="list-style-type: none"> • Inadequate sanitation in Ger areas is polluting groundwater. • Central wastewater treatment facility doesn't have enough capacity. • Industrial wastewater is discharged without proper treatment. 	<ul style="list-style-type: none"> • To install adequate drainage to avoid direct discharge of polluted water from construction site. • To install water treatment facility in base camp. • To minimize water usage including installation of water recycling system.
Waste Management	<ul style="list-style-type: none"> • Low capacity of the garbage collection network leads to illegal dumping. • Capacity of existing disposal areas will be exceeded soon. • Medical and toxic waste is not properly treated. 	<ul style="list-style-type: none"> • To design construction works to minimize construction waste including installation of a recycling system. • To closely coordinate with waste disposal sites. • To provide temporary storage of construction waste. • To train workers
Forest Resource and Biodiversity Protection	<ul style="list-style-type: none"> • Urban sprawl reduces the naturalness of the environment and disturbs wildlife corridors. • Illegal and unplanned tree cutting accelerate deforestation and desertification. • Lack of legal enforcement cannot control developments in the conservation areas. • Laws and regulations on creating greenery in building construction are not followed. 	<ul style="list-style-type: none"> • To design installation of greenery in construction plan. • To select adequate project area to avoid wildlife corridors and habitats, or to install mitigation measures such as fauna under/over pass for migration in case of road and/or railway projects. • To reforest or replant areas degraded by construction works. • To rehabilitate the land degraded by re-forestation, re-plantation.

Source: JICA Study Team based on the UBMP-2020

Ulaanbaatar City has been facing various environmental problems and various studies and countermeasures have been taken. There are many actions still required to tackle air pollution, while some issues have not been adequately analyzed even though their seriousness has been recognized. It is important to grasp the situation much more fully in order that adequate countermeasures can be incorporated into development programs. Hence the following further studies are proposed:

- **Wildlife Corridor Survey:** Major species such as the eagle and gazelle are widely distributed in the region surrounding Ulaanbaatar. Sometimes they migrate between different habitats, so it is necessary to consider both their habitats and migration routes in order to create mitigation measures for protecting wildlife. Proposed scope of works are:
 - To make a list of wildlife living surrounding Ulaanbaatar.
 - To grasp habitat of each species and migration patterns based on existing knowledge and spatial analysis.
 - To predict migration routes and plan field surveys, especially taking into account: (a) schedules of the surveys so as to determine the habits of wildlife, (b) spatial coverage of observations, and (c) observation methods (stationary observation or tracking survey).
- **Groundwater Survey:** Ulaanbaatar City has a regular monitoring program for river water quality; however, groundwater condition is not well understood even though a lack of sanitation services causes soil and groundwater pollution. Proposed scope of works are:
 - To make a list of wells and springs.
 - To grasp the subsurface conditions regarding: (a) location and depth of aquifers, and (b) groundwater volume, etc.
 - To measure underground water quality.

b) Sector Evaluation

The master plan will consist of various types of programs involving physical construction. The results of the sector evaluation are summarized in Table 16.5.2.

Table 16.5.2 Summary of Sector Evaluation on Environmental Issues

(1/3)

Sector	Proposed Project Description	Major Key Environmental Issue	Point on Mitigation Measure
Urban Economic Enhancement	<ul style="list-style-type: none"> ◎ Relocation and collectivization of local industries ◎ Sub-center development • Improvement of tourism information provision 	<ul style="list-style-type: none"> • Solid waste by civil and construction works • Land acquisition and resettlement in case of relocation and new development of industrial area • Change of urban landscape 	<ul style="list-style-type: none"> • In case land acquisition is needed, establishing adequate compensation policy and public disclosure are important. • Design shall be harmonized with comprehensive urban development. • Construction equipment and vehicles shall be selected for lowest exhaust emissions and noise
Urban Transportation	<ul style="list-style-type: none"> ◎ Road network development ◎ LRT/BRT development ◎ New railway bypass development ◎ Improvement of bus stops • Improvement of bus route and operation • Traffic management improvement ◎ Intersection geometric and engineering improvement • Establishment of MoNTREC, • Traffic management coordination system • Traffic Safety Promotion 	<ul style="list-style-type: none"> • Air pollution and noise disturbance by civil works and mobilization • Construction waste • Land acquisition and resettlement • Traffic disturbance during construction phase • Split of communities by road and railway routes • disruption of wildlife corridors by road and railway route 	<ul style="list-style-type: none"> • In case land acquisition is needed, establishing adequate compensation policy and public disclosure are important. • Traffic control during construction phase is important, so the mobilization schedule should avoid busy periods • In case road/railway corridors interrupt community or wildlife corridors, over/under passes are required. • Construction equipment and vehicles shall be selected for lowest exhaust and noise emissions. • Construction waste shall be kept, transferred and disposed of appropriately. • It is suggested to promote public awareness for a modal shift to public transportation.
Urban Water and Sanitation	<ul style="list-style-type: none"> ◎ Water resource protection and new supply source development ◎ Improvement of water supply capacity and network • Water quality management and monitoring • Water demand management ◎ Water provision in Ger areas ◎ CWWTP capacity enhancement ◎ New wastewater facilities development ◎ Sludge treatment and bio-energy facility development ◎ Rehabilitation of sewerage network ◎ Household-based sewerage treatment • Water recycling promotion 	<ul style="list-style-type: none"> • Land acquisition and resettlement by land occupation including the area of distribution network • Water and soil pollution and odor if the plant does not work well 	<ul style="list-style-type: none"> • In case land acquisition is needed, establishing adequate compensation policy and public disclosure are important. • Water treatment technique shall be designed to satisfy acceptable level in regulation and public in terms of water quality and odor. • During the construction phase of network extension, the construction schedule should be designed to minimize traffic disturbance. • Construction equipment and vehicles shall be selected for lowest exhaust and noise emissions. •

(2/3)

Sector	Proposed Project Description	Major Key Environmental Issue	Point on Mitigation Measure
Electric Power	<ul style="list-style-type: none"> ⊙Improvement of electric power capacity ⊙Electric distribution network enhancement ⊙Construction and/or rehabilitation of power substations • Renewable energy enhancement • Electric demand management 	<ul style="list-style-type: none"> • Air pollution during construction and operation phase • Water pollution and over pumping by power plant operation • Land acquisition in case of new construction of power plants / substations • Large volumes of construction waste and coal ash once operation commences 	<ul style="list-style-type: none"> • If land acquisition is needed, it will be important to establish policies that will ensure public disclosure and adequate compensation. • Construction equipment and vehicles shall be selected for lowest exhaust and noise emissions. • In the case of coal-based power plants, off-gas treatment system shall be installed. • Coal storage shall be covered to avoid the release of coal dust. • Leakage of polluted water from coal ash pond shall be avoided and treated before discharging.
Heating System	<ul style="list-style-type: none"> ⊙New heating development and rehabilitation of HOBs ⊙Local cluster heating system development ⊙Rehabilitation of heating distribution network • Enhancement of heat-efficiency building ⊙Coal quality and household stove improvement • Heating tariff structure reform 	<ul style="list-style-type: none"> • Air pollution during construction and operation phase • Water pollution and over pumping by power plant operation • Land acquisition in case of new construction of power plants/substations • Huge construction waste, and coal ash by operation 	<ul style="list-style-type: none"> • Measures for heating systems are the same as for electric power.
Solid Waste Management	<ul style="list-style-type: none"> ⊙Improvement of waste disposal sites ⊙Construction of waste separation and recycling facilities • Improvement of garbage collection network • Education and campaign of waste management 	<ul style="list-style-type: none"> • Air pollution and odor in case of incineration facility • Water and soil pollution from disposal sites, temporary garbage collection sites • Land acquisition for disposal site and facility construction • No proper treatment system for hazardous waste • Infectious diseases spread by operation of disposal site 	<ul style="list-style-type: none"> • If land acquisition is needed, it will be important to establish policies that will ensure public disclosure and adequate compensation. • Construction equipment and vehicles shall be selected for lowest exhaust and noise emissions. • Leachate and dust pollution from disposal sites shall be avoided by lining, drainage pipes, use of daily cover and other sanitary landfill practices.
Housing and Housing Policy Enhancement	<ul style="list-style-type: none"> • Low-cost housing guideline ⊙New town and social housing development • Improvement of building code and construction supervision system • Improvement of heat efficient housing ⊙Temporary housing area development for resettlement households 	<ul style="list-style-type: none"> • Land acquisition by new town construction • Construction waste • Split of wildlife corridors, degradation of wildlife habitat • Social conflict between original and new residents etc. • Change of land use and landscape 	<ul style="list-style-type: none"> • If land acquisition is needed, it will be important to establish policies that will ensure public disclosure and adequate compensation. • Construction equipment and vehicles shall be selected in terms of least emission gas and noisy. • Project areas shall be selected to avoid conflicts

(3/3)

Sector	Expected Project Description	Major Key Environmental Issue	Point on Mitigation Measure
Living Environment Improvement	<ul style="list-style-type: none"> ◎ Rehabilitation of old apartments • Promotion of energy-saving and eco-housing development ◎ Parks and open space development • Enhancement of community-based development • Public awareness raising on living environment improvement 	<ul style="list-style-type: none"> • Construction waste generated by physical rehabilitation work • Land acquisition in case of park and green space construction 	<ul style="list-style-type: none"> • If land acquisition is needed, it will be important to establish policies that will ensure public disclosure and adequate compensation. • Construction equipment and vehicles shall be selected in terms of least emission gas and noisy.
Environmental Management	<ul style="list-style-type: none"> ◎ Development of forest protection management/monitoring • Development of air quality management/monitoring • Capacity development of EIA system 	<ul style="list-style-type: none"> • Resettlement in case of re-plantation 	<ul style="list-style-type: none"> • Resettlement programs shall be created with consideration of residents to be resettled.
Urban amenity and disaster management	<ul style="list-style-type: none"> ◎ Relocation program from flood prone areas ◎ Rehabilitation of drainage network • Enhancement of community-based preparedness ◎ Construction of disaster prevention road • Installation of emergency vehicles 	<ul style="list-style-type: none"> • Land acquisition and resettlement in case of drainage network construction and road construction 	<ul style="list-style-type: none"> • Resettlement programs shall be created with consideration of residents to be resettled.
Social Service Improvement	<ul style="list-style-type: none"> • Development of planning standard and guideline for educational and health care facilities ◎ Acceleration of educational and health care facilities development 	<ul style="list-style-type: none"> • Land acquisition in case of social facility construction 	<ul style="list-style-type: none"> • If land acquisition is needed, it will be important to establish policies that will ensure public disclosure and adequate compensation.
Institutional and Legal-based development	<ul style="list-style-type: none"> • Legal enhancement of urban planning and related administrations • Development of resettlement policy plan • Introduction of property assessment land value system • Institutional development of social housing policy • Financial capacity building for social housing development • Business development policy to strengthen construction-related sectors 	<ul style="list-style-type: none"> • Social conflict against change of business circumstances 	<ul style="list-style-type: none"> • It is necessary to take close and continual public consultation in order to minimize public confliction among stakeholders. • Social and financial imbalance among stakeholders shall be considered and minimized.
Development Financing System	<ul style="list-style-type: none"> • Financial based enhancement for UB Government • Community-based financing system development • Formation of value capture methods • Establishment of financing public cooperation • Policy reform of public service tariff structure • Implementation frame work for PPP-based projects 	<ul style="list-style-type: none"> • Social conflict against change of business circumstances 	<ul style="list-style-type: none"> • ditto

Notes: ◎ programs will include some physical activities such as civil work, building construction, and land occupation

Source: JICA Study Team

As described in Chapter 14, fifty (50) projects from various sectors are selected as priority projects. Two (2) projects listed below are categorized as causing serious negative impacts; however these projects can benefit in terms of energy supply which contributes improvement of living environmental condition, energy savings and air pollution reduction. Therefore it is concluded that these projects shall be prioritized.

Basically anticipated impacts in the projects can be minimized by proper environmental considerations. Project locations should avoid disturbance of wildlife habitats as well as community. Exhaust gas level and discharged water should satisfy the standards. Water usage should be designed to avoid interruption of underground water condition.

- EPW-Es-02 New Power Supply System Development
- HTS-Hs-01 New Heating Source Development

c) Impact Evaluation on Model Area Project

The major objective of Model Area Project is to evaluate the procedure for land and housing improvement in Ger areas by techniques of land adjustment and land pooling through community-based initiatives. Pilot areas were selected based on activities of other donors and the level of community-based initiative, which function expects to mitigate social complaints between the community and the project developer.

Justifications for selecting ger areas in the viewpoint of environmental consideration are below:

Unur:

- Community organization has been established, so it is easy to create community involvement through coordination with the community organization.
- This area is facing flood prone, so it is quite urgent to pursue land management with disaster management.

Dambadarjaa:

- Dambadarjaa also has a community organization.
- Dambadarjaa is located northern area and faces serious air pollution. Therefore the model area project aiming at improvement of living environment can contribute to government policy on "Ger area improvement for air pollution reduction".
- Dambadarjaa monastery, which is listed in Table 16.3.2, shall be conserved. Selbe River shall also be protected to achieve water supply conservation.

The project components will not only include housing development but also improvement and installation of infrastructures such as roads, water supply and sewerage. These components all focus on environmental improvement; however, it is also possible that they could generate adverse impacts especially during physical activities. Therefore we conducted public meetings with residents/stakeholders covering information disclosure for

policy making, introduction of the technique for land re-adjustment, and to understand the perception of residents on the housing environment.

The project components will include installation of infrastructures that are expected to improve the environmental condition in Ger areas. If Ger areas are not improved by this planning process, the environmental condition will deteriorate, and therefore the do-nothing case is not recommended.

Existing large scale housing construction, new town project, improvement of apartments in urban the downtown, etc. need huge investment cost, and generate adverse social conflict. Therefore community-based housing improvement paying close attention to communication was taken in the NADEP. In addition, proposed plans in the NADEP not only include housing construction but also improvement of infrastructure, creation of green open space and parks, preservation of cultural heritage sites in order to improve the living environment. It is believed that such processes satisfy policy in SEA.

Table 16.5.3 briefly describes the land use plan in Unur and Dambadarjaa. NADEP is likely to involve multiple projects including various sectors; hence various impacts as shown in Table 16.5.2 are predicted.

Table 16.5.3 Summary of Land use Plan in the NADEP

Land use	Area in Unur (m ²)		Area in Dambadarjaa (m ²)	
	Present	Plan	Present	Plan
Road	2,490	163,415	0	212,700
Pedestrian	0	109,195	0	100,200
Park	0	124,606	0	158,000
River, Water	2,000	10,000	5,465	5,000
School and Kindergarten	0	31,474	0	33,000
Public Facilities	5,000	30,000	5,465	30,000
Residential Area	893,396	434,196	1,082,944	554,100
Apartment Area (Reserved Land)	0	83,464	0	0
Total	902,886	902,886	1,093,000	1,093,000

Source: JICA Study Team

The most sensitive key environmental issue is social conflict due to land transfer and resettlement. At the public meeting in Dambadarjaa, more than a few residents expressed hesitation about resettlement. It seemed that they did not understand our policy on this planning system and displayed initial mistrust of the procedure for land transfer. Therefore it is strongly suggested to maintain close communication with the residents, especially in relation to:

- Reduction of asset value by land transfer and resettlement
- Mitigation of the gap in accessibility to infrastructure services
- Mitigation of public conflict between original residents and immigrated people

In addition, as expressed by residents in Dambadarjaa, Dambadarjaa Temple must be protected and kept in good condition.

17 ACTIONS FOR MATERIALIZATION OF THE MASTER PLAN

17.1 General

Necessary actions should be taken for the realization of the Master Plan, which includes legal and institutional processes by such agencies as Ministry of Road, Transport, Construction and Urban Development, and the Ulaanbaatar City government.

(a) **Institutionalization of the Newly Revised Master Plan of Ulaanbaatar City:**

Although this Study was carried out in a highly comprehensive and technical manner, it has not been conducted in accordance with the institutionalized processes stipulated in the Urban Development Law. But since this Study presents a number of recommendations and proposals that will revise the current Master Plan 2020, the Ulaanbaatar City government has acted on these recommendations to prepare a new Ulaanbaatar Master Plan for the target year 2030 with technical and financial support from the national government.

(b) **Organizational Restructuring:** The administrative and technical capacities of “city planning” are too weak to cope with actual development management needs in Ulaanbaatar City. The public entity technically responsible for Urban Planning is the Urban Planning, Research and Design Institute (UPRDI), an important organization for city planning administration. However, UPRDI is an external organ with financial constraints, always facing difficulties in staffing and working capacities. A well-functional organizational system on urban planning administration should be structured; otherwise, Ulaanbaatar City will not be able to properly perform urban growth management and actually implement the designed Master Plan.

(c) **Formulation of District Plans with a Hierarchical Planning Structures:** The Ulaanbaatar Master Plan shall provide a general framework for spatial structure and land use, as well as orientations on social and economic infrastructures. Based on the framework delineated by the Master Plan, local or “District Plans”, shall be formulated based on local realities. District Plans should present more detailed land use and spatial structures in proper consultation with community leaders and relevant stakeholders. This planning process should be initiated and facilitated by Ulaanbaatar City in accordance with the Urban Development Law.

(d) **Donors Coordination:** The common concerns of many donors are on urban development, environmental improvement, and the uplifting of social services such as education and health. The improvement of the Ger areas is a focal agendum in the donor community. Since technical and financial support from the donor community is an indispensable part of turning Ulaanbaatar City into a more livable and competitive city, a well-coordinated assistance among donors is highly required.

The four (4) actions cited above, two (2) key actions are briefly examined herein.

17.2 Institutionalization Process for Revision and Approval of the New Master Plan

1) Existing Legal Basis of Planning Administration

The recently amended **Urban Development Law** defines mandates of different levels of authorities for formulating and approving the master plan of the Capital City, Ulaanbaatar, as follows:

- The Parliament (State Great Khural) shall approve the master plan of the capital city (Article 5, Clause 5.1.5);
- The Government shall adopt four (4)-year action plans of urban development of the capital city (Article 6, Clause 6.1.5);
- The Central Governmental Administrative Organization (Ministry of Road, Transport, Construction and Urban Development) shall perform the following tasks (Article 7);
 - To approve and oversee the implementation of sample rules and regulations for construction and urban development authorities of aimag and the capital city (Clause 7.1.2);
 - To draft urban development laws and regulations and policy documents (Clause 7.1.7); and
 - To provide with professional management support and coordinate works to formulate Master Plans of the capital city, core regional centers, and general projects on human settlements and residence (Clause 7.1.8).
- The Citizens Representatives Khurals of the capital city shall perform (Article 8);
 - To approve the project, program and Master Plan of capital city based on the opinion of central governmental administrative organization in charge of urban development; and
 - To make decision on re-construct the old areas of the city, Ger areas, and new towns and residential areas.
- The Governor of Capital City shall has rights (Article 9);
 - To organize land allocation and implementation works based on the construction project and Detailed Master Plan of the towns and villages;
 - To appoint **Chief architect** of the capital city for four (4) year period;
 - To establish Construction and Urban Development Department, which is managed by Chief Architect;
 - **To organize and initiate the works of developing Master Plan of capital city, and making revision and reform;**
 - To place control in urban planning activities, land utilization and protection; and
 - To deliver report of work performance on urban development to the Central governmental administrative organization in charge of urban development issues once a year.
- Chief Architect's roles and mandates are:

- To make proposal on amendments and/or developing draft laws of the urban development sector (Clause 10.1.1);
- To make proposals in developing urban development policies in rural areas, and organization of implementation activities (Clause 10.1.2);
- To coordinate local urban development activities and provide construction and urban development department with professional and methodological management (Clause 10.1.5);
- To submit annual Land Use Master Plan of towns and villages in line with City Master Plan and Detailed Master Plan to the central governmental administrative organization in charge of urban development issues (Clause 10.1.7); and
- To place control on engineering preparatory works (Clause 10.1.8).

Meanwhile, the Law defines three (3) levels of plans to be prepared by the City, i.e., Master Plan; Detailed Master Plans; and Action Plans, and stipulates basic requirements to be addressed in respective plans as follows:

- **Master Plan** shall meet the requirements of (Article 12):
 - it shall aim to create comfortable living and working conditions for the population, determined development direction of towns and villages and planned to create ecologically and hygienically friendly conditions, and shall incorporate boundaries of towns and villages, territorial functional zoning, engineering, road, transportation and social infrastructural development, historical and cultural memorial structures and architecture-urban development requirements (Clause 12.4.1)
 - it shall be based on the baseline studies, which are conducted with consideration of ecological and engineering and geological characteristics of given territory (Clause 12.4.2)
- **Detailed Master Plan** shall be planned with *people's participation* and should have met the requirements of norms and rules on environmental planning, land height, space and dimensions, engineering supply network solutions and districts, micro districts, and residential areas, based on Master Plans (Article 12.5).
- **Action Plan** of towns and villages development shall make feasibility study to implement the project in accordance with Detailed Master Plan, Master Plan, and determine their investment source and plan by considering the following issues in accordance with relevant norms, rules and regulations (Article 12.6):
 - Street and road network as integrated system with continuously increasing traffic (Clause 12.6.1).
 - Firewalls or fire isolating space between residential, public and industrial buildings and structures (Clause 12.6.2)
 - Not less than 30% of total planned territory in this plan shall be occupied by kindergarten, greenery and car parking lots. (Clause 12.6.3)

Financial sources and shares for preparation of documentations and planning work for different levels of Plans are stipulated in the Law (Article 15) as follows:

- Master Plans of developing the Capital City and core regional development core centers, Master Plan of new town and their baseline studies shall be financed from the central governmental budget (Clause 15.1.1) ;
- Master Plans of developing satellite cities around the Capital City, local towns and villages and their baseline studies shall be financed from local governmental budgets (Clause 15.1.2);

Lastly, it should be noted that the Law addresses the importance of public involvement in the process of making plans (Article 17) and obligations of decision-informing to the general public (Article 18) as follows:

- Participation based planning principles shall be applied and reflected in urban development actions and activities (Clause 17.1).
- Governors of all levels shall be entitled to organize open meetings for implementation of urban development, and obtain opinions and proposals from citizens and related professionals and shall reflect right and reasonable proposals in urban planning (Clause 17.2).
- The Central governmental administrative organization in charge of urban development issues, Citizens' Representatives Khurals of capital city, City Mayor's Office shall be entitled to disseminate information in due course to the public about decisions made within framework of this Law (Clause 18.1)

2) Recommended Process of Institutionalization of New Ulaanbaatar Master Plan

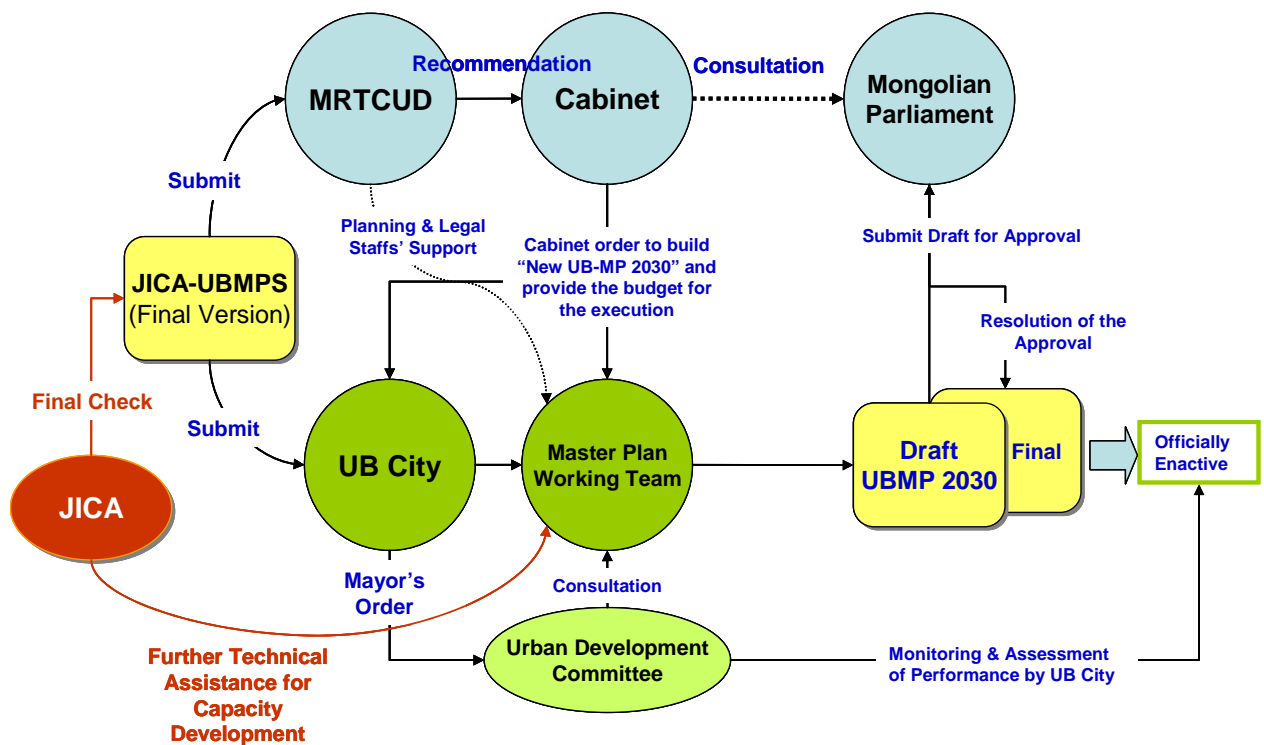
As mentioned above, the most important action is to facilitate the institutionalization process of a new Ulaanbaatar Master Plan, based on this JICA Study. The official procedure in the formulation of a new, or a revised, master plan, in compliance with the Urban Development Law, is as follows:

- First, based on Article 9, the Mayor of Ulaanbaatar City shall organize and initiate action leading to the revision and reform of the Master Plan. For this purpose, a working team (or Task force) shall be organized, headed by the Chief Architect (Article 10).
- The working team shall be organized with representatives from the relevant authorities of Ulaanbaatar City. This includes the economic and social affairs-related authorities; urban development-related authorities, such as Construction and Urban Development Department, Urban Policy Department, Land Management Department and Transportation Department, Road Department, and other concerned agencies or departments.
- Due to the important mandate given to the ministry, in accordance with Articles 7 and 18, MRTCUD shall dispatch qualified officials and technically proficient personnel to the working team.
- At the same time, based on Article 15, the Central Government shall arrange a budget to cover financial requirements for the working team. Ulaanbaatar City should also prepare a special budget to support comprehensive planning activities.

- The working team shall start by reviewing this JICA UBMP Study in a manner where the planning will coincide with the requirements in Article 12. For this technical work, technical sub-groups may be organized with full involvement of academic experts. In the review process, public participation should be facilitated based on the elements of Article 17.
- The revised documents of the New Master Plan shall be approved by the parliament. Before that, projects and programs incorporated in the Master Plan shall be approved by the Citizens Representatives Khurals, based on Article 8. This will be a crucial but time-consuming part of the process.

The official process as described above is shown in Figure 17.2.1.

Figure 17.2.1 Official Process for Institutionalization of A New Ulaanbaatar Master Plan 2030



Source: JICA Study Team

17.3 Hierarchical Planning Structure

1) Four (4) Tiered Hierarchy of Plans

The Ulaanbaatar City master plan has been formulated based on a socio-economic and spatial framework of national and regional development. The master plan provides a vision of the necessary urban functions and a structural plan for the whole city. To implement the master plan, the plan will need to be further rephrased or broken down into smaller areas such as administrative districts and further specific, smaller areas within the city in a consistent and hierarchical manner from a macro-to-micro perspective.

Such plans should be approved and authorized by the government under appropriate laws and regulations. These plans shall be formulated within the context of a four (4) -tiered hierarchy.

Table 17.3.1 Four (4) Tiered Hierarchy of Plans for Implementation of Ulaanbaatar Master Plan

Level of plan	Description
Level I: UB Regional Plan	Regional Plan: <ul style="list-style-type: none"> At the regional level, a regional development strategy with a model for balanced growth within the region is formulated with a development strategy and long-term development scenario. This plan includes the development of satellite towns. This is a government led broad plan.
Level II: UB Master Plan	Structure Plan at Ulaanbaatar City level: <ul style="list-style-type: none"> The city area is delineated into development restricted areas (protected areas or other) and urbanization promotion area. For the urbanization promotion area, land use zoning is to be decided under the development strategies with a development framework comprising social, economic, and spatial dimensions and a development plan for infrastructure, other public facilities, and housing. This is government led, generally top-down planning but with a participatory approach.
Level III: District Plan (Administrative district)	Local Plan at District Level: <ul style="list-style-type: none"> Within the urbanization promotion area delineated in the UB Master Plan, more detailed land use zoning and plans and a public facilities development plan shall be decided with area specific development policies based on the characteristics within the administrative boundary of the districts. This plan involves more direct interests to the people concerned. This plan falls between the more top-down UB master plan and the bottom-up detailed area development plans explained below. This is Government-led with more involvement of citizens and communities; a planning committee would be formed for each district consisting of government officials and citizens.
Level IV: Detailed Action Area (Neighborhood Area Development Plan)	Detailed Area Development (Action) Plan: <ul style="list-style-type: none"> A detailed plan for a specific area to improve the living environment by a community based development approach, and if necessary including urban design and detailed facility plans This is basically community-driven, a bottom-up approach for improvement of the living environment of smaller areas.

Source: JICA Study Team

2) Authorization of District Plan

Local plans of the administrative district plans (District Plan) should be further formulated in consistency with the Ulaanbaatar City Master Plan and also reflecting the results of the pilot projects and other community-driven detailed area developments which are going on.

Major purposes to make “District Plan” is to lead the projects into the direction shown in the “Redevelopment and development Guideline” of “City Master Plan 2030” and to enforce the private developers to implement the proposed projects in an appropriate way and also to help a part of social housing and green area development with the deregulation of zoning system. Planning items decided in “District Plan” are as follows.

- Location and Site Boundary of “District Plan”
- Objectives of “District Plan”
- Development, Redevelopment and Preservation Policies in the District
- Planning of District Facilities such as Road, Park and Others, Mainly Used for Residents etc., and Planning of Building and Land Use
 - Location and Size of District Facilities
 - Detailed Zoning Regulation for Buildings
 - Maximum or Minimum Floor Area Ratio of Buildings
 - Minimum Site Area or Building Coverage Ratio
 - Regulation of Building Set-back and land use in Set-Back Area
 - Maximum Height of Buildings
 - Regulation of Form, Color and Other Design of Buildings
 - Minimum Green Ratio of Building Site
 - Other Regulation for Buildings Decided by Decree

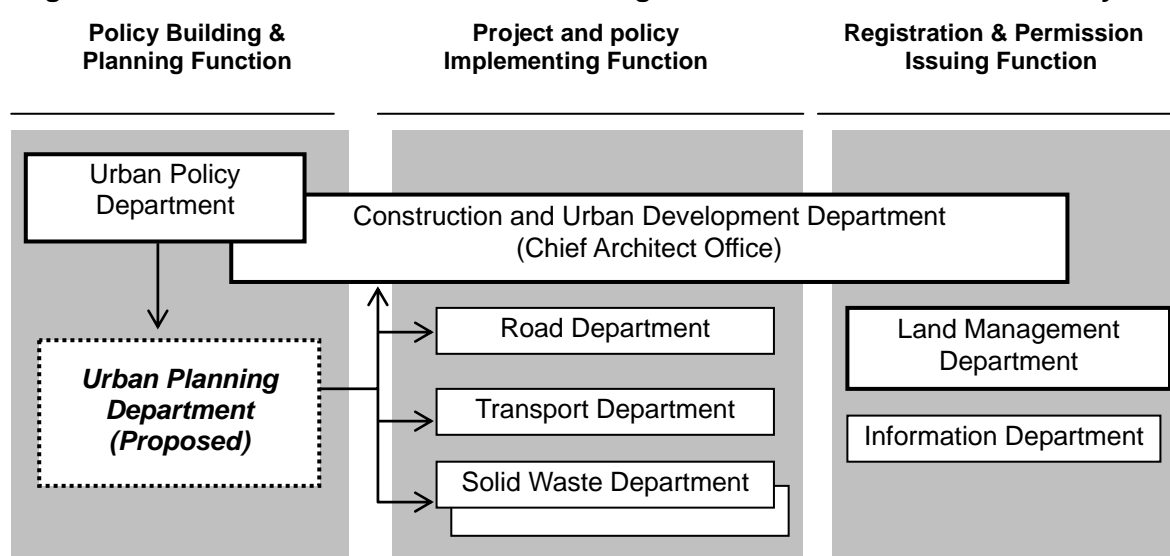
17.4 Organizational Restructuring

1) Enhancement of Organizational Structure for Realizing Master Plan

The establishment of an empowered organization is essential to realize the targets of the Master Plan. The city government is required to conduct excellent management and operation actions of the overall urban development project based on the Master Plan. To this end, a more functional organizational system should be established, with the following measures:

- **The Mayor**, and other high-ranking decision-makers, shall take strong leadership with a clear grasp and vision of the future development of Ulaanbaatar.
- **Line agencies** related to urban planning should be further strengthened. There are three (3) functions on the administrative system: One is the policy building & planning function represented by the Urban Policy Department, since the physical and spatial planning capacity is generally weak. Another is the project and policy implementing function, represented by the sector department. The third is the registration and permission function rendered by Land Management Department. The most powerful authority is the Construction and Urban Development Department, headed by the Chief Architect, which covers the three (3) functions in accordance with the Urban Development Law.
- In the administrative structure, the policy building and planning function needs to be further strengthened. Urban Policy Department's mandate is to study and formulate overall policy for development, but does not cover physical and spatial development policies. A new organization, provisionally called **"Urban Planning Department,"** which is independently responsible for the implementing, monitoring, revising and managing the City Mater Plan, is recommended for establishment, as shown in Figure 17.4.1. This department shall function as the base office of Deputy Mayor (newly assigned in December 2008) who is in charge of urban development policy.

Figure 17.4.1 Enhancement of Urban Planning Administration in Ulaanbaatar City

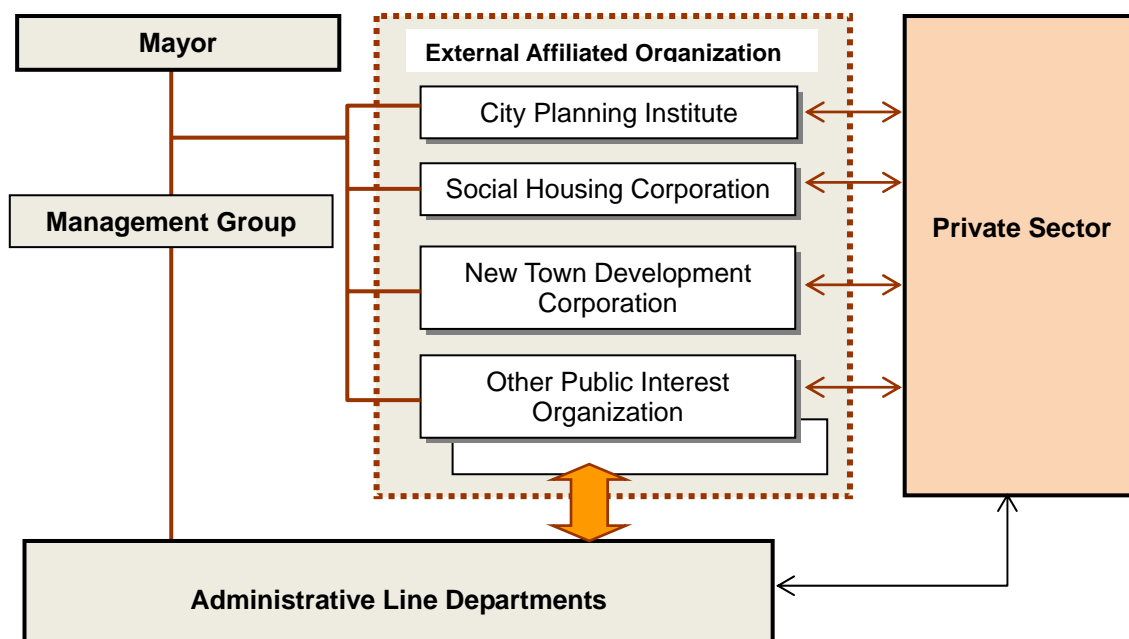


Source: JICA Study Team

- **Affiliated organizations**, which are responsible for planning and project implementations of specific strategic projects and programs, also should be established, or reorganized, as the Mayor's control organs, this is conceptualized in Figure 17.4.2.
 - Establishment of “**City Planning Institute**”, that may be re-organized by strengthening the Urban Planning, Research and Design Institute (UPRDI) in terms of financial and staff capacities. The City Planning Institute shall have various functions such as: 1) to make preparation of city master planning; 2) providing technical and professional supports to formulate District Plans; 3) to make researches for master planning and continuous monitoring of urban development; 4) to verify related policies and laws which affect the urban development; 5) to review and develop the organizational environment in conformity with the dynamic change of the city; 6) to supervise works and duties of related agencies related to urban development projects; 7) to compile statistical and mapping data/information; and so on. Financially, this institute may be managed with investment profits of a special fund to be allocated from Mongolian Development Fund.
 - Establishment of “**Social Housing Corporation**” as an independent public Corporation to provide affordable housings for low income class group and to manage and operate the comprehensive policies and planning in relation to the social housings, including an effective use of private sectors. Rental housing provision is also this corporation's task. MHFC deserves to be functionally converted to the Social Housing Corporation.
 - Establishment of “**New Town Development Corporation**” as an independent public corporation to take responsibility for the construction of infrastructures (roads, utilities, parks and recreational facilities) and land preparation of new town projects and new housing areas development. This organization may carry out joint venture projects with private sector, but take an initiative of the implementation of the project with strong management roles. The financial source will come from Mongolian Development Fund, National Pension Fund, bond issuance, and/or a new financial organization of **FILP (Fiscal Investment & Loans Program)** as proposed in Section 17.5.

Meanwhile, the investment environment of private sectors for the urban development is not yet matured in Mongolia due to the unclear role sharing and invisible investment risks. Even if the private sectors participate in projects in response to the government request, they will confront with almost insurmountable difficulties without a clear development scenario and process to the final profit goals. Therefore the government is expected to make efforts to remove the obstacles and to realize the good and healthy public and private partnership (PPP).

Figure 17.4.2 Organizational Framework with External Affiliated Entities



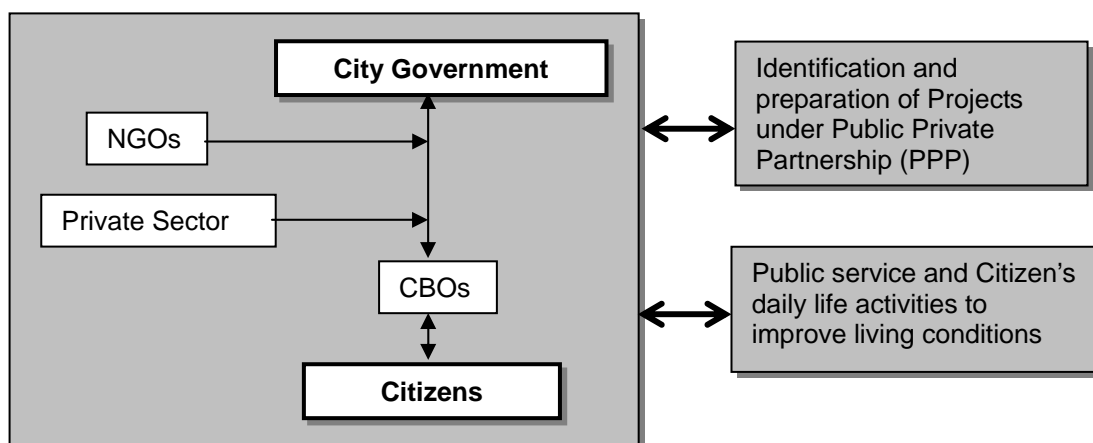
Source: JICA Study Team

2) Establishment of Co-partnership City Planning and Development System

“Co-partnership City Planning and Development” system in cooperation with citizens, NGOs and business sectors is the major issue to improve the urban environment in Ulaanbaatar City. The participatory approach with the incorporation of citizens into the city planning and development process plays the most important part of planning system in order to indentify the solutions. The community-based organizations (CBOs) are expected to be established as a small community unit all over UB City, to promote the participatory city planning and development.

The city government is in charge of taking initiative to propose draft measures to improve the living conditions, and to reach the same recognition through discussions with stakeholder groups such as citizens, NGOs and private sectors. Projects to improve the living environment will be identified in this process and it is expected to set up a good partnership among these co-partners. Several devices have to be incorporated for citizens to participate in the public service activities to improve their living conditions.

Figure 17.4.3 Co-partnership City Planning and Development Framework



Source: JICA Study Team

3) Capacity Development

The capacity development of human resources is one of the most important issues, together with the legal, institutional and financial frameworks, for promoting the diverse urban projects. Table 17.4.1 presents the inventory of the necessitated training items. The training fields which have to be covered are the urban development, community development and housing development. These three (3) fields are deemed to fall behind other developing countries.

The training subjects are legalization, institutional and administrative capacity development, financing and project implementation. In the urban development field, the training for the new public management (NPM) system and the land valuation system & declared land value system are incorporated, for enhancing the administrative capacity of city planning and urban development system in addition to the institutional development. In the environmental management, a clean development mechanism (CDM) must be one of the important training aspects related to the air pollution issues.

The training for project implementation provides with opportunities to experience and understand the overall flow of the development project on the job base. Important is to let them understand the project flow in the context of legal and institutional procedures based on the planning and implementation guideline.

The training system will be basically executed by dispatch of experts or technical assistance (TA) from donors, but there is another system to send Mongolian officials to the training organizations being run by donor agencies such as JICA, the World Bank and ADB, etc. Besides, a number of training programs with special subjects are also available.

Table 17.4.1 Fields Required for Human Capacity Development and Training System

Field	Training Items	Training Contents	Beneficiaries	Training Opportunities
Urban Development	Legalization	Revision of existing laws: Urban Development Law, and Land Law	MRTCUD	Dispatch of experts Technical Assistance JICA training course
		Establishment of urban development-related laws: Urban Redevelopment Law, Land Readjustment Law, New Town Development Law, Land Compulsory Law	MRTCUD	
	Institutional & administrative Capacity Development	Institutional development for realizing Master Plan	MRTCUD, UB City	
		New public management system for promoting P.P.P	MRTCUD, UB City	
		Land Valuation System, Declared Land Value System	MRTCUD, UB City	
	Financing	Subsidy system for promoting the urban development project	MOF, MRTCUD, UB City	
	Project Implementation	On the job training for Urban Redevelopment Project, Land Readjustment Project and New Town Project	MRTCUD, UB City, Consultants, NGOs	
Community Development	Legalization	Legalization for establishing community-driven activities and organizational issues	MSWL, UB City	Dispatch of Experts, Technical Assistance, Training at CODI in Thailand
	Institutional & Administrative Capacity Development	Institutional development and Provision of administrative framework of community-based programs	MSWL, UB City	
		Establishment of Community & Local Partnership Housing Association	MRTCUD, UB City, Building Material Manufacturer's Association, Architect and Construction Company, etc.	
	Financing	Establishment of financial resources for Community Mortgage Loan and financing system	MOF, MSWL, UB City	
		Introduction of Clean development mechanism(CDM)	MNE, UB City, MTC	
	Project Implementation	On the job training for community development	MSWL, UB City, Consultants, NGOs	
Housing development	Legalization	Revision of existing "Housing Law"	MRTCUD, MHFC	Dispatch of Experts Technical Assistance
		Legalization for Establishing Social Housing Corporation (SHC), and Housing Development Financing Institution (HDFI)	MRTCUD, MOF, UB City, MHFC	
	Institutional & administrative Capacity Development	Institutional development and Provision of administrative framework of Social Corporation	MRTCUD, MOF, MHFC	
	Financing	Establishment of financial resources for HDFI & SHC and financing system including subsidy	MRTCUD, MOF, MHFC	
	Project Implementation	On the job training for HDFI and SHC	MHFC	

Source: JICA Study Team

17.5 Donors Coordination

1) Expected Functions of Mongolia-External Partners Technical Meeting

The Mongolia-External Partners Technical Meeting was initiated on April 2007, with more than 200 representatives' participation. The meeting was a sort of place to express their comments, views and opinions from the viewpoints of both donor and recipient sides on the draft National Development Strategy (NDS). In finalizing the NDS, the donor sides have requested the closer consultation on the integration of the infrastructure development plans into the NDS. It means that the discussion on the NDS would be shifting from a conceptual level to concrete actions for the coordination between donors and recipient, and monitoring mechanism on the progress of actions which was taken by both the government and donor agencies would be necessary.

The working groups under the Technical Meetings are expected to function for this purpose. The working group of "urban development" has been facilitated by Japan and Germany. It is very important for two (2) donors to take a strong leadership in coordinating different approaches among donors and setting up an effective monitoring mechanism on the progress, in particular, in the process of preparation for the infrastructure development program under NDS. This UBMPS should be integrated in this process.

The donor society, through the discussion in the External Partners Technical Meeting, recognizes a growing role of the private sector in the Mongolian development strategy, in particular, on mining sector and its related urban & infrastructure development. The Private Sector Development Working Group in the Technical Meeting mainly discussed and focused on the mining development, and admitted high development potential in the sector. The mining sector will be developed by the initiative of foreign and local private sectors. In this regard, the government already identified fifteen (15) strategic deposits, and it is very important for the government to timely prepare for the fair and transparent development guidelines to secure equal opportunity of private sector's participation.

In relation to this JICA Study, it is also important for the government to have a linkage and coordination between urban development plans. This will be the most appropriate field in developing Public-Private Partnership as Minister of Finance referred to in the External Partners Technical Meeting. The guidelines will be prepared by Ministry of Finance, and a timely coordination is expected among the Mongolian Government, EBRD, the World Bank group, ADB and Japan including relevant private sectors.

2) For Functional Donor Coordination Mechanism

As briefly reviewed, only the External Partners Technical Meetings co-chaired by the Ministry of Finance and World Bank, and sector working groups are the existing tool and mechanism for donor coordination. In order to further functionalized coordination, a more practical approach should be taken in consideration of the following:

(1) Overall Framework for Project/Program Coordination

Among the Mongolian government and donor agencies, there is a common recognition that for sustainable socioeconomic development in Ulaanbaatar as well as Mongolia, infrastructure development is the key, because infrastructure bottlenecks in Ulaanbaatar

would hamper future development potentials. The JICA Study includes broader issues and fields such as infrastructure, social & environment issues including Ger resettlement and legal and financial framework related to the urban development. In this connection, the Study shall be integrated with not only NDS but also donors' programs. Well-coordination with other donor agencies is necessary for the successful implementation of the Master Plan.

Figure 17.5.1 indicates individual positions of on-going donors' activities, projects and/or programs in an overall planning framework of this JICA Master Plan Study. The framework is a matrix of five (5) visions for Ulaanbaatar 2030 and six (6) key planning issues to be tackled. The five (5) visions are: A) world-class **business center**; B) **Livable** city; C) **Healthy** city; D) International **tourist** destination; and E) **Well-governed** city. Whilst, the identified six (6) planning issues are: 1) Growth management for "**Compact City**"; 2) Comprehensively balanced urban **transport system**; 3) **social housing** and **Ger area** improvement; 4) Functional **infrastructures and utilities** development; 5) Sustainable **environmental** management; and 6) Rational **legal framework** for urban development.

Since this matrix stands for areas to be developed, it is ideal if all cells of this matrix be fulfilled with some activities and/or projects. In this sense, it can be said that on-going donors contributions are very versatile in practice and most of cells will be fulfilled with those projects/programs, except for two (2) areas related to a vision of "D) international tourist destination" and a planning issue of "6) Rational legal framework". It is also noted that there are scarce activities in the area related to the planning issue of "5) Sustainable environmental management".

Over-rapping and duplicated efforts need to be avoided in practice under the limited resources. Therefore, projects/programs should be coordinated among donors on the time of project preparation and design.

(2) Placing Mongolian Government on the Center

A coordination function should be centered on the Mongolian government, and a new coordination mechanism is needed to secure coordination function between the governments of Mongolia and donors. This coordination mechanism should include private sectors in both countries, and periodical dialogue initiated by both governments.

It will become more important for this mechanism to secure the financing sources in financing the individual project which will be identified by the Study. This is a PPP-typed financing mechanism which should be created to supplement existing ODA resources.

Figure 17.5.1 On-going Donors' Contributions in Planning Framework of JICA-UBMPS

Key Planning Issues	Visions on Ulaanbaatar 2020 & 2030				
	World-class Business Center	Livable City	Health City	Int'l Tourist City	Well-governed City
1 Growth Management for “ Compact City Structure ”	GTZ: Integrated Urban Development Program (IUDP)				MCC: Land Property Registration Project
2 Comprehensively Balanced Urban Transport System	ADB: Transport Sector Strategy (planned) MCC: Railway Project JICA: Int'l Airport Project	JICA: Railway Flyover Project	WB: Improvement of Public Transport	JICA: Int'l Airport Project	ADB: Transport Sector Strategy (planned)
3 Social Housing and Ger Area Improvement	USAID: Economic Policy Reform and Competitiveness Project	WB: Ulaanbaatar Service Improvement Project (USIP); ADB: Community-led Infrastructure Dev't; UN-Habitat: Ger Area USIP; Community Development (through JICA) UNICEF: Convergent Basic Social Service in Ger Areas			ADB: Urban Development & Housing Finance Program
4 Functional Infrastructures & Utilities Development	GTZ: IUDP	KfW: (planned)	WB: Energy Sector Project GTZ: IUDP		WB: Ulaanbaatar Heat Efficiency Program JICA: Technical Support of PP-4
5 Sustainable Environment Management		WB: Improved Stove Project GTZ: IUDP JICA: Solid Waste Management; Air Pollution Mitigation TA			
6 Building of Rational Legal Framework for Urban Development					GTZ: Cadastral Survey and Land Registration

Source: JICA Study Team

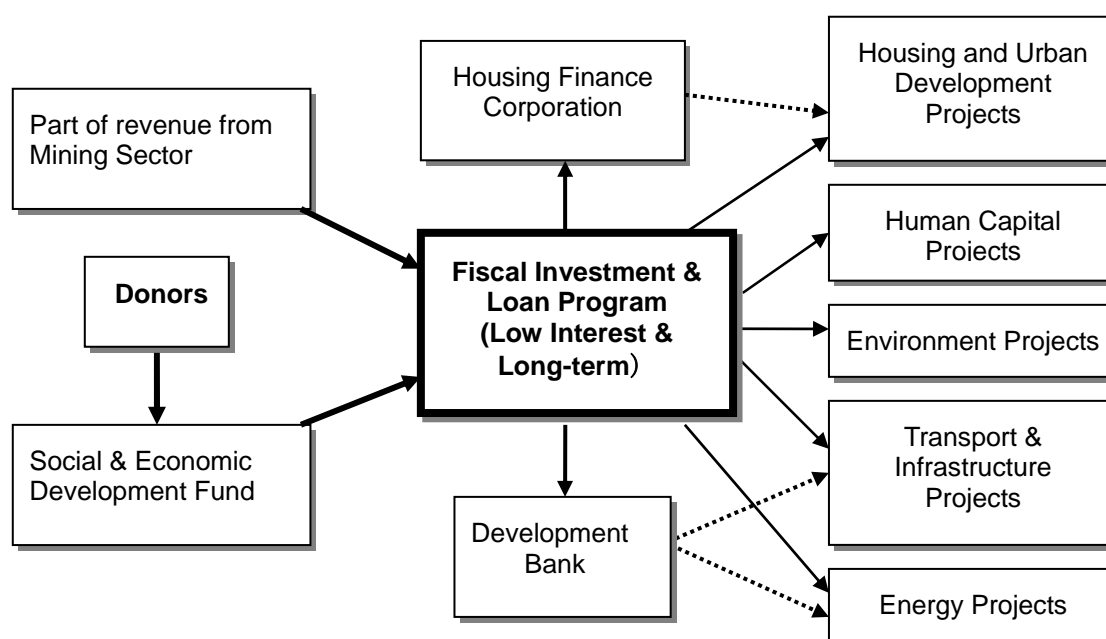
3) Strategic Coordination toward New Financing Mechanism

In the process of implementing the Master Plan, many prioritized infrastructure projects were identified together with a new regulatory framework which will enhance effectiveness and governance to secure transparency and accountability. A new financing mechanism is a key for successful implementation of the Master Plan. JICA Study Team shared the same view of a new financing mechanism, called “Fiscal Investment and Loan Program” (FILP), with Mongolian counterparts in discussing with Ministry of Finance and other relevant agencies in September 2007.

In Japan, FILP was established by the government soon after the World War II when private financial institutions were not well developed, and FILP was utilized for resource redistribution for alleviating excessive disparities between high and low incomers and cyclical adjustment for maintaining stability in the business environment. This also functions to supply funds in order to produce goods and services required by the society. A similar financing mechanism for economic development deserves to be applied for the Mongolian system.

The basic model of FILP is as depicted in Figure 17.5.2. The financial sources of FILP are part of mining revenues through Mongolia Development Fund, donors’ contributions and some other public funds. Having publicly available funds, FILP provides soft loans (low-interest and long-term repayment) for public entities who are responsible for infrastructure, transport, energy, human capital and housing development projects. Part of funds may be provided for the financial institutions such as Mongolia Housing Financing Corporation (MHFC) and development banks. Importantly, the loans shall be properly managed. Involvement of donors’ funds is effective to keep the loan management rational and transparent.

Figure 17.5.2 Example of Possible Financial Mechanism



Source: JICA Study Team

18 STEP FORWARD

This Final Report has compiled outcomes of the master planning studies. A number of substantial arguments and proposals have been involved in this draft plan, in terms of enhancement of the legal and financial system for the urban planning administration as well as the land use and zoning, new town development and new urban transport systems with two (2) public transit corridors under a compact city concept.

In order to materialize these concepts and strategies, the Study proposes a total of 115 projects/programs as a “**Development Program**” to be implemented up to the target year 2030, covering almost all important sectors. The total cost of the proposed 115 projects/programs accounts for **US\$9,894 million** that will be invested up to 2030. This is a huge investment, but it has been envisaged that along with the expected economic growth, the cost will be affordable for Mongolian Government.

The proposed development program includes strategically important sectors, covering eight (8) sectors. For each sector, sub-sectors or programs to be given the highest priority have been identified as shown in Table 18.1. As the result of priority evaluation of all proposed projects, a total of fifty (50) projects/programs were listed up as “**urgent action projects**” which are recommended to be commenced as soon as practical and hopefully completed by 2015. Those are discussed in Section 14.3, Chapter 14.

Table 18.1.1 Important Planning Issues and Priority Subsectors

Planning Issue Sector	Highest Priority Subsectors
Urban Economic Enhancement	<ul style="list-style-type: none"> • Industrial Relocation and Collectivization • Tourism Sector Enhancement • Sub-center Development
Urban Transportation	<ul style="list-style-type: none"> • Road Traffic Bottlenecks Alleviation and Traffic Management • Public Transport System Improvement
Infrastructures and Utilities	<ul style="list-style-type: none"> • Water-related Utilities (Water Supply and Sewerage) • Energy Supply Management System
Housing and Housing Policy Enhancement;	<ul style="list-style-type: none"> • Ger Area Improvement • Social Housing Development
Urban Environment	<ul style="list-style-type: none"> • Air Pollution Mitigation • Disaster Management • Urban Amenity Improvement
Social Service Improvement	<ul style="list-style-type: none"> • Education and Health Care Facilities Development in Communities
Institutional & Legal-base Development and Governance	<ul style="list-style-type: none"> • Development of Urban Planning-related Acts • Capacity Development in Urban Planning and Development Management
Development Financing System	<ul style="list-style-type: none"> • Enhancement of Municipal Financing Capacity • Housing Financing Mechanism for Lower Income Households

Source: JICA Study Team

The study outcomes are all subject to further elaboration and/or clarification among the relevant agencies and stakeholders. The most important action that should be taken soon after, or along with, the clarification process is that based on this Study, Ulaanbaatar City should commence revising the existing UBMP-2020 and prepare the “New Ulaanbaatar City Master Plan 2030” in accordance with the Urban Development Law. This act of institutionalization is extremely important in turning Ulaanbaatar City into a well-governed, modern city where a fair and normative system ensures an orderly land use and development under a functional growth management mechanism.

Donors are all welcome to join the above process and to support Ulaanbaatar City to become more competitive, livable, environmentally sustainable, financially bankable and governed well.

On the other hand, model projects for Ger area improvement are still being planned in ***Dambadarjaa*** and ***Unur***, with strong involvement of all stakeholders such as district and Khoroo governments and the community residents. Through these model projects, a community-driven Ger area improvement mechanism is being explored through a simple but ideal form of land readjustment. These project need to be technically and financially supported by JICA, other donors such as UN-HABITAT and NGOs as well as the Ulaanbaatar City Government.

The Study Team was often asked a question why the existing Master Plan 2020 cannot be materialized and what faults are existing, despite that the master plan has been approved by the Government. Even though the master plan is well-designed and technically correct, the plan could never be realized, given three (3) conditions, i.e., 1) legal and institutional systems to ensure the implementation; 2) government commitment for budgeting toward the implementation; and 3) strong support and advocacy of the general public and stakeholders.

The Study Team really hopes that this report will be fully utilized to guide such an institutional process of the Central Government as well as the Ulaanbaatar City Government towards establishment of the proudly prosperous city, Ulaanbaatar.