Chapter 7. Study of Project Scheme

In Jakarta, with hopes that mobility will become founded on public transportation and not dependent on cars in the future, it is necessary to take measures to develop Dukuh Atas Station, located in the central part of the city, as a transportation hub that offers a high level of convenience and comfort and to promote development of the station area in order to achieve synergistic effects, thereby improving the area's ability to attract patrons and increasing the number of railway users.

Meanwhile, large amounts of investment and close collaboration with surrounding private facilities are required for the underground walkway and artificial ground using space over the canal, which are needed to make this a comfortable transportation hub; and the capacity for such development would be limited in the case of a stand-alone public works project. Therefore, it is necessary to use a PPP scheme and share roles in facility development between the public and private sectors in order to reduce the financial burden on the public sector, make use of the expertise of the private sector, build more attractive and efficient facilities, and promote effective maintenance, management, and operation.

The following are essential points concerning the PPP scheme for this project.

- In most conventional public facility projects, the functions of planning, design, construction, maintenance, and operation have been handled separately, with a lack of consideration for mutual convenience.
- When a PPP scheme is used, the wishes of operators can be reflected from the initial planning stage, making it possible to build and operate facilities that will provide a high degree of convenience and satisfaction for members of the general public, who will be the facility users.
- Because the underground walkway and artificial ground in this project are facilities of the transportation hub, they should be built by the public sector, which will retain ownership.
- Meanwhile, through a suitable division of roles with private businesses in development of the area around the station in integration with the transportation hub, it will be possible for a certain amount of development funds for the public portion to be generated from the area around the station.
- In addition, consigning the maintenance and management of public portions to private businesses, with integrated management of facilities around the station, will allow for high-quality facility development, management, and operation services that will contribute to a long usable lifetime.

7.1 Facility allocation between the public and private sectors

7.1.1 Roles of the public and private sectors

The public facilities planned in this project are the underground walkway and the artificial ground over Banjir Kanal. There is a possibility of small-scale retail spaces such as kiosks and advertising spaces, but these will basically be public investment because their nature is that of terminal facilities. The private facilities will be office, commercial, and residential development, etc., around the station, and these portions will be basically private investment.

Meanwhile, urban redevelopment methods could possibly be applied in the development of the area around the station in this project. Specifically, in redevelopment led by the public sector, private

businesses handle facility development and acquisition of reserved floor area in order to increase capacity. This makes it possible to obtain a certain amount of public burden charges from redevelopment with respect to the public portions, and private businesses are able to acquire and operate facilities near the station, thereby helping to increase the number of railway users.

Based on the above, the approach to the sharing of roles between the public and private sectors should be along the following lines.

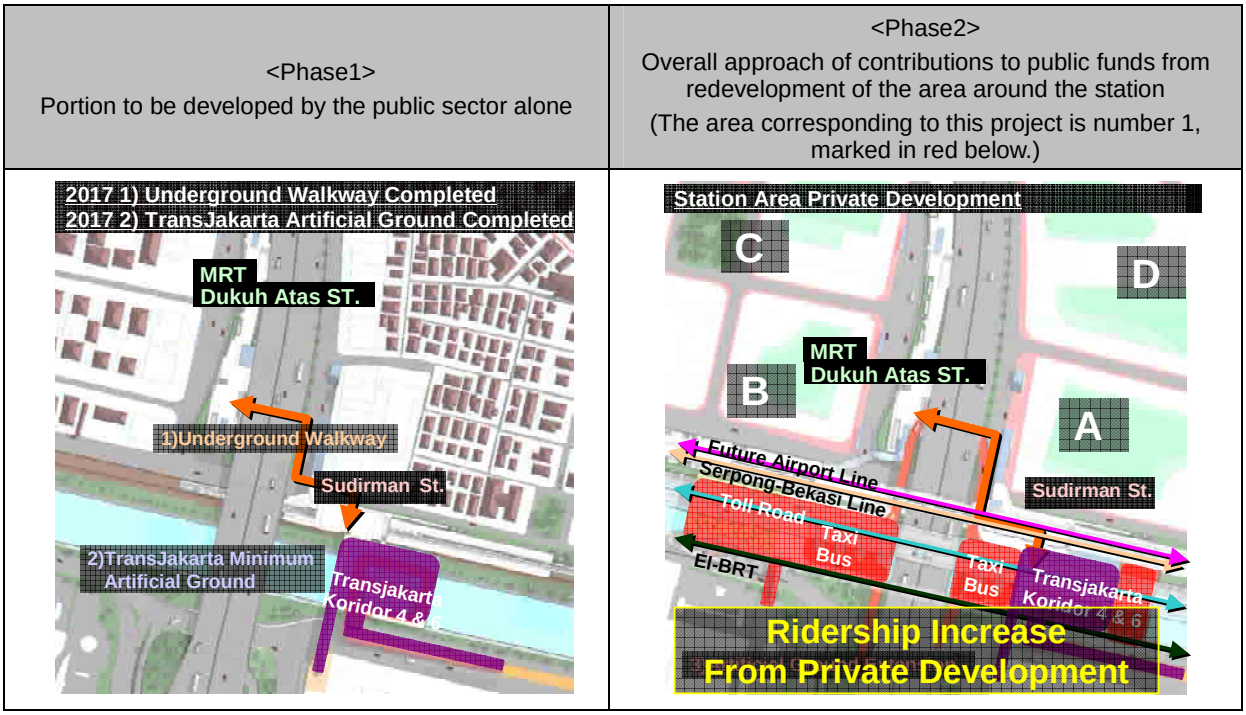
<Phase1>

- By the time of the opening of the MRT north- south line station in Dukuh Atas, the area is still under a development phase on urban transport hub value, and station front development potential, not able to attract the private developers into the area.
- Also the underground walkway and the primary artificial ground is essential to maintain the current BRT axis network as it will be taken over by the MRT north-south line, and also because of the urgent need to construct the basic infrastructural needs in the area, this phase shall be a public portion project.

<Phase2>

- Redevelopment of the area around the station will be led by government authorities but private businesses will handle facility development and acquisition of reserved floor area. Because urban redevelopment method is the first case in this country and this case will be the model case of urban redevelopment method.
- The artificial ground on phase2 will be developed and owned by the public sector as basically public facilities.
- For the artificial ground on phase2, a certain amount of public burden charges from the redevelopment project will take payback method and will be obtained within the scope of capacity increases.
- Maintenance, management, and operation of the public facilities will be consigned to private businesses, and management of facilities around the station will be integrated. The costs of large-scale repairs to public portions will paid by the public sector.

Figure 7.1.1 shows the framework of this project in terms of the allocation of roles between the public and private sectors, based on plan content as of the present time. Table 7.1.1 shows the allocation of roles between the public and private sectors in relation to the actual processes.



Source: Study Team

Figure-7.1.1 Allocation of roles between the public and private sectors (proposed)

Table-7.1.1 Allocation of roles between the public and private sectors (proposed)

Facilities		Planning and Baseline Design	FS	Obtaining Approval	Obtaining Certificate of Land use Right	Finance	Technical Design	Construction	Maintenance and Operation
Transportation Facilities	Walkway and Artificial ground	Public	Public	Public	Public	Public/ ODA/ (Private)	Public	Public	Public
Re-Development		Public/ Private	Public/ Private	Public	Public	Public/ Private	Public/ Private	Public	Private

Note: The costs of large-scale repairs to public portions will paid by the public sector.

Source: Study Team

7.1.2 Area for private development and project costs

The area for private development and project costs area are as shown below, based on the results of studies described in Chapter 4 (Project Development Plan),

For the portion to construct public infrastructure, Phase1 (Underground Walkway and Primary Artificial Ground) construction cost 680Billion IDR shall be funded by public, Phase2 (Artificial Ground Extension construction cost 850Billion IDR shall be funded by Private (Initially funded by Public, later paid back by private), the total cost would be 1530Billion IDR, the financial balance between public : private will be 44% : 56%.

To payback the Phase2(Artificial Ground Extension) 100% by private and at the same time establish a feasible development around the station area, assumption for the land area (base on the Dukuh Atas UDGL study for Dukuh Atas) and project cost for each block is shown on the table under.

Table 7.1.2 Area for private development and project costs (outline study stage)

Description		Area(m2)	Project Cost (Bil. IDR)		
PHASE1 Public Portion	Underground Walkway	850	350	680	**44%**
	Artificial Ground （PHASE1）	4,000	330		
PHASE2 Public/Private Portion	Artificial Ground （PHASE2）	14,000	Payback by:	850	**56%**
			Block A 210		
			Block B 130		
			Block C 180		
			Block D 330		
Private Development	Block A	15,500	2,800		
	Block B	9,200	1,700		
	Block C	13,200	2.400		
	Block D	23,800	4,300		
	Total	61,700	11,200		

*)Artificial ground (Step2) will be developed by the public sector, then a certain amount of public burden charges will payback from the redevelopment project. So there are some risks of this payback depend on project progress.

Source: Study Team

7.1.3 Project income and expenditure plan

Here the project income and expenditure plan is set based on Scheme 2 (PPP / Right Conversion Route) selected in Section 7.2.2.

As shown in Fig. 7.1.3, in the project income and expenditure, the artificial ground development work and the redevelopment work is assumbed to be carried out as a public project (public sector-led project). As the price of acquiring reserved floor space in the redevelopment project, private sector businesses pay the cost of the redevelopment, and the cost of the artificial ground development as a public contribution.

＜Cost of redevelopment project + artificial ground development cost = cost of obtaining reserved floor space＞

The private businesses lease the acquired reserved floor space for business and commercial use. Based on this concept, the project period was set, the net cash flow generated during the project period was calculated, and the profitability of the investment was analyzed.

In this case, as a PPP project, the profitability of the project was analyzed for percentages of public burden charges paid by private businesses towards the cost of the artificial ground development cost varying between 0 to 100%.

The revenue of the private businesses is mainly leasing income for the business and commercial floor space, and the level was set to the current market level based on the results of several interviews. The costs for other items used in the calculation of the project income and expenditure were also set to the current market level, after carrying out interviews for each item.

Likewise for consumption tax, etc. Consumption tax is 10%, real estate income tax is 5% the amount of the transaction for income and when selling, and fixed asset tax is 0.2%. For corporate tax, etc., the calculation was carried out assuming 10% withholding tax on lease fees, based on Indonesian real estate lease business, with no corporate tax.

The analysis was carried out taking into consideration only A block only as the basis, and a trial calculation for all blocks (ABCD).

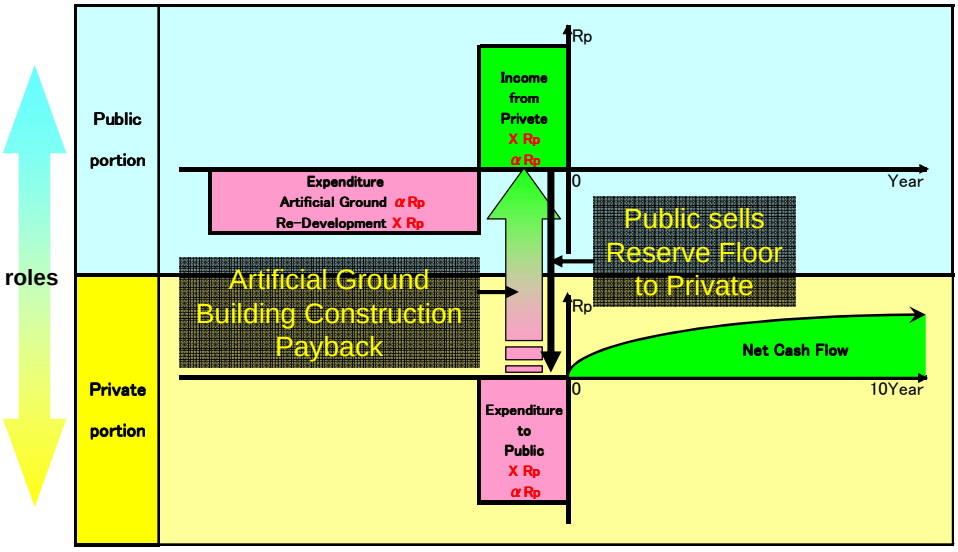


Figure-7.1.2 Framework of income and expenditure plan (source: study team)

7.2 Project Implementation Program

7.2.1 Urban Redevelopment Methodology

1) Land Acquisition, the Key Challenge in Indonesia

New infrastructure development and Special Economic Zone development are expected to be implemented to promote economic development in Indonesia, the progress of those activities has been observed not fast enough. Land acquisition is essential for any infrastructure projects but it does not make progress as common cases where too many land owners are involved and thus not showing much progress in land acquisition, halting the plan or even giving up the project.

2) Urban Redevelopment could expect a large scale development impact by inducing private sector investment

With a view to tackle this land acquisition issue, the Indonesian Government have been making several efforts. One of those examples are Public Land Acquisition Act 2012 in which the acceleration of land acquisition process is envisaged. The effectiveness of this new act needs to have some more time to see the outcomes.

3) Right Conversion System for Urban Area Redevelopment

The Ownership Right Conversion System, though not yet introduced into Indonesia, is a methodology without going land acquisition. Instead land owners are asked to keep their ownership of the land but are asked to participate in the Urban Area Redevelopment project. This effort will constitute a Public-Private Partnership scheme between Public and Private could contribute greatly as a new methodology to promote infrastructure development by Indonesian Government.

This Right Conversion System is not only applied to develop land with high-rise buildings but also to form new central business districts, to improve city sprawling. This System has been widely adopted and achieved a number of cases of success in Japan. This System can widely be applied to acquire land for industrial parks and special economic zones for industrial development.

4) A number of Successful Cases in Japan through Right Conversion System for Urban Redevelopment/Land Rezoning

Japan has made a big success on its urban redevelopment and land rezoning via Right Conversion System without going land acquisition.

(1) The Land Rezoning Law

Japan adopted the Land Rezoning Law (1954) describes that “Land Rezoning is an operation with the land zoning amendment and public facility construction or change with a view to promote public facility development and improvement as well as residential area development within a city planning area lands.” This Land Rezoning Law concept was originally developed from a German law but mainly implemented in Japan. The applications of this Law are found in the cases such as recovery from disasters, developments of station front and residential area developments.

More in detail of those applications, some of them are, for example, station front square and its access road development, residential land development from forests and/or farm lands,

consolidation of poorly used lands within the developed urban area, development of large vacant space of former factory areas, rezoning and widening of roads at built-up areas, and further, recovery and reconstruction implementations.

(2) Urban Redevelopment Law

Land Rezoning Law (1954) was introduced to promote land development in Japan. Urban areas in cities where many land owners exist and the land price was already in high level were difficult in promoting new development due to the defects of the Law applying only simple land rezoning approach and not having any development on buildings. A new approach called "Right Conversion" method was developed. Under this methodology, the land for development is firstly consolidated, a high-rise building is constructed, newly built floors are distributed to land owners as well as the ground level ownership, and owners will benefit their converted right to maintain / live on the newly created floor space. This development is implemented together with urban public facility development. Urban Redevelopment Law (1969) incorporated those concepts from the preceding Urban Area Reconversion Law (1961) and enabled urban development projects since then.

(3) Main Features of Urban Redevelopment / Land Rezoning Activities

Land Rezoning activities have been applied, as the representative methodology for urban area development in Japan, in many areas for a wide variety of issues. Over 400,000 ha of urban area development have been implemented till 2005. It is expected to promote a lively community formation and community development assuring safe and affluent society.

(4) Land Rezoning Activities

- Offering new land usage and advanced urban space with comprehensive and integrated development of both public facilities such as roads, parks, rivers and residential area
- Applicable in areas including existing to new urban areas for a wide variety of urban area development objectives, as well as possible combination with other related activities,
- Land owners' participation for new town formulation by keeping their ownership
- Urban development implementation with nearly equal funding from Public sector for public investment and Private sector funding from the sale of reserved floors.
- Large economic development impact with inductive Private sector investment

(5) Achievements of Land Rezoning Activities in Japan

- Land Rezoning activities were implemented with total development area of around 400,000ha throughout Japan till 2005. It constitutes about one-third of Densely Inhabited Districts (DID) in Japan.
- Roads and parks are developed in an integrated manner. Total surface of parks developed under Land Rezoning activities is about 14,000ha. This represents about a half of the existing district, neighborhood and community parks.
- Redevelopment activities such as recovery after the war or disasters are widely applied

(6) High-Rise Use of Land through Area Reorganization

- Consolidation of poorly used scattered land space or fragmented land use areas in the existing urban areas through the urban rezoning
- Surface area expansion and high rise use of land
- Urban environment creation with spacious and open spaces

(7) Formation of Hub Urban Area

- Reactivation of former railway yards and factories in large cities and central urban cities
- Development of hub urban area contributing to urban structure reorganization

(8) Improvement of Sprawled Urban Area

- Sprawled-out urban areas developed in suburbs during the high-growth period often remain untouched without sufficient infrastructure under poor living conditions ending up as slum areas.
- Improvement of those sprawled urban areas could be realized through Land Rezoning activities will enable the area reorganization and infrastructure development by maintaining the existing communities.

7.2.2 Project implementation program

Study will be given to project strategies that give priority to the scheduled opening of the MRT north-south line (to be completed in late 2016) in this area, the possibility of obtaining yen-denominated loans, and the approach to allocation of investment between the public and private sectors.

The public facilities that will be immediately needed after the MRT north-south line is opened are the underground walkway and the minimum amount of artificial ground for TransJakarta lines 4 and 6. Development of the surrounding area will not yet be complete at this early stage, and this will be developed by the private sector as an up-front investment of public capital (2017-2018, Step 1).

Meanwhile, by the time that the Serpong-Bukasi line and airport access railway are opened (planned for 2020), functionally all of the artificial ground will need to be in place (Step 2; coordinated with the time of railway opening in case of delays).

The approach for developing this project is that the public sector will build the public facilities, and then as private sector development of the surrounding area moves ahead, the private sector will pay for a portion of the construction costs in the form of public burden charges and will handle subsequent everyday management. The following are possible program options for private sector development.

Option 1: PPP/BOT route

Option 2: PPP/rights conversion route

Table-7.2.1. Evaluation of project implementation program options 1

	a) Private Developer land acquisition	b) Urban Re-development TYPE 1 (Japanese model)	c) Urban Redevelopment TYPE 2 (Japanese model)	d) Land Readjustment	e) Public Land Acquisition
	Private Color				Public Color
Item 1 Social issue regarded, no forced relocation to existing residents Able to protect the rights of remaining residents	× Land Acquisition needed	○ Existing land owner has an option to remain	○ Existing land owner has an option to remain	○ Existing land owner has an option to remain	× Land Acquisition needed
Item 2 Percentage of public land is high Land for Terminal can be provided	× All land will be private owned and cannot be used for terminal	△ Possibility of not bale to produce enough reserve floor	○ Public land can be provided	○ Public land can be acquired by land contribution	◎ All public land
Item 3 Private Investment opportunity Cut down on public budget	◎ 100% Private investment	○ Private and also partly public contribution	○ Private and also partly public contribution	△ Depending on land contribution	○ Possible under BOT scheme usage
Item 4 Increase of land value No compensation payment needed to meet the conversion	○ Depending on private contribution	◎ High volume usage and infrastructure	◎ High volume usage and infrastructure	△ Public land contribution is huge, therefore case of compensation can occur	△ Land restriction due to
Item 5 Possible for high volume development (Limit of horizontal land use in Jakarta)	○ Depending on private developer	◎ Floor area bonus depending on public contribution	◎ Floor area bonus depending on public contribution	× After allocation difficult for individual owners	△ BOT Scheme No continuing development
Item 6 No land use restriction on the project land	◎ Depending on private developer	○ Discussed between existing and new owner	○ Discussed between existing and new owner	◎ Depending on the existing owner	△ Basically used for only public facility
Item 7 No restriction on existing residents, after development (Belief of land Value, more than floor value in Indonesia) (Multicultural vertical habitation issue, religion etc.)	× All existing owners to be relocated	△ Co-ownership of land, Some restriction may apply	△ Co-ownership of land, Some restriction may apply	◎ No restriction to existing owners	× All existing owners to be relocated
Item 8 Project Speed	○ Depending on compensation process	△△ Negotiation needed for rights conversion agreement	△ Supervised disposition approval (law enforcement possible)	△ Depending on and contribution agreement	◎ Land Acquisition law implemented
Item 9 Implementation possibility in Indonesia	◎ Co-ownership of land, Some restriction may apply	— No Experience	— No Experience	△ Experience in the past, not common anymore	○ PPP BOT Scheme Co-ownership of land, Some restriction may apply

According to the evaluation from the table above, for Dukuh Atas Project, "b),c),and e)" would be the proposed scheme option.

- For b) and c), It will be a first experiment Japanese redevelopment in Indonesia, Executer shall be PUBLIC (DKI) G to G advice needed from Japan.
- Private should be involved from the early stage, from finance to urban planning vision.
- Foreign company are not able to acquire land ownership in Indonesia, therefore Japanese developers with rights conversion experience shall team up with local company.

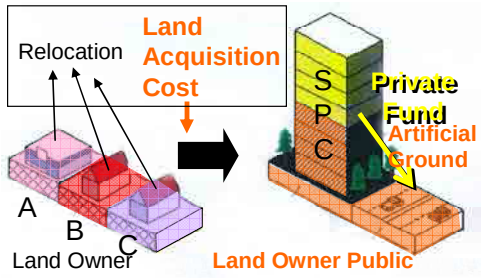
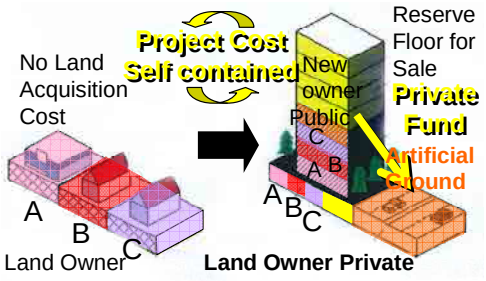
7.2.3 Evaluation of project implementation program options

The options indicated in the preceding section are evaluated in terms of the following aspects.

- Applicability of existing legislative framework
- Difficulty level of project implementation
- Fund procurement
- Ease of private sector participation

Table 7.2.2 shows the results of such evaluation.

Table-7.2.2. Evaluation of project implementation program options 2

	Option 1 PPP/Land acquisition +BOT Route	Option 2 PPP/Rights Conversion Route
Overview		
+ Pros	・Many experience in Indonesia ・Legal force of the new Land Acquisition Law can be used to speed up the project	**・Social issue minimized (No Relocation of Residents)** **・No Land acquisition Public cost needed** **・Building & Artificial Ground 100% funded by private** ・Attractive to Private investor for acquiring land ownership ・Can be a new TOD model for Jakarta
- Cons	**・Social issue regarding acquisition** **・Land acquisition Public cost needed** ・Land use limited to public use if new Land Acquisition Law is used	・Delay on schedule if each private owner disagrees with the plan (conversion ratio, etc.)

Source: Study Team

7.2.4 Project implementation framework

When pursuing the project, study will be given to the project implementation framework and to the framework for maintenance and operation after construction. The framework to be studied is shown in Figure-7.2.1. and Figure-7.2.2

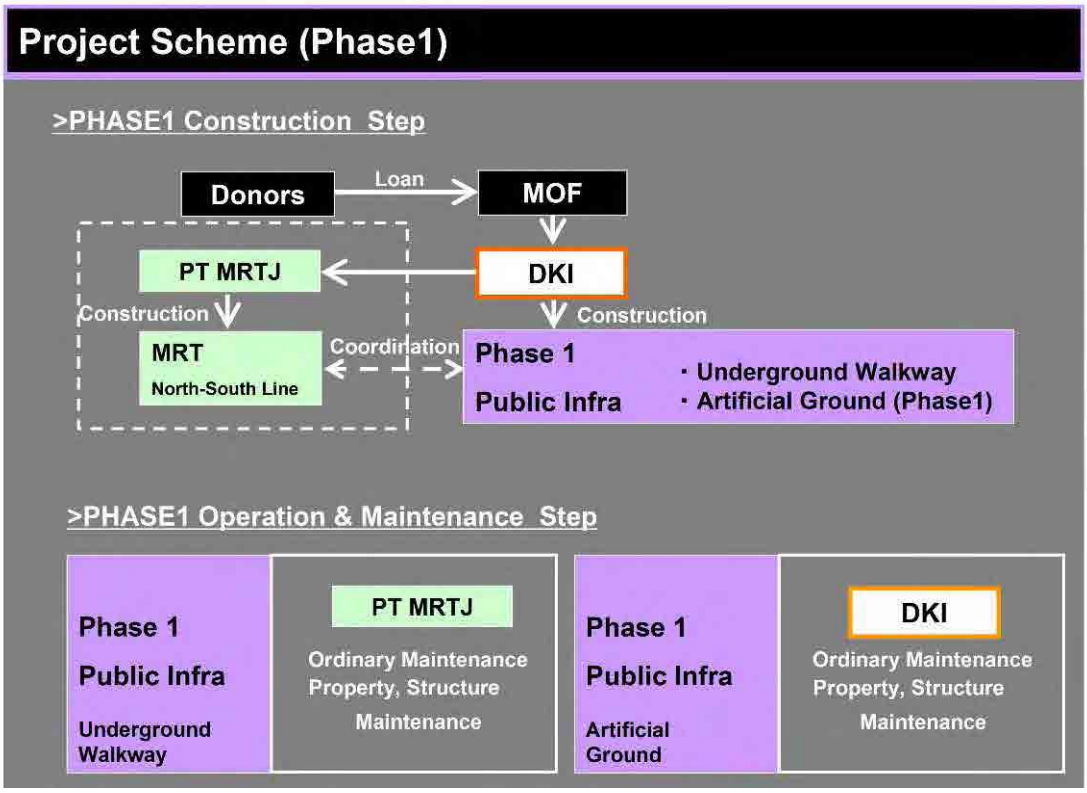


Figure-7.2.1 Project implementation framework Phase1

Source: Study Team

As Phase1 shall be positioned as a pubic project phase, the executer of the project shall be DKI with coordination with PT.MRTJ.

For operation and maintenance, the underground walkway shall be PT,MRTJ as it is directly connected with structure of the PT.MRTJ Dukuh Atas station. For the operation and maintenance for the primary Artificial Ground shall be DKI.

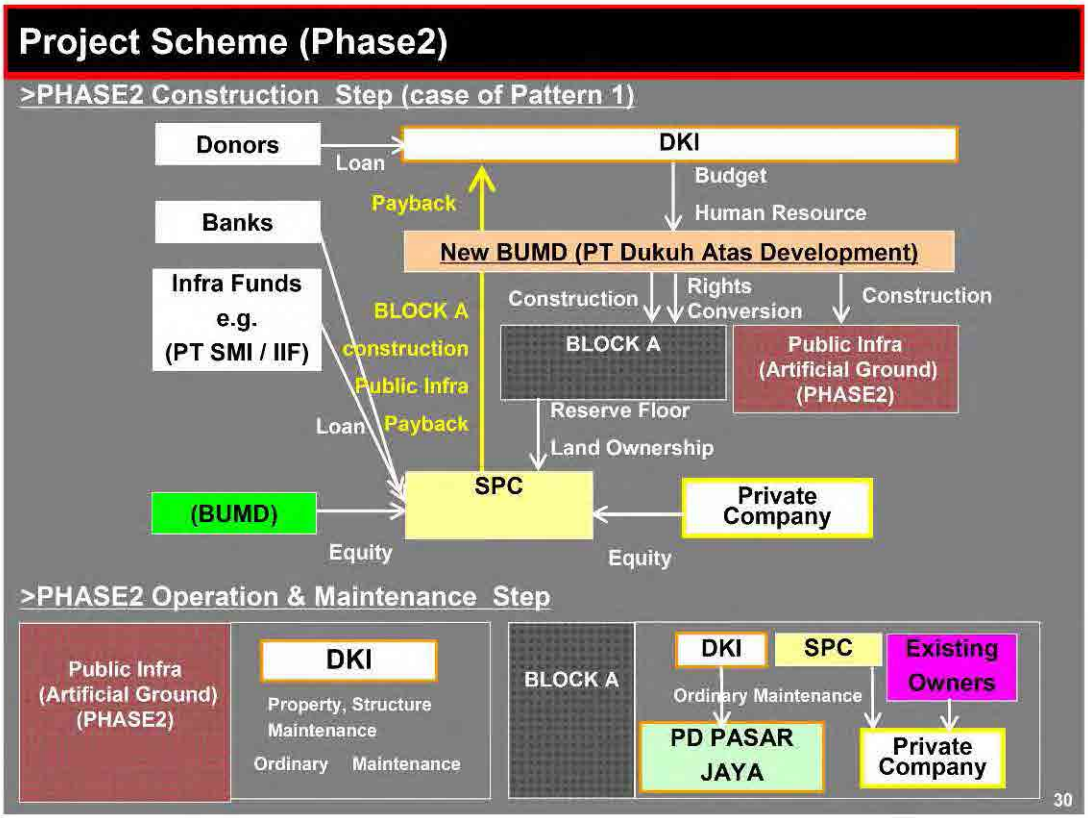


Figure-7.2.2. Project implementation framework Phase2

Source: Study Team

For Phase2, the artificial ground extension shall at first be executed by the public sector, and along with the commencement of the project work on each block, the payback of the extension artificial ground cost shall be executed according to the land area portion of each block. In this case, the direct payback from private to public sector cannot be done under current organization structure and regulation, therefore a new BUMD (state-run public corporation) shall be established to hand the financial issue between public and private.

In this case the new BUMD (state-run public corporation) can act as a development corporation to the Dukuh Atas area, taking in charge of the construction of the extension artificial ground and the block development, also be in charge for the coordination of the initial rights conversion.

For example in the case of Block A, the development can be treated as a renovation development for the public market, and the development executer can be a public sector. The reserve floor produced from the development can be sold to private sector to fund the whole development.

For operation and management, the artificial ground extension can be done by DKI (Also BUMD as an option) . For Block A case, the asset for the public market can be done by PD Pasar Jaya, and the rest among private companies.

7.2.5 Project Schedule

This project is in conjunction with urban railway development projects such as MRT. Therefore, it is necessary to consider the schedule of the project on schedule with consideration of urban railway development projects such as MRT.

Regard to urban railway development projects, such as MRT, to examine the schedule of the part involved in this project, we have set up the draft project schedule.

Table 7.2.3,7.2.4 show the draft project schedule. These tables represent the following schedule.

- Urban railway development projects such as MRT
- Artificial Ground Development, Underground Walkway Development(Phase1)
- Re-Development around the station

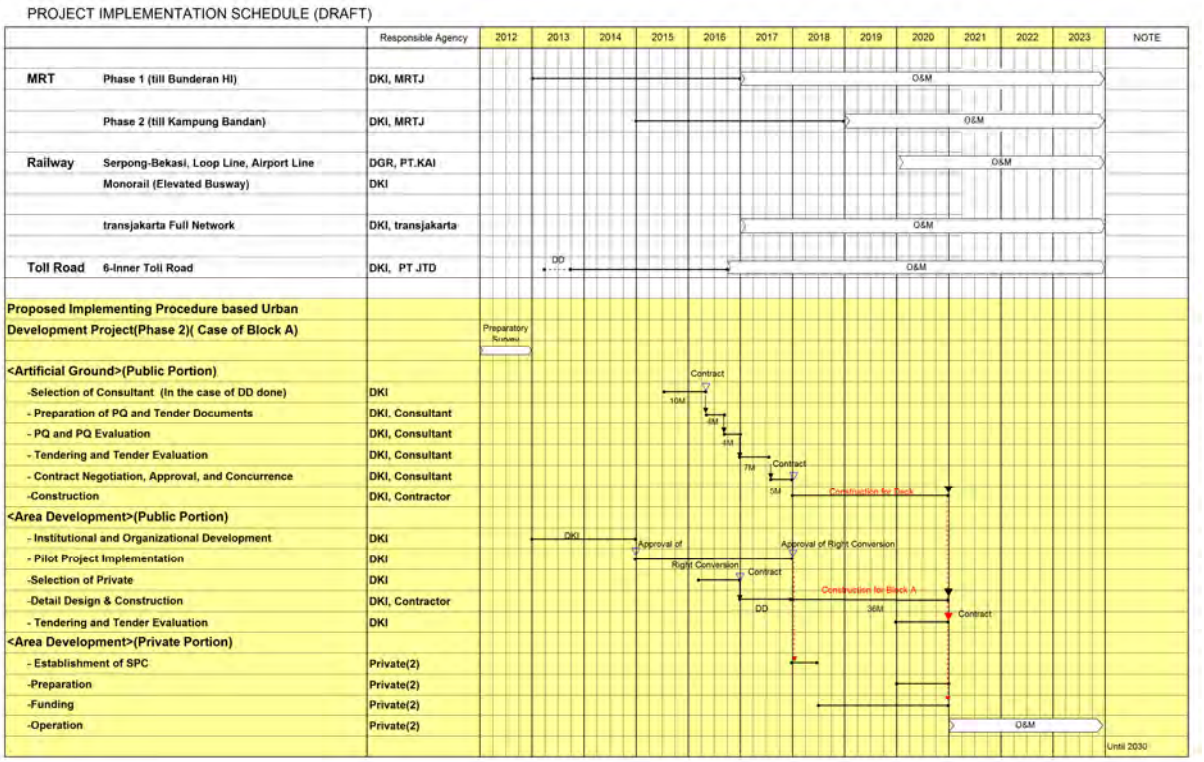
Table-7.2.3 Project Schedule (Draft) (Phase1)

PROJECT IMPLEMENTATION SCHEDULE (DRAFT)

		Responsible Agency	2012	2013	2014	2015	2016	2017	2018	2019	2020	NOTE
MRT	Phase 1 (till Bunderan HI)	DKI, MRTJ						O&M				
	Phase 2 (till Kampung Bandan)	DKI, MRTJ								O&M		
Railway	Serpong-Bekasi, Loop Line, Airport Line	DGR, PT.KAI									O&M	
	Monorail (Elevated Busway)	DKI										
	transjakarta Full Network	DKI, transjakarta						O&M				
Toll Road	6-Inner Toll Road	DKI, PT JTD		DD				O&M				
Underground Walkway & Artificial Ground (Phase 1)												
			Preparatory Survey									
- Environmental Impact Assessment		DKI, Consultant		12M								
- Signing of Loan Agreement		GOA, JICA		Contract								
- Selection of General Consultant		DKI		10M								
- Design Work		DKI, Consultant			6M							
- Preparation of PQ and Tender Documents		DKI, Consultant			4M							
- PQ and PQ Evaluation		DKI, Consultant				4M						
- Tendering and Tender Evaluation		DKI, Consultant				7M	Contract					
- Contract Negotiation, Approval, and Concurrence		DKI, Consultant				5M						
- Site Preparatory Work etc.		DKI, Contractor					Construction					
- Civil Structures		DKI, Contractor					22M					
- Architectural Works		DKI, Contractor										
- All Remaining Works		DKI, Contractor						4M				

Source: Study Team

Table-7.2.4 Project Schedule (Draft) (Phase2)



Source: Study Team

7.3 Financing

The financial arrangement possibility for this Project is reviewed for the Public Sector portion and Private Sector portion separately. The Public-Private responsibilities are shared as described above. A possible application for Japanese ODA Yen Loan is also reviewed.

- Public is responsible for the Underground Walkway and the Artificial Ground,
- Public is responsible for the station front development, and on the assumption that Private will acquire he Reserved Floors, Public will be responsible for the public facilities and public space development, whereas Private is responsible for private commercial and residential facilities,
- Private development will contribute, within the Floor-Space Index increase, to Underground Walkway and Artificial Ground development.
- Public will be responsible for the public facility management and maintenance as well as the large scale repair work.

7.3.1 Public Sector Financing

First of all, ODA Finance is a possible finance source for the Phase 1 of the Project. For example, JICA ODA Yen Loan is possible to finance a long-term lending for infrastructure projects. If it is applied to this Project, the public facilities such as Underground Walkway and Artificial Ground are possible to be financed. In addition, the Station front developments are considered to be led by Public and thus those facilities could also possibly be financed.

In the same manner as the foregoing Jakarta Special Province (DKI) Bond that DKI has been preparing recently could also be a possible funding source for the Project. The DKI bond is expected to be issued with the amount of US$100 million carrying 10 year maturity. The proceeds are restricted to DKI's major policy sectors such as education, housing, public health, environment and transport purposes. This Project purpose matches with those objectives and its application to seek funding from DKI bonds has been suggested during the discussion with DKI officials.

As regards the interest rate, the Moody's, the international credit rating firm, has raised the rating of Indonesia to Baa3, the investment grade, in January 2012, and indicated that Indonesian economy maintains its cyclical elasticity with a high growth trend in medium term. Fitch, the other ratting firm, raised the country to an investment grade in December 2011, and further the Standard and Poor's, another rating firm, rated the government bond as BB+ since April 2011 but is rumored to raise it eventually. On the money market, 10-year Government Bond rate stays around 6% denominated ones in Rupiah, whereas US$ one stays around 4% with some declining trend but stable. Considering those, the funding rate for DKI municipal bond would be possibly fixed at the level slightly higher than those of Government Bond.

7.3.2 Private Sector Financing

Financing from private sector institutions for the Phase 2 of SPC would have the following options.

(1) International development agency loan targeting private sector
(2) JICA's Private Sector Investment Finance based Overseas Investment Loan
(3) Indonesian public sector institutions loan from PT SMI / IIFF for example,
(4) Term Loan from Indonesian major banks
(5) Term Loan from Japanese banks through their Indonesian subsidiaries and/or branches
(6) Equity Investment by overseas and Indonesian investors

The following briefly describes each item.

1) International development agency loan targeting private sector

International Finance Corporation (IFC), a World Bank group institution, provides equity and loans to private sector, and Asian Development Bank (ADB) also offers the same. Both IFC and ADB made equity investment to Indonesia Infrastructure Finance Fund (IIFF). World Bank participates in the finance package to IIFF by providing a subordinated debt jointly with IFC providing equity on its part. ADB, to the private sector, not only extends its loans to EXIM Bank and housing finance but also loans to IIFF. This implies IIFF could be a financier on infrastructure projects including this Project.

2) JICA Private Sector Investment Finance (PSIF)

Private sector businesses in developing countries help to vitalize the economies and create employment, and consequently produce development results that lead to improvements in people's lives. At the same time, these businesses create expectations for further results such as acquiring foreign currency and technology transfers. However, due to factors such as their high country and business risks, it is difficult for these businesses to obtain financing from private sector financial institutions. Under these circumstances, JICA provides support in both equity and lending to private sector businesses.

JICA PSIF focuses on (1)MDGs and Poverty Reduction, (2) Infrastructure and Growth acceleration, (3) Climate changes. The key conditions for PSIF are to provide loans for highly-effective and development projects or projects with high probability in achieving businesses which, however, cannot be financed by existing financial institutions,

3) Indonesian Public Sector Financing Institutions - PT SMI / IIFF

PT SMI (PT Sarana Multi Infrastruktur) was established in 2009 with the authorized capital of US$ 200 million as a 100% government owned financial institutions for infrastructure development under Public-Private Partnership (PPP). Its financing instruments are Senior Loan, Subordinated Loan, Mezzanine Finance, or Equity. It has two roles; the facilitator role to provide project appraisals and reviews as well as advisory activities on one hand, and the catalyst role to supplement financial institution loans for their development in infrastructure finance by

participating with equity in infrastructure projects that having strategic importance on the other hand.

IIFF (Indonesia Infrastructure Facility Fund, PT IIF) was established in 2010 jointly by the Indonesian government and international development agencies as a non-bank financial institution. The Paid-in capital was 1.6 billion Rupiah, among which the Indonesian government invested 600 million Rupiah via PT SMI, 400 million Rupiah each from IFC and ADB, DEG, the German Investment Development Agency, made 200 million Rupiah investment. In addition, Sumitomo-Mitsui Banking Corporation (SMBC) announced its equity participation with 14.9% share of the stake. IIFF is expected to offer long-term loans in Rupiah. Though they have not reported any specific projects invested, due to the difficulties in seeking long-term financing sources, IIFF could be expected as one of the useful financial sources.

4) Term Loan from Indonesian major banks

The Indonesian major banks, Bank Mandiri, BNI and BRT, have been making asset-based financing so far, but both Bank Mandiri and BNI with exception of BRI focusing on SMES via their nation-wide network, have been proactively following and participating in infrastructure projects by setting up dedicated teams at both Bank Mandiri and BNI. Both banks informed of their general approaches mainly through the limited recourse project financing.

Long-term lending activities have, however, certain limitations due to their matching funding bases. Based on the direct interviews conducted by the Study team, the general terms are maximum 15 years after the loan agreement signing. The interest rate is floating and the recent rates stay around 9-10% p.a. Furthermore the banks showed their interest in participating in funding by considering high and good credit risks of Japanese private sector companies when they are the sponsors.

DKI Bank, though not a national one but with majority participation by DKI (Jakarta Special Province) has a firm customer base in Jakarta. Its role is, however, to finance working capital funding and is not interested in infrastructure finance so far.

5) Term Loan from Japanese banks through their Indonesian subsidiaries and/or branches

All major Japanese banks are operating in Indonesia, but their competitiveness in Rupiah lending is not so high. As for the project based finance, it can be expected much other than some working capital funding in relation to Japanese sponsor companies.

6) Equity Investment by overseas and Indonesian investors

The raised country rating of Indonesia with a few of the rating agencies give the investment grade rating has been attracting attention of overseas large institutional investors. Life Insurance companies began their investment into the country but due to the fact that Indonesian Life Insurance industry is still under embryonic stage and they have not reached to a stage to make long-term investment based on Rupiah denominated insurance premium revenue. Their interest on infrastructure projects are, in general, still low and their participation in the Project may not be expected.

Considering above reviews, the assumptions for the financial model for the Project would be to seek funding form ODA loan from Public sector responsible portions, whereas the Indonesian major banks with its project financing menu or IIFF are expected to be the main financiers for Private sector responsible portions.

7.3.3 Financial Situation of Expected Execution Agency

DKI is expected to be the execution agency on the implementation of Underground Walkway, Artificial Ground, and also the public areas and facilities such as public roads and parks of the project area whereas Tokyu Land Corporation (TDL) has expressed its strong interest on the commercial part of the area.

TDL is expected to participate in the project through its Indonesian subsidiary. When entering into its implementation, the Study Team recommends a joint venture by tying up with an Indonesian developer having knowledge and experience on the legal matters, market information, business practice and business custom. During the course of series of discussion, DKI presented a BUMD, DKI owned company, as one of the options.

Talking about Dukuh Atas area, the project location, is known one of the most promising locations in the central part of Jakarta, and is increasing its role as the transport hub under the TOD policy. Through meetings conducted by the Study Team, it has been confirmed the strong interest among local business community and also financial institutions, even some cases interests from private investors. In view of the nature of the project, TLC has not disclosed its strategy on its Indonesian partner due mainly to their own corporate policy. The Study Team has not launched its further interviews vis-à-vis private sector companies other than one BUMD company, but a short description on the activities and trends of the major property developers is provided.

1) DKI Jakarta Special Provincial Government

DKI governs the national capital of Indonesia as one of 26 provinces and consists of six districts covering 662km2 of surface with the population of 9.6 million (2010, DKI). The first elected governor was born in August 2007 as a part of the government's decentralization policy and the new Governor, Mr. Jokowi was elected in September 2012. His policy implementations need to be seen, but he has been known for his pro-people, system reforming and respecting multi-culture approaches as his policy framework. He paid particular attention, while sitting as the mayor of Solo, to the welfare of low-income population, and their education and health issues and thus he introduced dialogs with people. He also promoted hotels and international conferences as well as development of luxury hotels and urban areas and he made introduction to a new transport system into the city.

The new DKI Governor has set his vision as "A new Jakarta, a neat modern city, a place of decent and humane, cultured people, and a public service-oriented government." (DKI Website) He also states as his Mission, specifically, 1) to actualize Jakarta as a neat modern city and

consistent with the plan of spatial, 2) to make Jakarta to be a free of congestion, flooding, slums, garbage and others, 3) to ensure the availability of residential and public spaces as feasible and affordable for city residents and others.

DKI Government's financial situation in recent years is shown below. It also received a rating of AA+ from the national bond agency in May 2012, and has been preparing its first municipal bond issue with the assistance of the World Bank. Considering the general standard for qualifying bond issues, there should not be any significant issues on DKI's financial situation. DKI is well qualified as the executing agency.

Table-7.3.1 DKI Financial Situation

(Unit: IDR Bn)	2008	2009	2010
Revenue	18,791.5	20,674.5	22,172.0
Tax	8,484.3	9,397.0	9,855.2
Other Levy	1,362.7	1,172.9	1,320.2
Financing	1,731.8	1,464.9	2,113.3
Expenditure	20,523.3	22,139.5	24,285.3
General Exp.	14,131.1	14,131.2	16,220.3
(Capital Exp.)	5,107.4	5,944.9	6,775.0

2) Tokyu Land Corporation

Tokyu Land Corporation (TLC), as the main execution agency in private sector for this Project, its origin is found in a subsidiary that realized the Garden City Concept under Tokyu Railway. TLC is officially established in 1953 and is currently the 4th ranked among the real estate developer industry in Japan. TLC widely covers its operations in the Tokyo metropolitan central area on residential, commercial, business to resort developments. Its recent achievements are the Ginza Toshiba redevelopment, Shibuya Hikarie Redevelopment in the central business districts of Tokyo, and also Futako Tamagawa area Redevelopment in suburban district of Tokyo. Furthermore, it deploys their overseas development opportunities with particular focus on China and Indonesia.

The financial situation of the company recorded at its fiscal 2012 the annual sales of JPY556.8 billion, EBIT JPY42.1 billion and the Net Profit of JPY34.2 billion. The profitability ratio registers 7.58% with the ratio EBIT over the Annual Sales, and 6.14% with Net Profit over the Annual Sales. The Total Assets shows JPY1,744.3 billion with 50% annual increase compared with the figures in the previous year due to the opening of new projects. The corresponding Revenue also increased in a matching manner and thus the Profit/Annual Sales ratio has maintained 3% level in recent years.

Table-7.3.2 Financial Situation of Tokyu Land Corporation

(1) Summary of consolidated statements of income

	Yen (millions)					U.S. dollars (thousands)
	2008	2009	2010	2011	2012	2012
Operating revenue	¥ 633,406	¥ 574,361	¥ 552,067	¥ 571,443	¥ 556,841	$ 6,790,744
Operating gross profit	159,936	114,347	106,458	131,736	123,331	1,504,037
Gross margin rate	*25.3%*	*19.9%*	*19.3%*	*23.1%*	*22.1%*	*22.1%*
Selling, general and administrative expenses	77,872	79,356	70,988	69,234	73,245	893,232
Sales selling ratio	*12.3%*	*13.8%*	*12.9%*	*12.1%*	*13.2%*	*13.2%*
Operating income	82,064	34,990	35,469	62,502	50,086	610,805
Operating income before depreciation	94,380	48,286	48,697	77,384	70,858	864,122
Other income	1,949	4,200	4,732	3,259	50,396	614,585
Other expenses	26,149	15,413	12,147	44,202	58,310	711,098
Income before income taxes and minority interests	57,864	23,776	28,054	21,559	42,172	514,293
Net income (loss)	¥ 28,696	¥ 10,192	¥ 11,058	¥ 11,597	¥ 34,200	$ 417,073

(2) Summary of consolidated balance sheets

	Yen (millions)					U.S. dollars (thousands)
	2008	2009	2010	2011	2012	2012
Assets	¥ 1,013,916	¥ 1,035,731	¥ 1,055,364	¥ 1,161,419	¥ 1,744,774	$ 21,277,732
Capital stock	57,551	57,551	57,551	57,551	57,551	701,841
Equity	192,813	195,715	203,136	208,638	240,804	2,936,634
equity ratio	*19.0%*	*18.9%*	*19.2%*	*18.0%*	*13.8%*	*13.8%*
Interest-bearing debt	411,491	477,033	478,939	559,791	1,063,978	12,975,341
EBITDA-multiple	4.4	9.9	9.8	7.2	15.0	15.0
DE ratio	2.1	2.4	2.4	2.7	4.4	4.4
ROA	*8.4%*	*3.5%*	*3.4%*	*5.7%*	*3.5%*	*3.5%*

3) Jakarta DKI company "J "

The main player of this Project is a Japanese company but a real estate project implementation requires knowledge from the experienced local partners on the legal issues, business strategy planning and business customs. The Study Team has conducted a series of discussion with DKI and possible partners introduced by DKI among DKI group companies (BUMD).

A suitable business structure has been in the process of discussion but not in its final stage at the moment. Thus the form of partnership has not been finalized yet but its financial situation is reviewed below.

The company "J" is 40% owned by DKI and the majority of shares are held by several Indonesian major property developers. The company was established in 1979 and since then the company has been actively investing in the north, south, west and central area of Jakarta on property development and management. The scope of operations is extended from property development and sales, new town development, management of commercial facilities and water supply management.

Its financial situation has shown a low ROE in 2009 due to the Lehman Shock in 2008, but since then, the ROE has regained in both 2010 and 2011. Looking into 2011 figures, the Annual Sales is recorded as 893.2 billion Rupiah growing annually 15% in the continuous manner with its previous year. EBIT showed 387.5 billion Rupiah and Net Profit reached 346.7 billion Rupiah that resulted in the Profitability ratio of 44.50% and 38.82% vis-à-vis EBIT and Net Profit respectively.

The Total Assets reached 4,084.4 billion Rupiah and the asset growth rate for the latest three years is as high as 22.8% in average. Land acquisition for new development has sharply increased (28.7% p.a. increase in 2011) and Inventory reached to around 25% level, and thus the Inventory Turnover period exceeds 900 days. On the other hand, the Working Capital is not needed and thus the Borrowing shows zero level due to the fact that Deposit from Customers shows 1,987.2 billion Rupiah, i.e. as large as twice of Annual Sales. This is one of the common phenomena in Indonesian property pre-sale practice.

Table-7.3.3 Financial Situation of Jakarta DKI company "J "

Company J

Profit & Loss Statement (Unit: IDR bn)

	2008	2009	2010	2011
Revenue	648.5	662.1	773.5	893.2
Cost of Goods	333.1	306.4	352.8	403.5
Gross Profit	315.5	355.7	420.7	489.7
EBIT	209.8	230.3	306.4	397.5
Net Income	147.8	191.7	263.8	346.7

Balance Sheet (Unit: IDR bn)

	2008	2009	2010	2011
Cash	72.5	258.1	758.1	867.3
Inventory	304.3	315.9	850.7	1,010.2
Land for Devt	1,092.9	1,146.6	1,297.6	1,670.4
Accum. Dep.	102.0	223.7	240.2	239.7
Other Assets	639.5	641.2	149.1	296.8
Total Assets	2,211.2	2,585.5	3,295.7	4,084.4
Advane from Custome	494.0	730.5	1,221.4	1,645.4
Depo from Customer	32.0	129.4	223.1	341.8
Total Liabilities	923.0	1,171.4	1,670.6	2,184.1
Paid-in Capial	275.0	275.0	275.0	275.0
Retained Earning	718.0	864.1	1,065.6	1,324.7
Total Equity	1,234.0	1,351.0	1,625.1	1,900.3

Cash Flow Statement (Unit: IDR bn)

		2009	2010	2011
CF from Operations	45.0	377.0	668.0	312.0
CF from Investment	-60.0	-93.0	-24.0	-103.0
CF from Finance	32.0	-98.0	-135.0	-100.0
Net	17.0	186.0	509.0	109.0
Cash at End	72.0	258.0	758.0	867.0

Financial Ratios

		2009	2010	2011
ROE	%	3.22	3.74	9.12
ROA	%	7.41	8.00	8.49
Inventory Turunover	days	376	880	914
T Sales/T Assets	%	25.61	23.47	21.87
Equity / T Assets	%	49.99	45.15	43.16

4) Prominent property developers

Private real estate development and management companies are working around Jakarta. Among them, we describe the four major companies.

(1) Agung Podomoro Land Tbk, PT

Sales (2011): IDR 11,327.9 Billion

PT Agung Podomoro Land Tbk (APLN) is a one of the well-known developers in Indonesia. APLN operates in the form of the integrated business as owner, developer and manager of real estate consisting of retail, commercial and residence. APLN is listed at the Indonesia Stock Exchange in 2010. APLN is a consortium of seven prominent property developers having constructed eight prestigious projects in Jakarta and Bandung.

According to the Consolidated - Audited financial statement for the Year of 2011, total net operating revenues decreased with -40.31%, from IDR 1,938.7 billion to IDR 1,157.2 billion. Operating result decreased from IDR 293.4 billion to IDR 215.9 billion, 26.4% decrease. The net profit of the period reached IDR -136.1 billion against IDR 241.9 billion last year. Return on equity was from 5.85% to -2.56%, the Return On Asset came down from 3.20% to -1.20% and the Net Profit Margin changed from 12.48% to -11.76% when compared to the same period of last year. The Debt to Equity Ratio was at the level of 127.66% compared to 82.95% of last year.

Latest Project are Senayan City Superblock, Podomoro City Superblock, GreenBay Pluit, Kuningan City, The Lavande Apartment in South Jakarta, Green Lake Superblock, Green Permata Residance, Grand Taruma Karawang.

(2) Lippo Karawaci Tbk, PT

Sales (2011): IDR 19,007.8 billion

PT Lippo Karawaci Tbk (LPKR), a member of Lippo Group, is a property, real estate and urban estate development company specializing on a new satellite town in Karawaci, Tangerang, West Java. LPKR is listed since 1996 at Indonesia Stock Exchange. Through merger in mid-2004, LPKR became a diversified company covering health and hospitality services. LPKR has three primary business units, Housing and Land Development, Healthcare and Infrastructure & Hospitality.

According to the Consolidated - Audited financial statement for the Year of 2011, total net operating revenue increased 35.8%, from IDR 3,125 billion to IDR 4,244 billion. Operating result increased from IDR 721 billion to IDR 921 billion, i.e. 27.66% increase. The results of the period increased 48.9% reaching IDR 708 billion against IDR 475 billions last year. Return on equity changed from 5.81% to 7.53%, the Return On Asset went from 2.94% to 3.88% and the Net Profit Margin went from 15.21% to 16.69% when compared to the same period of last year. The Debt to Equity Ratio was 100.17% compared to 97.51% of last year.

Latest projects such as Lippo Village, Lippo Cikarang, Tanjung Bunga, Royal Serpong village, San Diego Hills Memorial Park, Aryaduta Hotel in 6 big cities in Indonesia, Pejanten Village Mall, Pluit Village Mall, Sun Plaza, Plaza Semanggi and the other 20 malls around Indonesia.

(3) Ciputra Surya Tbk, PT

IDR 3,723.4 billion

PT Ciputra Surya Tbk (CTRS) and subsidiaries are engaged in developing real estate, shopping centers, golf courses, recreation centers and its facilities. In 1989, CTRS was established as PT Bumi Citrasurya and pioneered township development in West Surabaya. In 1999, CTRS became a public company and listed at the Indonesia Stock Exchange. The listing was the implementation of debt to equity conversion following the restructuring of the Rupiah Bond issued by CTRS

According to the Consolidated - Non-Audited financial statement for the first quarter of 2012, total net operating revenues increased with 49.38%, from IDR 151 billion to IDR 225 billion. Operating result increased from IDR 32,427 million to IDR 75,554 million which means 133.00% change. The results of the period increased 80.00% reaching IDR 52,680 million at the end of the period against IDR 29,267 million last year. Return on equity went from 1.70% to 2.64%, the Return On Asset went from 1.06% to 1.41% and the Net Profit Margin went from 19.38% to 23.35%. The Debt to Equity Ratio was 99.44% compared to 60.11% of last year.

Latest projects are Citraland Surabaya Township, Bukit Palma Surabaya, Citra Harmoni Sidoarjo, Citra Garden Sidoarjo and Lampung, Ciputra Golf, Ciputra Waterpark.

(4) Intiland Development Tbk, PT

IDR 5,865,483,264 Thousand

PT Intiland Development Tbk (DILD) is a leading Indonesian property developer listed at the Indonesia Stock Exchange. With these 37 years of experience in the property industry, DILD has become well-known for its trend-setting and iconic developments. DILD was formally established in 1983 under the name PT Wisma Dharmala Sakti. It went public in 1989 through over the counter market, followed by listing on the Surabaya Stock Exchange and Jakarta Stock Exchange

According to the Consolidated - Non-Audited financial statement for the first quarter of 2012, total net operating revenues decreased with -6.76%, from IDR 307,135 million to IDR 286,380 million. Operating result decreased from IDR 103,316 million to IDR 83,934 million which means -18.76% change. The results of the period decreased -54.04% reaching IDR 40,239 million at the end of the period against IDR 87,548 million last year. Return on equity went from 2.36% to 1.05%, the Return On Asset went from 1.87% to 0.69% and the Net Profit Margin went from 28.50% to 14.05%. The Debt to Equity Ratio was 54.87% compared to 25.85% of last year.

Recent project are Graha Famili, Graha Natura, Pantai Mutiara, Pinang residences, Kondominium Graha Family, West One City, Aeropolis Residence, Ngoro Industrial Park in Mojokerto - Surabaya

7.3.4 Project financial analysis

1) Framework of the financial analysis

A financial analysis of the project was carried out. In accordance with the framework in Fig. 8.2.1, the project period (period of standard retention of the private businesses) was set, the net cash flow generated during the project period was calculated, and the profitability of the investment was analyzed, for the ratio investment in the redevelopment project by the private businesses : cost of acquiring reserved floor space (= cost of redevelopment project + artificial ground development cost).

In this case, as a PPP project, the profitability of the investment was analyzed for percentages of public burden charges paid by private company towards the cost of the artificial ground development cost varying between 0 to 100%.

Also, trial calculations were carried out for three cases, with floor area ratios of 600%, 1,000%, and 1,500%, from the viewpoint of evaluation of the viability of the project.

The revenue of the private company is rental income from the reserved floor space for business and commercial use, and the level was set to the current market level based on the results of several interviews. The costs for other items used in the calculation of the project income and expenditure were also set to the current market level, after carrying out interviews for each item.

A financial model was constructed using the above assumptions, and the project IRR, equity IRR, debt service coverage ratio, cumulative net cash flow, etc., were calculated denominated in Rp, and an evaluation analysis was carried out. The analysis was carried out taking into consideration block A only as the basis, and a trial calculation for all blocks (A, B, C, & D).

Also, the spreadsheet (representative example) used in the calculation is included in the reference documents as back data.

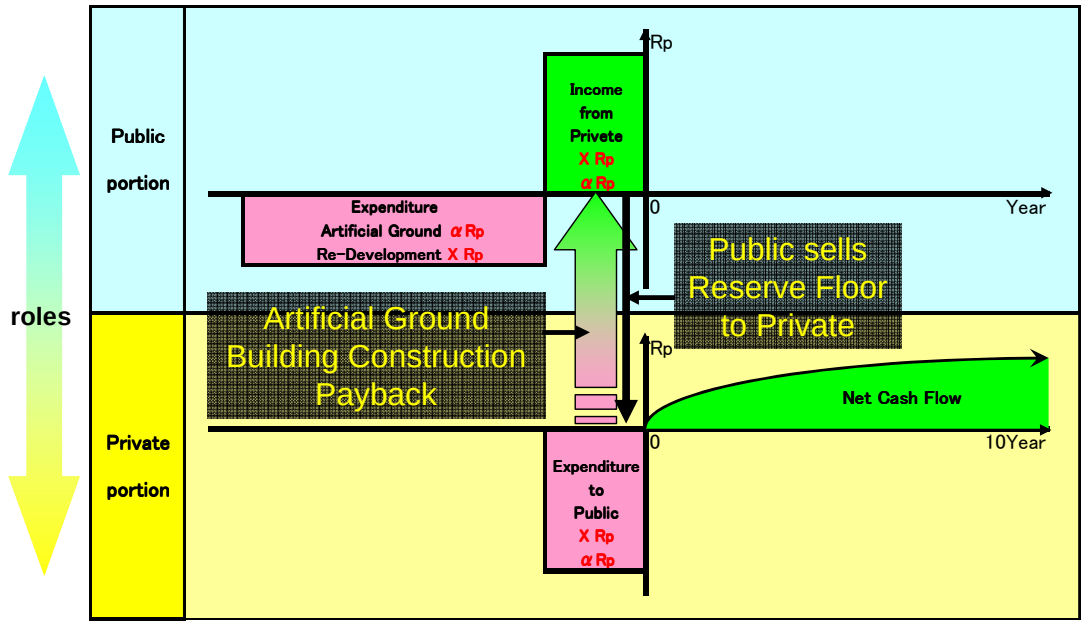


Figure-7.3.1 Framework of income and expenditure plan (Source: Study Team)

2) Assumed conditions of the financial analysis

Study of the redevelopment project was set to start from 2012, and completion of construction was set to 2020, after consolidation of the conversion of right of land and three years of construction. Also, it was assumed that there will be a tender to acquire the reserved floor space in the year 2020, and that the leasing business of the private businesses will start in 2021. For the project period, a standard financial evaluation period of 10 years was set for the private businesses for the trial calculations in the financial analysis. (The actual retention period can be set to a long period.) For reference, the trial calculation for all the blocks (ABCD) was carried out applying the above conditions from the point of view of an indefinite project period and a comparative verification with A block only.

It was assumed that finance would be raised by project finance, so it is considered that a certain amount of equity would be necessary. So the financial structure of investment: loan was set to be private investment 50%: commercial bank loan 50%. Also, to secure the 50% equity, it was assumed that the period of deferment of the private investment is 10 years until completion of the evaluation period. The other financial conditions are summarized in Tables 8.2.1 and 8.2.2. Inflation rates and other economic conditions were as shown in the following table. The inflation rate of the Rp according to the World Economic Outlook Database, October 2012 was an average value = 4.89% from the year 2011 to 2015, so it was set to 5% for the five years from 2011 to 2015, and was gradually reduced by 0.5% every 10 years including this period. The rate of inflation was used for escalation of construction costs, revenue, and expenditures. (However, the customary contract practice for tenant lease fees was given priority, and the lease fees were renewed once every three years in accordance with inflation.)

For the loan it was assumed that there would be a domestic bank loan.

- Domestic bank loan: finance period 10 years, deferment period 10 years, interest 8%
-

Table-7.3.3 Financial analysis setting values (part 1: A block only) (Source: Study Team)

Dukuh Atas Project

Assumptions 1 Input Cell

General	
Study year	2012
Construction Period	3 years
Total Maintenance costs	10 years
Unit	Billion Rp
Inflation (%) during construction period	5.0%

Inflation		
From	To	%
2011	2015	5.0%
2016	2020	5.0%
2021	2025	4.5%
2026	2030	4.5%
2031	2035	4.0%
2036	2040	4.0%
2041	2045	3.5%

Corporate income tax	
Standard tax rate (lease of real estate)	0%
- Preferential	
- exemption	
100% exemption period	
50% exemption period	

http://www.jetro.go.jp/world/asia/idn/

Rate of Withholding	
Rent of space	10%

Financial Structure	%	amount	
Senior loan Tr.1 (JICA)	0.00%	0	+IDC (Interest During Construction)
Senior loan Tr.2 (banks)	50.00%	2,822	+IDC
Senior loan Tr.3 (Sub-loan)	0.00%	0	+IDC
Equity (ordinary)	50.00%	2,822	
Equity (preferred)	0.00%	0	
Viability Gap fund 1	0.00%	0	
Viability Gap fund 2	0.00%	0	
Total	100.00%	5,643	+IDC

see "Assumptions 2" for detail of total construction cost

Real Estate Acquisition Tax	
Acquisition or Sale	5%

Land building effective tax rate	
Land building effective tax rate	0.20%

VAT Rate	
VAT Rate	10%

Private Sector Loan

[terms and conditions]

- Preferred equity: Dividend ratio 30% of outstanding amount of preferred equity

- Loan	Tr.1 (JICA)	Tr.2 (banks)
Interest rate during const. period	~~3.0%~~	8.0%
Interest rate after operation	~~3.0%~~	8.0%
Grace period	~~0~~ years	10 years
Loan period to maturity	~~10~~ years	10 years
Repayment schedule	linear amortisation	
Provision* for Forex loss(JPY/Rp)	5% of annual debt service	

* assumed immediate write-off with cash effect

Depreciation & Amortisation (years)			
Years for depreciation	Civil	Building	Facility
1.Hard cost (construction work)	20	20	10
Coefficients applied to linear method	0.05	0.05	0.1
2.Soft cost (Design & Supervision)	5		
Coefficients applied to linear method	0.2		

ODA Loan

[terms and conditions]

- Loan	ODA (JICA)	
Interest rate during const. period	~~0.2%~~	0.0%
Interest rate after operation	~~0.2%~~	0.0%
Grace period	~~0~~ years	0 years
Loan period to maturity	~~20~~ years	0 years
Repayment schedule	linear amortisation	
Provision* for Forex loss(JPY/Rp)	~~5%~~ of annual debt service	

* assumed immediate write-off with cash effect

Inflation rate (consumer prices)	5.7	(2011 est)

http://www.indexmundi.com/indonesia/inflation_rate_(consumer_prices).html

The total project costs are as follows, including the entitled floor conversion, compensation costs, and reserved floor space.

Floor area ratio	A block only		All blocks (ABCD)	
	Project cost (excl. inflation, VAT)	Project cost (incl. inflation, VAT)	Project cost (excl. inflation, VAT)	Project cost (incl. inflation, VAT)
600%	Rp1.1 trillion	Rp1.9 trillion	Rp4.5 trillion	Rp7.8 trillion
1000%	Rp1.9 trillion	Rp3.2 trillion	Rp7.5 trillion	Rp12.9 trillion
1500%	Rp2.8 trillion	Rp4.8 trillion	Rp11.2 trillion	Rp19.2 trillion

As a result of a simple status survey of entitled floors, as an approximate calculation for A block only 16,842 m², and for all blocks 81,147 m² were used in the trial calculations. The compensation costs were set at Rp200,000/month/m^2 for housing at the transfer locations, office leases, etc., and other costs, applied for 24 months.

The lease fees for office and commercial floor space and vacancy rates were set based on the results of interviews carried out locally. Lease fees were set to office: Rp240,000/month/m^2, commercial: Rp450,000/month/m^2 month, and vacancy rates were set to office: 8%, and commercial: 12%. Also, the available floor area percentage (revenue floor space as a percentage of the total floor area) was set to 70%, and the overhead rate was set to office: 20%, commercial: 30%.

Table-7.3.4 Financial analysis setting values (part 2: A block only) (Source: Study Team)

Dukuh Atas Project

Assumptions 2 (area, cost & revenue)

Construction Cost	Billion Rp				
item	Total	Public	Private	Public	Private
A. Construction Cost					
I. Artificial Ground (Public)					
(1) Construction Cost	214	0%	100%	0	214
(2) Price Escalation					
(3) Physical Contingency					
II. Re Dvelopment (Private)					
(1) Construction Cost	2,803	0%	100%	0	2,803
(2) Price Escalation					
(3) Physical Contingency					
III. Maintenance Cost for Artificial Ground (Public)	0	100%	0%	0	0
B. Consulting Service Fee					
I. Public Sector					
1) Advisory Works for PPP Project					
2) Construction Supervision					
II. Private Sector					
1) Advisory Works for PPP Project					
C. Interest during Construction (Public)					
D. Interest during Construction (Private)					
E. Counterpart Funds (Public)					
I. Land Acquisition					
II. Administration Cost					
III. VAT for Construction Cost					
IV. Cost for Establishment of SPC					

*Setting Value by TOKYU LAND CORPORATION

Area	Block A	Total(ABCD)	
Land Area(㎡)	15, 500	61, 700	
Present Total Floor Area	**Block A**	**Total(ABCD)**	
Total Floor Area of the existing residents(m2)	16, 842	81, 147	*
Floor area ratio			
Future(%)	1500%		
(Breakdown % , for office use)	80%		
(Breakdown % , for commercial use)	20%		
Building construction unit price			
Right floor for the existing residents (Rp/㎡)	8, 000, 000		*
Reserved Floor Equivalent to Project Cost (Rp/㎡)	12, 000, 000		*
Construction Cost			
Right floor for the existing residents (Billion Rp)	135		
Reserved Floor Equivalent to Project Cost (Billion Rp)	2, 588		
Compensation costs other overheads (Billion Rp)	81		*
Sub Total (Billion Rp)	2, 803		
Cost Sharing of Artificial Ground by Private (Billion Rp	214		
Total (Billion Rp)	3, 017		
Renewal Cost			
Rate of Initial Cost	1%		*
Renewal Cost (Billion Rp/Year)	26		
Various setting			
Inflation of Rent	Inflation		
Unit Rent Price for Office Floor (Rp/㎡/Month)	240, 000		*
Unit Rent Price for Commercial Floor (Rp/㎡/Month)	450, 000		*
Available Floor Ratio for Rent	70%		*
Vacancy Rate (Office)	8%		*
Vacancy Rate (Commercial)	12%		*
Business Expense Rate (Office)	20%		*
Business Expense Rate (Commercial)	30%		*
Rent Revenue			
Office Floor Rent (Billion Rp/Year)	288		
Commercial Floor Rent (Billion Rp/Year)	129		
Business Expense			
Office Floor Rent (Billion Rp/Year)	58		
Commercial Floor Rent (Billion Rp/Year)	39		
Market Cap Rate			
Market Cap Rate	8%		

3) Evaluation of the investment profitability taking into consideration the public burden charges

Based on the various setting values used, the viable project structure was verified for the project. Figure 8.2.2 shows the verification results for A block only, and Fig. 8.2.3 shows the verification results for all blocks (ABCD).

Here, the hurdle rate for the private project was set at an equity IRR of 15% denominated in Rp, which represents the profitability of the private investment. The case of A block only and the case of (ABCD) generally showed the same trends, so the discussion is focused on the case of A block only.

First, with a floor area ratio of 600%, the equity IRR was less than 15% for all cases of public contribution charges 0 to 100%, confirming that it is not feasible as a project.

Also, in the case of floor area ratio 1,000%, the equity IRR was about 15%, depending on the percentage of the public contribution charges, confirming that this was the dividing line for project feasibility. Individually, in the case of A block only the equity IRR exceeded 15% for a public burden charge percentage less than 40%, and for all blocks (ABCD) for a public burden charge percentage less than 10%.

In the case of floor area ratio 1,500%, it was confirmed that the equity IRR exceeded 15% for all cases of public burden charge percentage 0 to 100%. In the case of public burden percentage charge 100%, the equity IRR for A block only was 15.5%, and the equity IRR for all blocks (ABCD) was 15.0%, so profitability of the private investment was achieved. The trial calculation showed that it is possible to recover the artificial ground development cost from the public burden charge of the redevelopment project.

Based on the above, it is expected that the profitability of the investment can be improved by further detailed study of the financing methods, etc. However, it is judged desirable that the floor area ratio of the redevelopment project zone be about 1,500% in the basic project configuration, from the point of view of feasibility of funding the artificial ground development from the public burden charge of the redevelopment project.

Also, in the case of floor area ratios between 1,000% and 1,500%, for the cost of the artificial ground development, it is suggested that it is necessary to examine cost sharing according to a set rule between public and private.

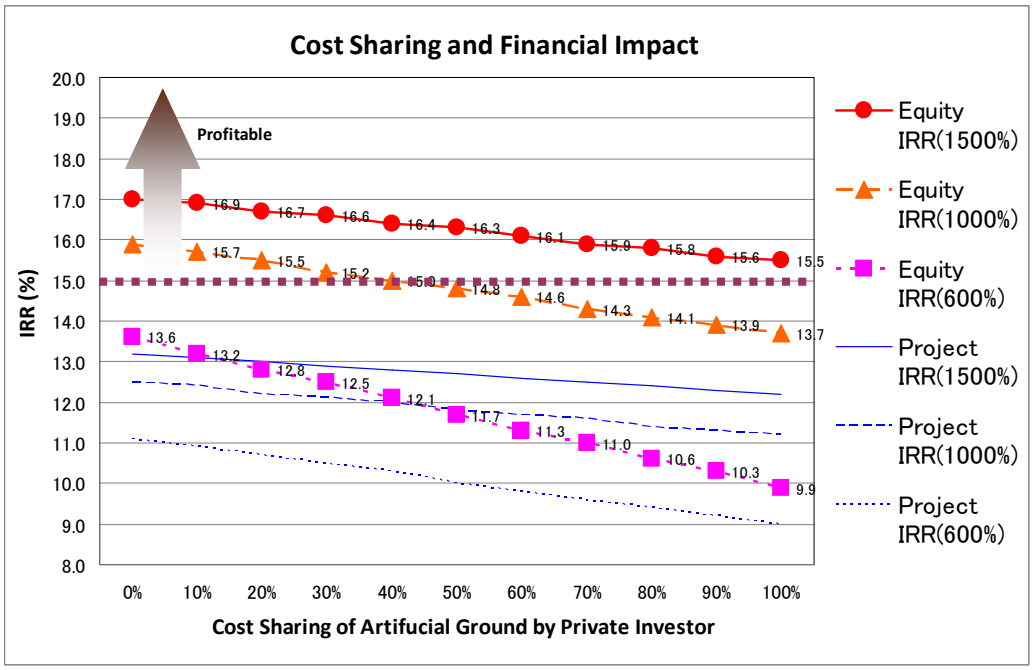


Figure-7.3.2 Evaluation of the investment profitability taking the public burden charge into consideration (A block only) (Source: Study Team)

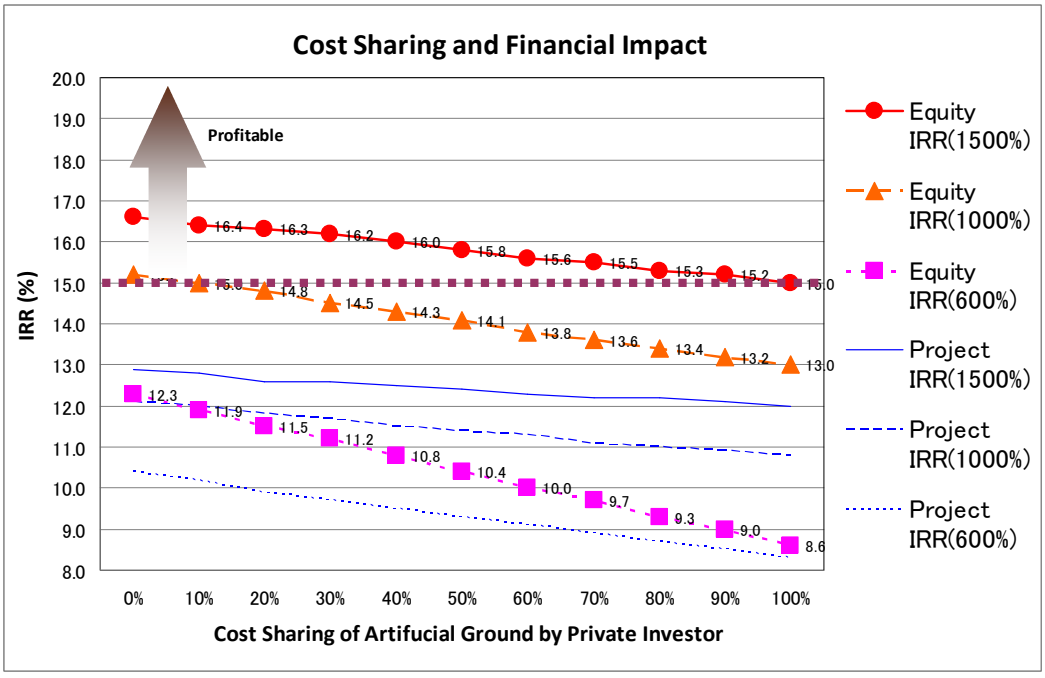


Figure-7.3.3 Evaluation of the investment profitability taking the public burden charge into consideration (all blocks (ABCD)) (Source: Study Team)

In the following, a cash flow analysis and risk sensitivity analysis is carried out for the case of floor area ratio 1,500% and public burden charge percentage 100%, which has been confirmed as appropriate, as an evaluation of the profitability taking into consideration the public burden charge.

4) Cash flow analysis

The results for A block only are shown in Fig. 8.2.4 and Table 8.2.3, and the results for all blocks (ABCD) are shown in Fig. 8.2.5 and Table 8.2.4. The case of A block only and the case of all blocks (ABCD) have generally similar trends, so the discussion is focused on the case of A block only.

The equity IRR which represents the profitability of the private investment denominated in Rp is 15.5% (all blocks 15.0%), which are values that satisfy the expected rate of recovery for the private investment. Also, the net cash flow is positive in every year from the initial year of the project, and the cumulative cash also is progressively accumulated, and investment in renewal can be sufficiently covered by the internally retained cash. For repayment of the commercial loan, the debt service coverage ratio, which expresses the ability to repay, is 2.07 in the initial year of repayment (for all blocks 2.03), and subsequently continues rising, reaching 3.00 in the final year (all blocks 2.95), confirming that repayment is possible from the cash flow of the project.

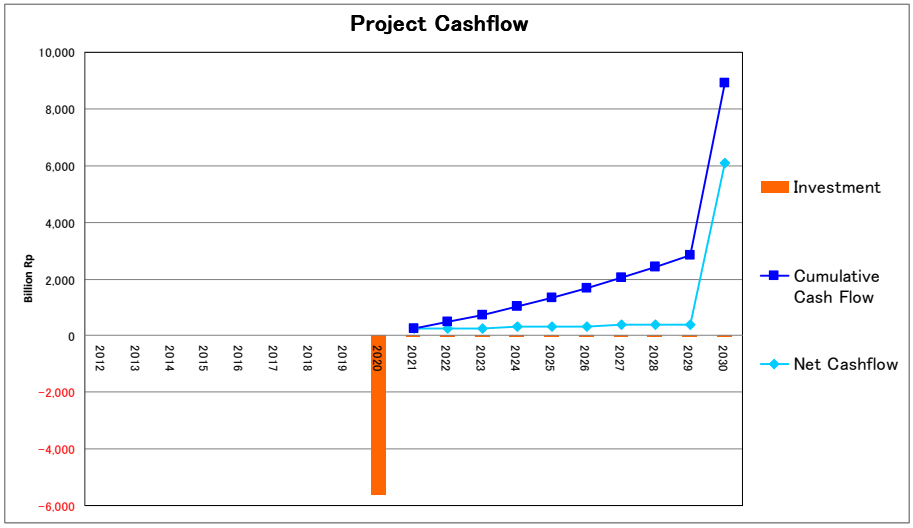


Figure-7.3.4 Cash flow (A block only: floor area ratio 1,500%-public burden charge percentage 100%) (Source: Study Team)

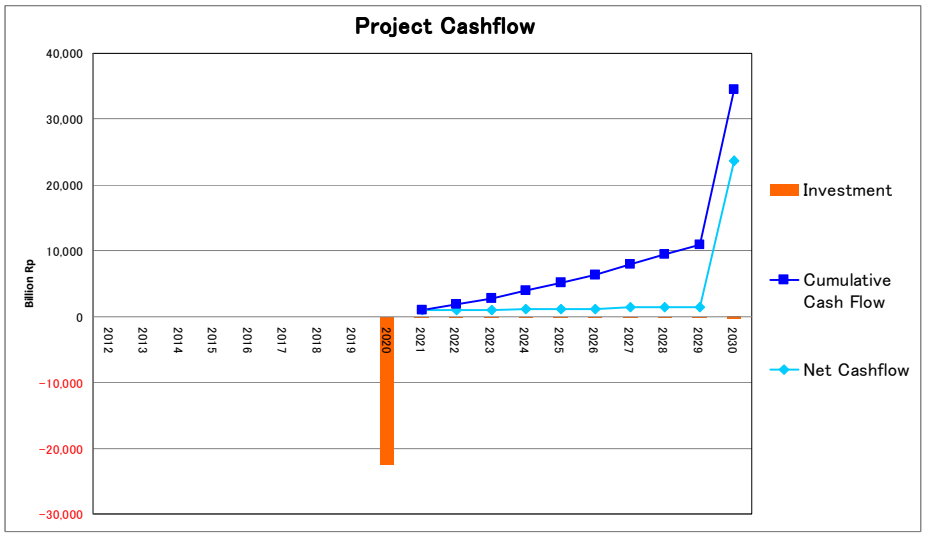


Figure-7.3.5 Cash flow (all blocks (ABCD): floor area ratio 1,500%-public burden charge percentage 100%) (Source: Study Team)

Table-7.3.5 Cash flow (A block only: floor area ratio 1,500%-public burden charge percentage 100%)

Dukuh Atas Project

Profit & loss statement (Billion Rp)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
									Open	1	2	3	4	5	6	7	8	9	10
Total revenue	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*676*	*676*	*676*	*772*	*772*	*772*	*881*	*881*	*881*	*1,005*
1. Office Rent Revenue										467	467	467	533	533	533	608	608	608	694
2. Tenant Rent Revenue										209	209	209	239	239	239	273	273	273	311
3. Management Fee										0	0	0	0	0	0	0	0	0	0
Total Maintenance costs	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-156*	*-156*	*-156*	*-178*	*-178*	*-178*	*-203*	*-203*	*-203*	*-232*
1. Business Expenses Office Rent										-93	-93	-93	-107	-107	-107	-122	-122	-122	-139
2. Business Expenses Tenant Rent										-63	-63	-63	-72	-72	-72	-82	-82	-82	-93
EBITDA	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*520*	*520*	*520*	*593*	*593*	*593*	*677*	*677*	*677*	*773*
Dep. for Construction works (initial)										-241	-241	-241	-241	-241	-241	-241	-241	-241	-241
Dep. for Construction works (Renewal)										-2	-4	-6	-9	-11	-13	-16	-19	-22	-25
Amort. for Eng'ing and other cap'd costs (initial)										0	0	0	0	0	0	0	0	0	0
Amort. for capitalized IDC for Tr.1 (JICA)										0	0	0	0	0	0	0	0	0	0
Amort. for capitalized IDC for Tr.2 (banks)										0	0	0	0	0	0	0	0	0	0
Dep. for Construction works (expansion)										0	0	0	0	0	0	0	0	0	0
Amort. for Eng'ing and other cap'd costs (expansion)										0	0	0	0	0	0	0	0	0	0
EBIT	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*276*	*274*	*272*	*343*	*341*	*338*	*420*	*417*	*414*	*507*
Interest expense for senior debt Tr. 1 (JICA)										0	0	0	0	0	0	0	0	0	0
Interest expense for senior debt Tr. 2 (banks)										-226	-226	-226	-226	-226	-226	-226	-226	-226	-226
Provision* for Forex loss(JPY/VND) of Tr.1										0	0	0	0	0	0	0	0	0	0
* assumed immediate write-off with cash																			
Profit before tax	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*51*	*49*	*47*	*118*	*115*	*113*	*194*	*191*	*188*	*281*
Corporate income tax										0	0	0	0	0	0	0	0	0	0
Land building effective tax										-11	-10	-10	-9	-9	-8	-7	-7	-6	-6
Profit after tax										**40**	**38**	**37**	**108**	**107**	**105**	**186**	**184**	**182**	**275**
Dividends for preferred equity										0	0	0	0	0	0	0	0	0	0
Net profit	*0*	*0*	*0*	*0*	*0*	**0**	**0**	**0**	**0**	**40**	**38**	**37**	**108**	**107**	**105**	**186**	**184**	**182**	**275**

Annual payment schedule (Billion Rp)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
									Open	1	2	3	4	5	6	7	8	9	10
Total revenue received										744	744	744	849	849	849	969	969	969	1,105
Total Maintenance costs paid										-172	-172	-172	-196	-196	-196	-224	-224	-224	-255
Net VAT payment to authority										-48	-48	-48	-55	-55	-55	-62	-62	-62	-71
Corporate income tax										0	0	0	0	0	0	0	0	0	0
Land building effective tax										-11	-10	-10	-9	-9	-8	-7	-7	-6	-6
Valuation (Market Cap Rate)																			8,437
(Estimated Benefit)																			
Cash-flow from operations	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*514*	*514*	*515*	*589*	*590*	*590*	*675*	*676*	*676*	*9,210*
Capex (initial)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-5,643*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Capex (renewal)										*-46*	*-46*	*-46*	*-53*	*-53*	*-53*	*-60*	*-60*	*-60*	*-69*
Net cash before financing	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-5,643*	*467*	*468*	*468*	*536*	*537*	*538*	*615*	*616*	*616*	*9,141*
Capitalized financial cost of IDC for Tr.1 (JICA)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*										
Capitalized financial cost of IDC for Tr.2 (banks)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*										
Drawdown of senior debt Tr.1 (JICA)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*										
Drawdown of senior debt Tr.2 (banks)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2,822*										
Equity injection (ordinary)		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2,822*										
Equity injection (preferred)																			
Viability gap funding 1																			
Viability gap funding 2																			
Cash-flow available for debt service (CFADS)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*467*	*468*	*468*	*536*	*537*	*538*	*615*	*616*	*616*	*9,141*
Interest payment for debt Tr.1 (JICA)										0	0	0	0	0	0	0	0	0	0
Interest payment for debt Tr.2 (banks)										-226	-226	-226	-226	-226	-226	-226	-226	-226	-226
Repayment of principal for debt Tr.1 (JICA)										0	0	0	0	0	0	0	0	0	0
Repayment of principal for debt Tr.2 (banks)										0	0	0	0	0	0	0	0	0	-2,822
Provision* for Forex loss(JPY/VND) of Tr.1										0	0	0	0	0	0	0	0	0	0
* assumed immediate write-off with cash																			
Debt service coverage ratio (DSCR)										**2.07**	**2.07**	**2.08**	**2.38**	**2.38**	**2.38**	**2.73**	**2.73**	**2.73**	**3.00**
Cash-flow before dividends	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*242*	*242*	*243*	*311*	*311*	*312*	*389*	*390*	*390*	*6,094*
Dividends for preferred equity										0	0	0	0	0	0	0	0	0	0
Cash-flow in period	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*242*	*242*	*243*	*311*	*311*	*312*	*389*	*390*	*390*	*6,094*
										0									
Cash balance at beginning of period	*0*	*0*	*0*	*0*	*0*	0	0	0	0	0	242	484	727	1,037	1,349	1,660	2,050	2,440	2,830
Cash-flow in period	*0*	*0*	*0*	*0*	*0*	0	0	0	0	242	242	243	311	311	312	389	390	390	6,094
Cash balance at end of period	*0*	*0*	*0*	*0*	*0*	0	0	0	0	242	484	727	1,037	1,349	1,660	2,050	2,440	2,830	8,924

Cash-flow for Project (After Tax)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-5,643*	*467*	*468*	*468*	*536*	*537*	*538*	*615*	*616*	*616*	*9,141*
Project IRR(After Corporate income Tax):	**12.2%**																		
Cash-flow for Project (Before Tax)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-5,643*	*467*	*468*	*468*	*536*	*537*	*538*	*615*	*616*	*616*	*9,141*
Project IRR(Before Corporate income Tax):	**12.2%**																		
Cash-flow for Project IRR (After Tax)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*-2,822*	*242*	*242*	*243*	*311*	*311*	*312*	*389*	*390*	*390*	*6,094*
Equity(ordinary) IRR:	**15.5%**	** to be deteriorated if special conditions are agreed with preferred equity holders for profit sharing of "Net cash" position at the maturity of concession.*																	
Cash-flow for equity(Preferred) investor	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Equity(Preferred) IRR:		** to be improved further if special conditions are agreed for profit sharing of "Net cash" position at the maturity of concession.*																	

(Source: Study Team)

Table-7.3.6 Cash flow (all blocks (ABCD): floor area ratio 1,500%-public burden charge percentage 100%)

Dukuh Atas Project

Profit & loss statement Billion Rp	2012 1	2013 2	2014 3	2015 4	2016 5	2017 6	2018 7	2019 8	2020 9	1 2021 10	2 2022 11	3 2023 12	4 2024 13	5 2025 14	6 2026 15	7 2027 16	8 2028 17	9 2029 18	10 2030 19
									Open										
Total revenue	0	0	0	0	0	0	0	0	0	2,647	2,647	2,647	3,021	3,021	3,021	3,448	3,448	3,448	3,934
1. Office Rent Revenue										1,828	1,828	1,828	2,086	2,086	2,086	2,380	2,380	2,380	2,716
2. Tenant Rent Revenue										820	820	820	935	935	935	1,067	1,067	1,067	1,218
3. Management Fee										0	0	0	0	0	0	0	0	0	0
Total Maintenance costs	0	0	0	0	0	0	0	0	0	-611	-611	-611	-698	-698	-698	-796	-796	-796	-909
1. Business Expenses Office Rent										-366	-366	-366	-417	-417	-417	-476	-476	-476	-543
2. Business Expenses Tenant Rent										-246	-246	-246	-281	-281	-281	-320	-320	-320	-365
EBITDA	0	0	0	0	0	0	0	0	0	2,036	2,036	2,036	2,323	2,323	2,323	2,651	2,651	2,651	3,026
Dep. for Construction works (initial)										-962	-962	-962	-962	-962	-962	-962	-962	-962	-962
Dep. for Construction works (Renewal)										-8	-16	-25	-34	-43	-53	-63	-74	-85	-97
Amort. for Eng'ing and other cap'd costs (initial)										0	0	0	0	0	0	0	0	0	0
Amort. for capitalized IDC for Tr.1 (JICA)										0	0	0	0	0	0	0	0	0	0
Amort. for capitalized IDC for Tr.2 (banks)										0	0	0	0	0	0	0	0	0	0
Dep. for Construction works (expansion)										0	0	0	0	0	0	0	0	0	0
Amort. for Eng'ing and other cap'd costs (expansion)										0	0	0	0	0	0	0	0	0	0
EBIT	0	0	0	0	0	0	0	0	0	1,066	1,057	1,049	1,327	1,318	1,308	1,626	1,615	1,604	1,966
Interest expense for senior debt Tr. 1 (JICA)										0	0	0	0	0	0	0	0	0	0
Interest expense for senior debt Tr. 2 (banks)										-899	-899	-899	-899	-899	-899	-899	-899	-899	-899
Provision* for Forex loss(JPY/VND) of Tr.1										0	0	0	0	0	0	0	0	0	0
* assumed immediate write-off with cash																			
Profit before tax	0	0	0	0	0	0	0	0	0	166	158	150	428	418	409	726	716	705	1,067
Corporate income tax										0	0	0	0	0	0	0	0	0	0
Land building effective tax										-43	-40	-38	-36	-34	-32	-30	-28	-26	-23
Profit after tax										124	118	111	392	384	377	697	688	679	1,044
Dividends for preferred equity										0	0	0	0	0	0	0	0	0	0
Net profit	0	0	0	0	0	0	0	0	0	124	118	111	392	384	377	697	688	679	1,044

Annual payment schedule Billion Rp	2012 1	2013 2	2014 3	2015 4	2016 5	2017 6	2018 7	2019 8	2020 9	1 2021 10	2 2022 11	3 2023 12	4 2024 13	5 2025 14	6 2026 15	7 2027 16	8 2028 17	9 2029 18	10 2030 19
									Open										
Total revenue received										2,912	2,912	2,912	3,323	3,323	3,323	3,792	3,792	3,792	4,328
Total Maintenance costs paid										-673	-673	-673	-768	-768	-768	-876	-876	-876	-1,000
Net VAT payment to authority										-187	-187	-187	-214	-214	-214	-244	-244	-244	-278
Corporate income tax										0	0	0	0	0	0	0	0	0	0
Land building effective tax										-43	-40	-38	-36	-34	-32	-30	-28	-26	-23
Valuation (Market Cap Rate)																			33,032
(Estimated Benefit)																			
Cash-flow from operations	0	0	0	0	0	0	0	0	0	2,010	2,012	2,014	2,306	2,308	2,310	2,643	2,645	2,647	36,059
Capex (initial)		0	0	0	0	0	0	0	-22,484	0	0	0	0	0	0	0	0	0	0
Capex (renewal)										-181	-181	-181	-206	-206	-206	-235	-235	-235	-269
Net cash before financing	0	0	0	0	0	0	0	0	-22,484	1,829	1,831	1,833	2,100	2,102	2,104	2,408	2,410	2,412	35,790
Capitalized financial cost of IDC for Tr.1 (JICA)		0	0	0	0	0	0	0	0										
Capitalized financial cost of IDC for Tr.2 (banks)		0	0	0	0	0	0	0	0										
Drawdown of senior debt Tr.1 (JICA)		0	0	0	0	0	0	0	0										
Drawdown of senior debt Tr.2 (banks)		0	0	0	0	0	0	0	11,242										
Equity injection (ordinary)		0	0	0	0	0	0	0	11,242										
Equity injection (preferred)																			
Viability gap funding 1																			
Viability gap funding 2																			
Cash-flow available for debt service (CFADS)	0	0	0	0	0	0	0	0	0	1,829	1,831	1,833	2,100	2,102	2,104	2,408	2,410	2,412	35,790
Interest payment for debt Tr.1 (JICA)										0	0	0	0	0	0	0	0	0	0
Interest payment for debt Tr.2 (banks)										-899	-899	-899	-899	-899	-899	-899	-899	-899	-899
Repayment of principal for debt Tr.1 (JICA)										0	0	0	0	0	0	0	0	0	0
Repayment of principal for debt Tr.2 (banks)										0	0	0	0	0	0	0	0	0	-11,242
Provision* for Forex loss(JPY/VND) of Tr.1										0	0	0	0	0	0	0	0	0	0
* assumed immediate write-off with cash																			
Debt service coverage ratio (DSCR)										2.03	2.04	2.04	2.33	2.34	2.34	2.68	2.68	2.68	2.95
Cash-flow before dividends	0	0	0	0	0	0	0	0	0	930	932	934	1,200	1,203	1,205	1,508	1,510	1,513	23,649
Dividends for preferred equity										0	0	0	0	0	0	0	0	0	0
Cash-flow in period	0	0	0	0	0	0	0	0	0	930	932	934	1,200	1,203	1,205	1,508	1,510	1,513	23,649
										0									
Cash balance at beginning of period	0	0	0	0	0	0	0	0	0	0	930	1,862	2,796	3,996	5,199	6,404	7,912	9,422	10,935
Cash-flow in period	0	0	0	0	0	0	0	0	0	930	932	934	1,200	1,203	1,205	1,508	1,510	1,513	23,649
Cash balance at end of period	0	0	0	0	0	0	0	0	0	930	1,862	2,796	3,996	5,199	6,404	7,912	9,422	10,935	34,584

Cash-flow for Project (After Tax)	0	0	0	0	0	0	0	0	-22,484	1,829	1,831	1,833	2,100	2,102	2,104	2,408	2,410	2,412	35,790
Project IRR(After Corporate income Tax):	12.0%																		
Cash-flow for Project (Before Tax)	0	0	0	0	0	0	0	0	-22,484	1,829	1,831	1,833	2,100	2,102	2,104	2,408	2,410	2,412	35,790
Project IRR(Before Corporate income Tax):	12.0%																		
Cash-flow for Project IRR (After Tax)	0	0	0	0	0	0	0	0	-11,242	930	932	934	1,200	1,203	1,205	1,508	1,510	1,513	23,649
Equity(ordinary) IRR:	15.0%	* to be deteriorated if special conditions are agreed with preferred equity holders for profit sharing of "Net cash" position at the maturity of concession.																	
Cash-flow for equity(Preferred) investor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equity(Preferred) IRR:		* to be improved further if special conditions are agreed for profit sharing of "Net cash" position at the maturity of concession.																	

(Source: Study Team)

5) Risk sensitivity analysis

A sensitivity analysis was carried out for the main project risks for the case of floor area ratio 1,500% and public burden charge percentage 100%. The risks examined were as follows.

(1) Increase in construction cost
(2) Increase in tenant vacancy rates
(3) Reduction in tenant lease fees

For the case of floor area ratio 1,500% and public burden percentage 100%, the values for the above risks were varied as shown in Table 8.2.5, and the variation in the equity IRR denominated in Rp which is an index representing the profitability of the private project, was analyzed. The case of A block only and the case of all blocks (ABCD) showed generally similar trends, so the discussion is focused on the case of A block only.

A fluctuation of 15% was used for each of the risks, increase in construction cost, the increase in tenant vacancy rates, and the reduction in tenant lease fees, but it was found that they had an impact on reducing the equity IRR from 15.5% to 10.4%-11.9%. It was possible to confirm that of all these risk factors, the most significant was increase in tenant vacancy rates. (This trend was the same for the case of all blocks (ABCD).)

Table-7.3.7 Sensitivity analysis of the main risks (Source: Study Team)

<A block only: floor area ratio 1,500% and public burden charge percentage 100%>

Risk	Base Case	Risk Sensitivity		
1.Construction Cost Increse	0%	+5%	+10%	+15%
	Equity IRR 15.5%	14.2%	13.0%	11.9%
2.Increse of Tenant Vacancy	Office 8% Commercial 12%	+5%	+10%	+15%
	Equity IRR 15.5%	13.9%	12.2%	10.4%
3.Decrease of Tenant Rent (Rp/㎡/Month)	Office 240,000 Commercial 450,000	-5%	-10%	-15%
	Equity IRR 15.5%	14.0%	12.5%	10.9%

<All blocks (ABCD): floor area ratio 1,500% and public burden charge percentage 100%>

Risk	Base Case	Risk Sensitivity		
1.Construction Cost Increse	0%	+5%	+10%	+15%
	Equity IRR 15.0%	13.8%	12.6%	11.4%
2.Increse of Tenant Vacancy	Office 8% Commercial 12%	+5%	+10%	+15%
	Equity IRR 15.0%	13.4%	11.7%	9.9%
3.Decrease of Tenant Rent (Rp/㎡/Month)	Office 240,000 Commercial 450,000	-5%	-10%	-15%
	Equity IRR 15.0%	13.6%	12.1%	10.4%

6) Financial analysis of the public sector portion

(1) Analysis of value for money (VFM) on the public-sector side

An analysis was carried out to determine how much revenue would be generated for the public-sector side as a result of the project, with respect to the initial investment borne by the public-sector side (artificial ground development cost, costs associated with the redevelopment project). Because this analysis was from the point of view of the public sector side, the evaluation period in the analysis was a period until completion of construction.

In the case of A block only (floor area ratio 1,500% and public burden charge percentage 100%), the income and expenditure on a nominal basis as indicated in Fig. 8.2.6 is an investment of Rp5.80 trillion, and the revenue after deduction of consumption tax, tenant lease fee withholding tax, real estate transaction tax, fixed asset tax, costs associated with the redevelopment project, and artificial ground development cost is Rp5.13 trillion.

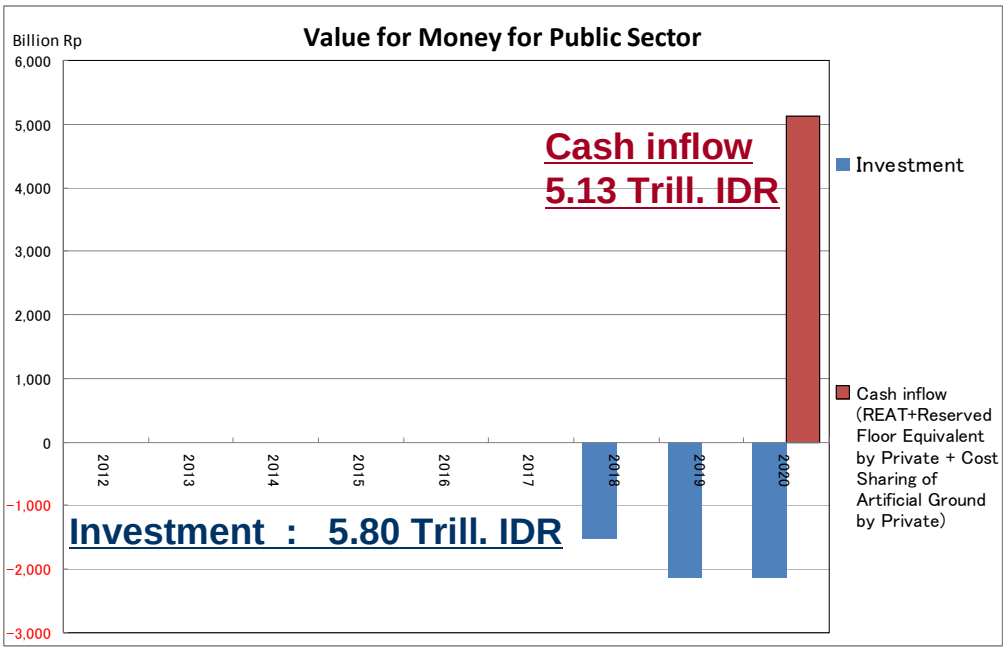


Figure-7.3.6 Value for money of the public-sector portion (A block only: floor area ratio 1,500% and public burden 100%) (Source: Study Team)

Likewise in the case for all blocks (ABCD) (floor area ratio 1,500% and public burden 100%), the income and expenditure on a nominal basis from Fig. 8.2.7 is an investment of Rp19.52 trillion, and the revenue after deduction of consumption tax, tenant lease fee withholding tax, real estate transaction tax, fixed asset tax, costs associated with the redevelopment project, and artificial ground development cost is Rp20.44 trillion.

The IRR is 4.6%.

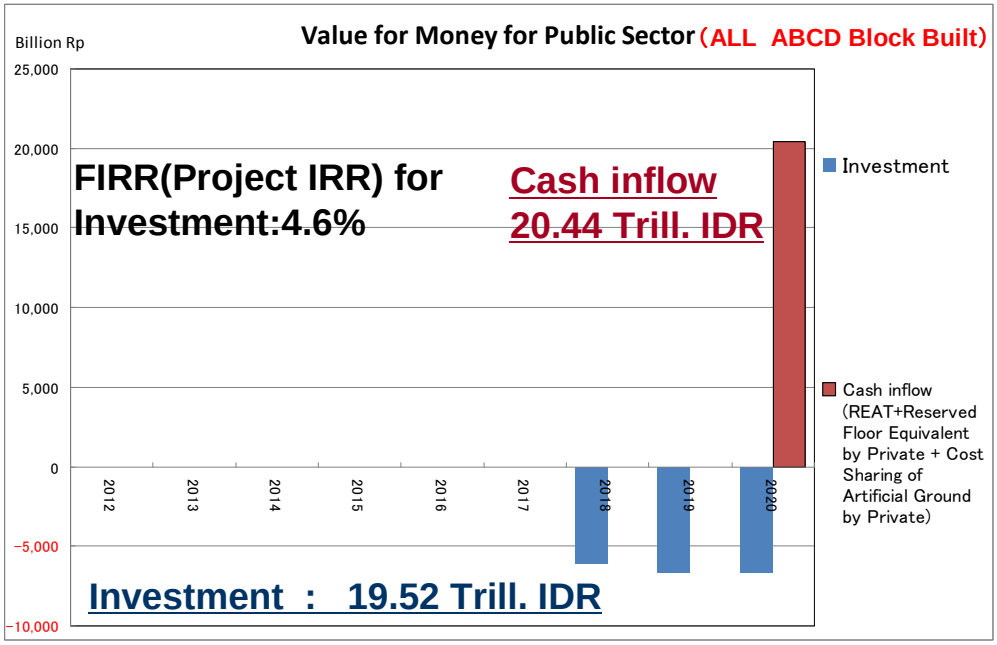


Figure-7.3.7 Value for money of the public-sector portion (all blocks (ABCD): floor area ratio 1,500% and public burden 100%) (Source: Study Team)

Analysis of the economic benefits of the project as a whole including effects such as rise in land values, etc., are discussed in detail in the next section.

7.3.5 Project Risks

When developing and implementing the Phase 2 of the Project by the private sector, detailed risk identification as well as its allocation among the related parties are critical and essential. What is important when analyzing a PPP project is to quantifying risks. Effective allocation of risk are assumed on the basis that the risk allocation management should be borne by either Private Sector Company or Public Executing Agency, or risks are to be managed by the risk allocation system. Before entering into specific project risks to be considered when implementing a project, the principal approaches on risks are as follows.

- Two-tiered (Sub-/Super-Structure) PPP Approach
  Although public and private partner is responsible, on each side, for a given portion of the PPP agreement. The “Two-tiered approach” or “sub- and super- structure” approach, in which the project may be split among two or more separate PPP agreements addressing the construction of infrastructure, the procurement of rolling stock, and the operation of the system.

- Ability to Manage Risks
  Risk allocation could quite often be agreed as outcomes of discussion and negotiation but it will equally important that the parties must analyze the strengths of each party to which a specific risk is allocated and that party’s ability to manage the consequences of the risk if it should occur.

1) Risks associated during the whole period of a project

(1) Political Risks

Political risks are defined as traditional political risks include nationalization, new tax regimes, and other events that affect debt service and profits. Regulatory risks include the imposition of new standards or the introduction of competition, whereas quasi-commercial risks include breaches by the grantor or interruptions because of changes in the grantor's plan. Other political risks include acts of war, rebellion, default, and failure of public sector entities. The grantor/the government is normally the project participant with the greatest ability to manage the risk of change in the political climate and therefore often takes this responsibility.

(2) Change of Law Risk

Changes-of-law risk is defined as adoption, modification, or repeal that may occur during the PPP contract period. Developers are concerned with future changes in any law or regulations possibly affecting the development and operation. It is essential to have an effective mechanism to deal with the consequences of any change of law after the bid date, particularly if this change requires the developer to incur costs or if it results in a decrease in profits.

Significant changes in law include

- Currency or capital repatriation limitations, moratorium or strong restriction on foreign exchange
- Nationalization or confiscation of developed assets
- Import and export prohibitions or strict employment of foreign currency allocation
- Deprivation of the developer rights granted to developer

However, 1) when the change of laws covers a wide range of area and considered to be general, 2) in the case where operators could achieve the impact of cost increase, or 3) when the cost increase could be transferred on to the users, the risks could be considered to be responsible for operators.

(3) Economic Risks

Economic risks are applied for interest rate changes, inflation and foreign exchange. Public sector is responsible for the cases attributed to public as well as risks before the operation starts, and private is responsible after the operational commencement. Price changes exceeding a certain range during both construction period and operation period are considered to set up a reasonable cost allocation rules.

- Interest Rate Change Risks
  Loans for funding this Project are provided in floating rate and the public sector will not assume risks associated with this risk and rates are dependent on the market trend. However, it is expected that an agreement is made when the interest rates are raised in an excessive manner under circumstances such as financial crisis.

- Inflation Risk
  Inflation may give a substantial impact on the project cost. Typical PPP projects tend to have a long period between the tender and the operation and maintenance, and inflation may cause a large accumulated impact

- Foreign Exchange Rate Change Risk
  Depending on the project, necessary equipment and financing may be affected by the foreign exchange rate changes. PPP projects often are funded by ODA loans, bond issuance, loans from commercial banks and sometimes in foreign currencies. On the other hand, revenue is raised in domestic currency and thus the foreign exchange change may affect the planned revenue level. In general, this risk is borne by private sector but when it exceeds certain threshold, then a clause to be included in the PPP Agreement that both the public and private sector should share this risk.

(4) Social Risks (Risk to responding to residents, environmental risk)

Social risks are the risks considered as those risks for the transfer of residents and traffic detours and management during the construction period, and environmental risks are those which might affect natural environment impacts such as on air, sunshine, water and noise. These matters should be secured by the public sector and risks up to a time before the facilities are opened for use. After the facilities are opened for use, these will become the risks of the private sector operator.

- Resident response risk
  Risk related to lawsuits or demands from opposition movement to establishment and operation of this facility made to the public is considered as the risk borne by the public sector, but the risk other than the above and related to investigation, construction, or maintenance and operation by private sector operator is attribute to the private sector.

- Natural Environment Risk
  Risk related to sunshine and view obstructions, emissions or leaks of toxic substances, noise, vibrations, ground settlement, groundwater interruption, odor emissions, etc. caused by operations conducted by the operator.

(5) Force majeure risks

Risks beyond the control of the operator include natural disasters that are not anticipated at the planning stage, such as strong winds, heavy rains, flooding, storm surges, earthquakes, landslides, cave-ins, and lightning, as well as anthropogenic events such as wars and riots. It is generally appropriate for the public sector to assume such risks. Meanwhile, in order to promote more efficient recovery, it is desirable for the private sector operator to assume a portion of the risk of losses such as construction delays and damage due to force majeure.

(6)Default Risk

Risk related to business abandonment or financial failure of the private sector operator or failure by operator to provide services of the quality level specified in the requirements document.

2) Risks during Design and Construction Phases

It is considered that the public sector will assume the risks of investigations, instructions, changes, and construction work, etc., implemented by the public sector. In particular, it is considered that the public sector will assume the risks of soil pollution and underground obstacles at the plan site. Risks other than the above which are attributable to the operator are considered to be risks of the operator.

(1) Surveying and investigation risk

Risks due to inadequacies in surveying and investigations performed other than by the public sector should be borne by the private sector operator.

(2) Design risk

Risk related to inadequacies in designs performed by the operator or inadequacies and changes due to other causes by cost increases and delays in completion are considered as the private sector operator's risk.

(3)Land Acquisition risk

Risk related to acquisition of planned construction site is borne by the public sector.

(4)Geological and ground risks (handling of existing buried objects)

Risk related to soil pollution and underground obstacles, etc. at the plan site, other than soil pollution, underground obstacles, etc., at the planned site but not including soil pollution and underground obstacles which are indicated in informational materials published by the public sector, or whose presence may be reasonably predicted from such informational materials is considered as the private sector operator's risk, and this should be incorporated into the PPP Agreement.

(5)Construction delay and incompletion risk

Risk related to incompletion or delays from the work schedule specified in the contract due to other reasons than incompletion or delays from the work schedule specified in the contract due to design changes at the request of the public sector.

(6)Construction supervision risk

Risk related to problems with the content, schedule, etc. of construction work due to inadequacies in construction supervision performed by the private sector operator

(7)Cost overrun risk

Risk related to increases in construction costs due to other reasons than the increases in construction costs due to instructions from the public sector is to be borne by the private sector

(8)Risk of failure to attain required performance

Risk related to non-compliance with performance requirements or faulty execution after facility completion is attributed to the private sector as its risk.

(9)Risk of facility damage

Risk related to damage occurring in relation to the object of construction, materials, or other related construction work prior to use is considered as the private sector operator risk.

3) Risks during Maintenance and operation phases

It is considered that the public sector will assume the risks of matters attributable to the public sector. Meanwhile, there are some risks that the tenant share and the rental rate level will become lower than the assumed level. These are considered to be risks of the operator. And, it is necessary to divide the risks of facility damage due to accidents, fire, etc., and facility damage caused by third parties (including facility users) based on attribution of responsibility. It is considered that the public sector will assume the risks of obsolescence due to technological innovations and the like in those facilities and equipment whose development was directed by the public sector, while the private sector will assume the risks of increased expenses from obsolescence of other facilities and equipment due to technological innovations and the like.

(1)Maintenance and operation cost risk

Increases in work volume or expenses due to other reasons than increases in work volume or expenses due to changes in project content or purpose, attributable to the public sector

(2) Repair cost risk

Risk related to repair costs during the project period, exceeding the repair costs initially anticipated by the operator is borne by the private sector operator.

(3) Risk of facility damage

Risks related to repair costs during the project period, exceeding the repair costs initially anticipated by the operator, due to operator's failure to perform appropriate maintenance operations or inadequacies in maintenance with regard to facility deterioration, or due to accidents or fire, etc. are considered as the private sector operator risk. It will require a proper facility management, preventive measures for accidents and fire with a view to minimize facility damages.

(4)Risk of facility defects

Risk related to discovery of hidden defects in the facility during the defect guarantee period or related to defects in the private facility is borne by the private sector operator.

(5)Risk of obsolescence

Risk related to obsolescence of facilities and equipment due to technological innovations, etc., when cost increases are due to other reasons than that of facilities and equipment due to technological innovations, etc., when cost increases are due to instructions from the public sector

4) Risks at the end of the Project

(1) Risk of early project termination

Contract cancellation caused by failure of the operator to fulfill its contractual obligations including partial cancellation is attributed to the private sector as its risk.

(2)Facility performance risk

Risk related to ensuring facility performance at the time of project termination is considered to be borne by the private sector.

(3) Transfer procedures risk

Risk related to costs of transfer procedures and business hand-over or operator's final settlement with the public sector procedures at the time of project contract expiration is borne by the private sector operator. This should be clearly stipulated in the PPP Agreement.

7.3.6 Security Package

1.)Overview of the Project from Security Packaging Point of View

This Project aims at, as introduced at the beginning of this Chapter, developing Dukuh Atas Station area located in the central part of Jakarta to be developed as the transport hub by the public sector, in support of TOD and urban development relying on the public transport, as an effective and comfortable area by promoting a commercial facilities by the private sector to attract more visitors and to seek the passenger increase using railway and bus passengers.

This project assumes an application of the urban redevelopment type of approaches around the station area. With the initiatives of the public sector, the project plans to increase it floor space and facility development that will result in the reserve floor acquisition. By going these processes, the public sector will be able to recuperate its portion, and the private sector operator will be able to acquire and operate facilities around the station in response to the increase of railway and bus public transport passenger increase.

Security Package Review

This section examines a series of security package for a private sector operator planning commercial facilities in the target area that seeks finance from financial institutions. More concretely, a SPC established by a BUDM and private sector companies, by concluding a PPP Agreement with DKI, asks for a project finance from banks for its Phase 2 development of the Project as shown in the table below.

A security package is designed for banks to protect their loans by making collateral arrangements, to secure the project implementation and continuation, and also to avoid any right execution by the third parties.

With a purpose to implement and operate the project, banks will acquire the whole assets of the project special purpose company (SPC), the entire cash flow arising from the project, and the necessary contractual status to continue to project, and the share of SPC. With these collateral arrangements, banks will be able to exercise their step-in right smoothly.

A security package generally applied to this kind of project, with particular implications to the PPP Agreement between DKI and SPC is as follows.

2) Security required during the whole period of the Project

(1)Collateral arrangements

Arrangements are made on the entire assets and rights of SPC as well as the shares issued by SPC. They are classified in the following categories.

- Assets: Mortgage on land, building and factories, pledge on movable assets (raw materials etc.) and deposits and marketable securities.
- Rights and Claims: Pledge on the all related contracts that SPC retains,
- Contractual Status: Concession Agreements, Off-take agreements, Construction contract, Operations & Maintenance Agreements, Raw materials supply agreements, Lease agreements of land, Insurance contracts, Sub-ordinated loan agreements, assignment agreements on the status of SPC on the project related agreements,
- Shares: SPC shares owned by its shareholders.

(2)DKI and Financial Institutions' Right

- Step-in Right is a right to intervene (step-in) with a view to continue the project operations exercised by the public sector and/or banks. Banks may, with this step-in right, secure their position by making a legal isolation from bankruptcy by sponsors before banks to assign their claims to the third party. Banks usually makes an assignment agreement with SPC, as a part of its security package, and be ready for the project assignment to a third party when the project is in default situation, and, thus, the project may be able to be continued.

- Direct Agreement stipulates that the stakeholders will exchange information and consult each other when SPC operations have be worsened and banks will be able to step-in when the operations becomes difficult to be carried out. This Direct Agreement is contracted between the public sector and the lender banks.

(3)Implementation of the Project

SPC, as the borrower, must execute the Project in accordance with the PPP Project Agreement by constructing, operating and maintaining the private commercial facilities.

- SPC responsible for Finance and Use the Proceeds Accordingly
  SPC is responsible for the financial arrangement of the Project and its purpose is to construct facilities and maintain it. Other usage of the proceeds is not allowed. The

mortgaging and collateralizing the land and the facility are not permitted either.

- SPCs Rights and Obligations Not Assigned
  SPC is prohibited in assigning its rights and obligations acquired through the PPP Agreemet to third parties.

- Conditions precedent and Representations & Warranties are, the conditions requiring fulfillment by the borrower and constitute the obligation by the part of lender banks after the loan agreement signing. In addition, it will require articles such as the due diligence reviews, submission of related contractual documents, representation and warranties, non existence of payments due.

3) Security during the Construction Period

It is required that the planned construction work, required materials and equipment are adequately procured, engineers and workers are hired, and completed in a satisfactory manner in terms of construction cost, period and performance standards. Cost overrun, often taking place, needs to be agreed on how the related parties would respond, and when it has occurred, the ways to make it up and not to delay the construction among them.

(1) A construction bond is issued by bank or insurance companies with a view to secure the implementation capacity of the contractor for the benefit of SPC as a part of risk control mechanisms.

(2) Completion guarantee is offered by sponsors in relation to banks and structured in the form of principal repayment and interest payment guarantee until the construction completion. In addition, it may include a clause of sponsors' additional equity injection to respond to the cost overrun as their requirement.

(3) Guarantee for cost overrun is generally structured to set some contingency in the original plan or for banks to provide a certain level of additional loans. When, however, such overrun is excessive, it is often exercised to ask sponsors to make additional equity investment. It is also possible to include some financial ratios to be maintained at a certain level could also be made.

(4) Approvals, Planning and Designing

SPC will conduct reviews, environment impact assessment, soil test and others as its obligation. It will provide the Project implementation plan, the basic and detailed implementation design, and applications of any substantial changes, and so on.

Geological and ground risks (handling of existing buried objects)

Risk related to soil pollution and underground obstacles, etc. at the plan site, other than soil pollution, underground obstacles, etc., at the planned site but not including soil pollution and underground obstacles which are indicated in informational materials published by the public sector, or whose presence may be reasonably predicted from such informational materials is considered as the private sector operator's risk.

(5)Obligation to Construct Planned Facility

SPC is responsible for construction methodologies of the facilities, should submit implementation time schedule and plans. It should submit the construction commencement application and follow appropriate construction methodology and supervision, as well as achieve the required performance, as well as insure the facilities during the construction period. DKI and financial institutions retain the right to make on-site investigations and reviews during he construction period.

(6)Delay in Construction and Incompletion

SPC is responsible for delay or incompletion within the construction period defined in the PPP Agreement with reasons other than required changes by the public sector agency.

(7)Damage to Third Party

Damages caused by SPC during the construction, maintenance and operation period or compensation to the neighborhood shall be borne by SPC.

(8)Completion of the Facilities

SPC will conduct its own inspection followed by confirmation by DKI, and should receive a Completion Confirmation.

4) Security during Operation period

During the operation period, it is required to transfer the obligations to O&M operator under the Operations & Maintenance Agreement, or a support by sponsors when the funding shortage takes place during the operation period.

(1)Operation and maintenance is done by SPC itself or contracted between SPC and O&M operator and the latter is contracted for the project operations and maintenance. Banks will confirm the responsibility transfer to O&M operator when any damage has occurred due to the operations of the project by O&M operator.

- O&M provider shall submit its activity plans, O&M tasks changes, increase of cost, renewal and repair work of the facilities.
- SPC’s obligation with professional care of the maintenance and operation of the facilties
- SPC’s obligation to insure the facilties
- SPC’s reporting obligations on its equipment inspections, repair works and other maintenance and operation.

(2)Operational and Maintenance Cost Increase

When the occupancy ratio or rent level in the facilities that SPC operates or when activities or costs derived from the operational contents and purpose changes, the SPC should bear those increased costs. Any hidden defects of the facilities are also attributed to SPC as its responsibility. Any obsolescence of the facilities caused by technological innovations causing increase of costs is borne by SPC.

(3)Cash deficiency support is defined as undertaking of risks by sponsors when funding shortage takes place after the project operation phase. In general, sponsors will provide additional equity or subordinated loans.

5) End and Termination of the Project

A few cases of Project end or termination caused by default of SPC, by force majeure or by change laws.

(1)Compensation for Project Termination during the Project Period

A default caused by implementation and operation of SPC will constitute an end of the Project and SPC is obligate to compensate damages.

(2)Performance Level Maintenance Obligation at the End of Project

SPC shall maintain its facility performance at the end of the Project under the PPP Agreement that incorporates the rules to secure the performance.

(3)Transfer / Hand-over Expense by SPC

SPC will bear expenses of transfer or hand-over and settlements at the end of the PPP Agreement period.

6) Security to Assure Feasibility of the Project

It is essential to maintain and reserve feasibility of the project and both feasibility from the project and investment sides need to be satisfied.

(1)Loan to Value ratio is a ratio of Loan to the total assets of the project and calculated as a division of loan debt over the total assets. In general, 70% is used in practice and this project adopts the same ratio.

(2)Project Internal Rate of Return (Project IRR) is a discount rate where net present values of the investment is equal to Earning before Interest and depreciation, used as a common measure for the project feasibility

(3)Equity Internal Rate of Return (Equity IRR) is a discount rate where the net present values of equity invested and the Earning after debt payment, used as a benchmark rate for investors and sponsors for their feasibility judgement.

7) Security for Credit Enhancement

Security arrangement to increase credibility of the project is often introduced. Cash reserves, subordination of debts, insurance, cash deficiency support, cash flow downward risk, and the maximum losses are common tools for finance scheming.

(1)Cash reserve is applied, as one of the credit enhancement tools, to set up a reserve account to

avoid expenses and losses will not decrease the cash flow during the payback period. Reserves of this kinds are such as debt service reserve, expense reserve, repair reserve, reserve for earthquakes, O&M reserve and so on.

(2)Bond issuance restrictions could be applied to a local government as sponsor of the project may worsen its financial situation if the debt service to the bonds issued increase take place.

8) Security related to Avoid Cash Commingling

Cash generated by the project should be managed, in accordance with the payment priorities pre-agreed and the account administration by a bank, and appropriated to payments of specific expenses or debt service payments to avoid the commingling risk. In view of avoiding this, waterfall arrangement and escrow account need to be introduced.

(1)Escrow accounts are special trust accounts opened, often in accordance with the objectives of payments, for the project to manage and use for payments such as expenses and debt service.

9) Security on Financial Covenants of SPC

SPC will follow certain level of financial ratios under the project finance and those are found in the financial covenant clause as a warranty of the borrower.

(1)Debt Service Coverage Ratio (DSCR) is a ratio of total cash flow before debt service to total debt service, showing the room to pay back financial payments. It is quite common to include this DSCR in financial covenants and let the borrower to maintain certain ratio, for example 1.2~1.3.

(2)Loan Life Coverage Ratio (LLCR) is the ratio of the net present value of the cash flow before debt service throughout the loan period to total amount of the debt, and thus indicates the repayment ability of SPC.

Chapter 8 Project Evaluation

8.1 Project Risks

Development of the Dukuh Atas Station area can be divided into the development of Block A, which includes public use land (the bazaar site), and the development of Block B, C and D that include only privately owned land. As Indonesia has no experience with development conducted by means of a rights conversion system, Block A is considered to be a pilot project. Rights conversion and construction will be conducted by a public entity, and then the land (including the artificial ground burden share) will be sold to the private sector.

Based on the experience gained through the Block A development, it will be possible to promote a rights conversion system by the private sector for Block B and all subsequent blocks.

This chapter will cover the risks for the private sector developer (the entity executing the project).

8.1.1 Risks for private sector developer in Block A development

As Block A includes public use land (a bazaar), and as the construction can be expected to benefit the area right around the station, it would be most desirable to promote development at an early date. The public sector will take the lead in rights conversion and construction of redevelopment buildings, and the private sector will purchase the reserve floor area and the artificial ground burden share as an entire package.

As this will be the first rights conversion to be conducted in Indonesia, the public sector will assume the risk burden up through construction, making it easy for private sector entities to become involved. The following table shows the types of risk that are anticipated for private sector entities, mainly in the period following purchase.

Table 8.1.1 Risks for private sector entities in connection with Block A development

Risk	Phenomenon	Cause
Risk of increased maintenance and operation costs	• Maintenance and operation costs increase more than expected.	• Failure to do an adequate preliminary study and a careful feasibility study, or inadequate project planning
Facility damage risk	• Facility is damaged by accident, fire etc. • Facility is damaged by a third party.	
Facility obsolescence risk	• Facility and equipment become obsolete as a result of technical innovation, etc.	
Tenant occupancy risk	• Tenant occupancy in facility and rental income are at a lower level than expected.	• Failure to do an adequate preliminary study and a careful feasibility study, or inadequate project planning

8.1.2 Risks for private sector developer in connection with Block B, C and D

The risks that will be assumed by the public sector in the Block A development will all be assumed by the private sector developer in the case of subsequent blocks.

Table 8.1.2 Risks for private sector developer in connection with Block B, C and D

Risk	Phenomenon	Cause
Political risk	• Introduction of new system of taxation, etc. • Insurgency, default etc.	Change in the political system, restrictions on foreign companies, or other unexpected systems-related or policy change
Risk of changes to laws, regulations and systems	• Necessary legal systems not yet in place (redevelopment-related legislation, confirmation of land rights (registration system), tax measures relating to right change) • Currency and capital restrictions and exchange rate restrictions • Nationalization or expropriation of development assets • Import/export prohibition or severe exchange rate allocation • Forfeit of development rights granted to developers	• Decision to promote project by bureaucrats and politicians together (legislation relating to redevelopment), lack of organization • Changes to systems, regulations etc.
Economic risk	• Increased project costs due to inflation, unexpected extra costs etc. • Prolonged period or fluctuation risks due to prolonged period • Effect of interest rate fluctuations • Possibility that cumulative impact of inflation will become excessive • Affected by fluctuations in foreign exchange rates	• Major economic fluctuations, real estate market fluctuations in the sale of the reserve floor, income fluctuations resulting from revisions to project plan • Cost-consciousness, insufficient management capabilities
Social risk	• Inability to confirm right holder or opposition of right holder • Delay in construction of transportation, flood control or other infrastructure (comprehensive urban planning / guarantee of integration with construction of municipal functions) • Loss of significance of project itself • Inability of administration to execute project • Traffic regulations during construction period • Air, sunlight, water quality, noise etc. as a result of project execution	• Steep rise in conditions for withdrawal or rights conversion • Inadequate awareness and understanding of the project on the part of both the administration and residents • Loss of project purpose and philosophy • Inadequate expertise, capacity, experience and organization for project execution on the administration side or low level of credit on the part of the administration
Risk of "Acts of God"	• Storm, heavy rain, flooding, earthquake, rockfall, lightning or other natural disasters • Riot or other human-induced event	

Risks at design and construction stage	• Design and study risk, geological and ground risk, construction work and supervision risk • Soil contamination at planned site, asbestos in existing homes, etc., underground obstacles etc. • Effect of attracting overseas investors	• Failure to do an adequate preliminary study and a careful feasibility study, or inadequate project planning • Project is not one that complies with current global standards
Risk of increased maintenance and operation costs	• Maintenance and operation costs increase more than expected.	• Failure to do an adequate preliminary study and a careful feasibility study, or inadequate project planning
Facility damage risk	• Facility is damaged by accident, fire etc. • Facility is damaged by a third party.	
Facility obsolescence risk	• Facility and equipment become obsolete as a result of technical innovation, etc.	
Tenant occupancy risk	• Tenant occupancy in facility and rental income are at a lower level than expected.	• Failure to do an adequate preliminary study and a careful feasibility study, or inadequate project planning

8.2 Risk countermeasures

It is not possible to deal beforehand with all of the risks described in 8.1. Although measures are taken in advance when this is possible, in other cases the risk remains. The more risks that are involved, the harder it is for private sector developers to become involved. However, the project is by no means impossible as long as robust legislation is developed for project promotion (as land rights are involved), careful preliminary study is conducted and plans formulated, and a high-power redevelopment execution entity with promotion capabilities and organization is in place.

8.2.1 Risk countermeasures in connection with Block A development

Table 8.2.1 Risk countermeasures in connection with Block A development

Risk	Countermeasure
Risk of increased maintenance and operation costs	• Conduct an adequate preliminary study and a careful feasibility study and implement project planning
Facility damage risk	• Obtain casualty insurance
Facility obsolescence risk	• Risk is assumed
Tenant occupancy risk	• Conduct an adequate preliminary study and a careful feasibility study and implement project planning

8.2.2 Risk countermeasures in connection with Block B, C and D development

Table 8.2.2 Risk countermeasures in connection with Block B, C and D development

Risk	Countermeasure
Political risk	• Risk is assumed
Risk of changes to laws, regulations and systems	• Risk is assumed
Economic risk	• Risk is assumed
Social risk	• Risk is assumed
Risk of "Acts of God"	• Obtain casualty insurance
Risks at design and construction stage	• Collect data in advance and implement highly precise study
Risk of increased maintenance and operation costs	• Conduct an adequate preliminary study and a careful feasibility study and implement project planning
Facility damage risk	• Obtain casualty insurance
Facility obsolescence risk	• Risk is assumed
Tenant occupancy risk	• Conduct an adequate preliminary study and a careful feasibility study and implement project planning

8.3 Overall evaluation

This project is a scheme to develop an underground passageway and artificial ground above the Banjir Kanal as a public project, as part of the development of a planned transport hub around Dukuh Atas Station. The aim is to strengthen the transport function, as well as to further strengthen connectivity, and office, commercial, and housing development, etc., is planned around the station area by private investment.

For the private investment part, it is envisaged that urban redevelopment methods will be applied. Specifically, it is planned that capacity increase and facility development will be carried out in a public sector-led redevelopment, and that private businesses will acquire reserved floor space. As a result, in the project a certain amount of public burden charges can be obtained from the redevelopment for the public sector part, and the private businesses can acquire and manage the reserved floor space.

For the above scheme, an evaluation of the project was carried out for three cases as describes in Chapter 7: floor area ratio 600%, 1,000%, and 1,500%, looking at the investment of the private businesses into the public sector-led redevelopment <cost of acquiring reserved floor space (= cost of the redevelopment project + artificial ground development cost)>. This was carried out from the point of view of a PPP project, to verify the percentage of public burden charge that is feasible for the private businesses to contribute to the artificial ground development cost, and to evaluate the feasibility of the project.

From the results of these trial calculations as described in Chapter 7, the basic conditions set in the financial analysis have been satisfied, and it is considered that if an appropriate public sector-led redevelopment project can be implemented, there is a very high possibility that this project will be feasible as a PPP project.

Also, there are many matters that remain to be investigated regarding implementing this project. The items that can be determined at the present time are as listed below. It is necessary that the following points be continuously investigated and the policy be determined at an early stage, and for items other than the following, it is considered that it is necessary to establish the policy regarding the items as soon as possible when they can be confirmed.

- Establishment of the project scheme and establishment of the public sector-led redevelopment project implementation system
- Export of redevelopment project implementation know how from Japan
- Detailed investigation of the public burden charge for the artificial ground development (potential to be borne by the south side business area)
- Confirmation of the possibility of achieving land conversion rights
- Possibility of commissioning a private business to carry out operation and maintenance of public facilities and services such as the artificial ground, etc.
- Detailed study of the risk allocation between public sector and private sector
- Confirmation of other potential private investors, both domestic and overseas, in this project
- Specific form and method of participation (tender, etc.) of private businesses Etc.

Chapter 9. Project Effectiveness

Operational and effectiveness indicators are recommended for Phase 1 and Phase 2 of the project that involve the development of public facilities (underground walkway and artificial ground), and the subsequent Phase 2 portion for private sector facilities. Recommendations are also provided for the effect of this project on the MRT project.

As an economic analysis of the project, the social benefit of urban redevelopment is also measured, and the Economic Internal Rate of Return (EIRR) for the project is calculated.

9.1 Establishment of performance indicators

Performance indicators are standards for assessing the degree to which the objectives of public policy and public works projects have been achieved. Performance indicators are measured continuously from the planning stage (ex-ante) to the point following completion (ex-post). This makes it possible to collect coherent data on policy and project achievements.

Recommendations are provided for operational indicators (which measure the degree to which the equipment, facilities, etc., constructed for the project are being operated and used appropriately) and effectiveness indicators (which measure the degree to which these equipment, facilities, etc., are providing benefits to beneficiaries and the target community).

9.1.1 Indicators for public facilities development

The following table shows the operational and effectiveness indicators established for public facility development (underground walkway, artificial ground, etc.) in Phase 1 and Phase 2 of the project. Measurements are taken continuously and the degree to which the objectives have been achieved is assessed.

Table 9.1.1 Operational and effectiveness indicators for public facilities development

Source: JICA Study Team

	Facility name	Operational indicator (unit)	Effectiveness indicator (unit)
1	Passageways relating to the underground pedestrian crossing	User traffic volume (persons/day)	Reduction in travel time and transfer time (amount of time/year)
2	Artificial ground	BRT daily traffic volume (vehicles/day) Taxi and bus daily traffic volume (vehicles/day)	Reduction in transfer time (amount of time/year) Average wait time (minutes) Improvement in congestion status (persons/m^2) Increase in land price due to effect of greening spaces (Rp/m^2)
		Number of users (persons/day)	

9.1.2 Indicators for urban redevelopment project

The following table shows the operational and effectiveness indicators established for urban redevelopment in Phase 2 of the project. Measurements are taken continuously and the degree to which the objectives have been achieved is assessed.

Table 9.1.2 Operational and Effectiveness Indicators of

Source: JICA Study Team

	Facility name	Operational indicator (unit)	Effectiveness indicator (unit)
1	Urban redevelopment	Percentage of reduced walking time (%)	Increase in land price (Rp/m^2)
		Greening ratio (%)	
		Floor area ratio (%)	Increase in land price (Rp/m^2)

9.2 Effect on MRT Project

1) TOD Approach Adaptation Effect

Transit Oriented Development (Public transport oriented development) approaches is expected to be well adapted by passengers and people in Jakarta with the implementation of this Project that plans to open Underground Walkway and Artificial Ground by MRT line opening. MRT lines will offer a new TOD means and pedestrian network development will bring more swift and comfortable move of the people that further appeal the benefit of TOD approaches.

2) Transport Hub Effect in the central part of Jakarta with railway network improvement

Several railway network improvement including MRT planned or scheduled and Trans Jakarta connection at Dukuh Atas area in the heart of Jakarta will be enhanced with their reinforced role as the transport hub.

3) Traffic Accident Reduction / Traffic Jam Easing Effect

Underground Walkway providing a jump increase of MRT passengers transfer to other transport means, and Artificial Ground offering direct access of Trans Jakarta on the platform will contribute to reduction of traffic accidents in the area as well as traffic congestion easing.

4) Public Facility and Public Service Improvement Effect

Urban redevelopment of the area will create new roads and parks as well as additional public facilities such as satellite offices of neighboring districts, a kindergarten for commuters, a health care center, and a tourist information office, thereby improving the quality of public services. This will increase the number of people who will use MRT and other public transport for the purpose of using these facilities.

5) Private sector facilities construction and operation Effect

Private sector facilities will offer new commercial facilities to give more comfort to not only MRT and other transport passengers but also daily users and residents nearby.

9.3 Project economic analysis

Based on the proposed scheme and the results of the studies to date, the social benefits associated with the urban redevelopment were estimated, and the project economic internal rate of return (EIRR) was calculated as the economic analysis of the project.

Taking into consideration the characteristics of the project (having a public service part and a commercial and business benefit part), this economic analysis was carried out in accordance with “Draft Cost Benefit Analysis Manual for Urban Renewal Projects” (2007 edition), issued by the Ministry of Land, Infrastructure, Transport and Tourism, Urban Development and Improvement Division of the Rural Development Bureau, and the Urban Building Division of the Housing Bureau (hereafter referred to as the “Socio-economic Benefit Estimation Manual”).

The concept of this economic analysis is shown in Fig. 9.3.1 and Fig. 9.3.2.

●Method of Economic analysis

✓Using "Cost Benefit Analysis Manual for Urban Renewal Projects" issued by Ministry of Land, Infrastructure, Transport and Tourism, Japan.

The Benefit of Project Implementation is evaluated by theoretical rise in land prices around Project area.

Fig. 9.3.1 Concept of the project economic analysis (Source: Study Team)

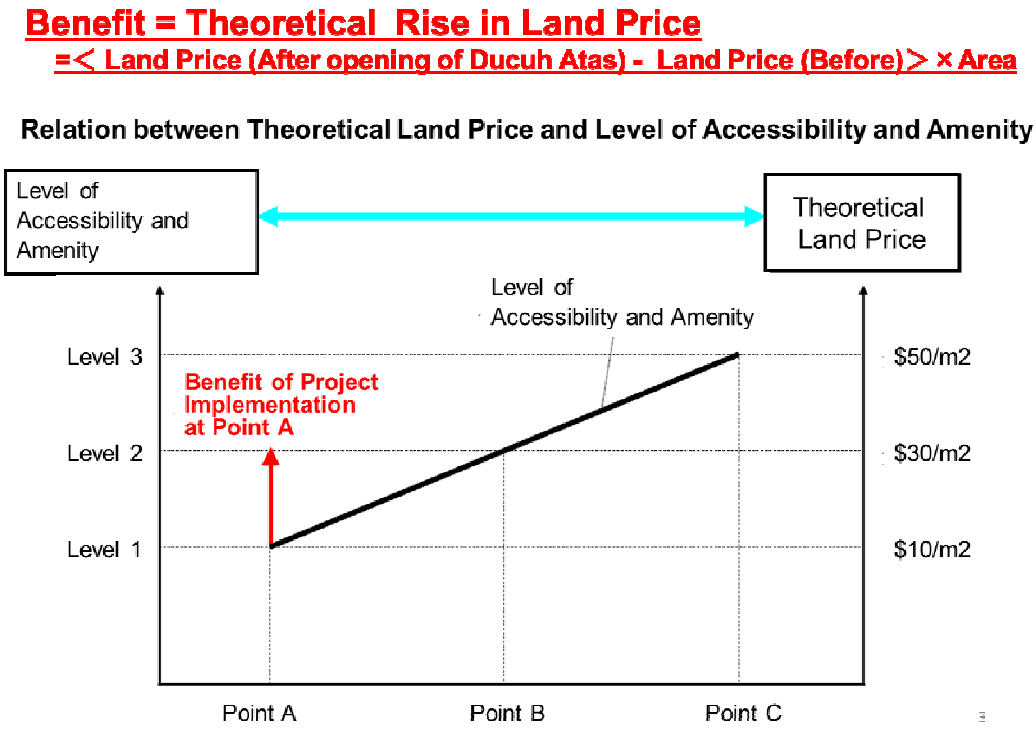


Fig. 9.3.2 Image of the generation of theoretical land price benefits in urban redevelopment projects (Source: Study Team)

1) Estimation of social benefits associated with redevelopment

(1) Setting the scope of the analysis

In the "Socio-economic Benefit Estimation Manual," the theoretical land price benefits are estimated based on the hedonic method, and this estimation is performed in the area that is considered to be affected by the project (area of influence). In this study, the area was taken to be about 500 m around the outside of the site of the project.

(2) Land price function

The main purpose of a land price function is to determine improvement in the land due to the project, and the procedure involves deriving an equation for estimating the land price.

To create the hedonic function from the explanatory variables described later (4), data is collected for each point that is set taking into consideration the characteristics of the area, the project objective, etc., and the land price function is set as the function with the highest statistical accuracy by correlation analysis.

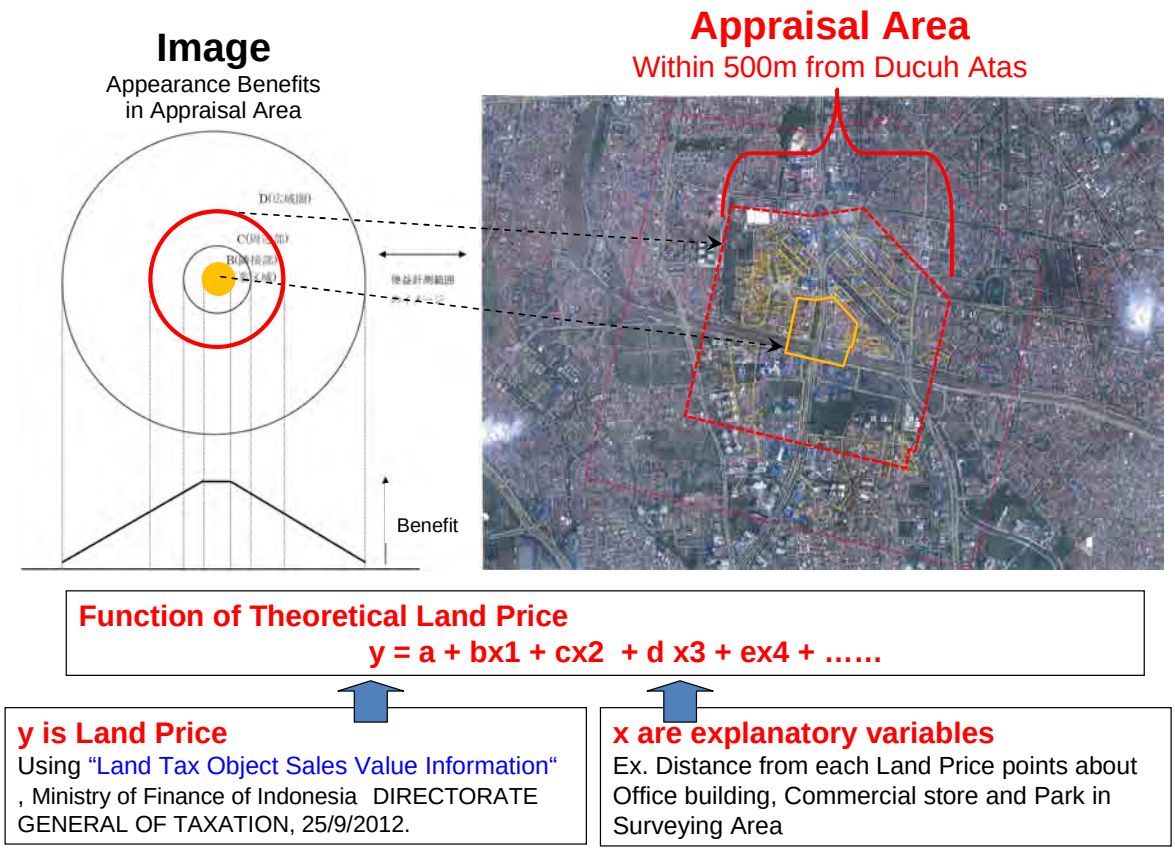


Fig. 9.3.3 Area for appraisal of the benefits of the project (Source: Study Team)

(3) Setting data extraction samples

The mid points of the roadside land prices within the area set in (1) were set as land price sample points. Also, accessibility (large scale commercial facilities, open spaces, large scale office facilities) data from each sample point was obtained for large-scale commercial facilities, open spaces, large scale office facilities within 500 m of each point.

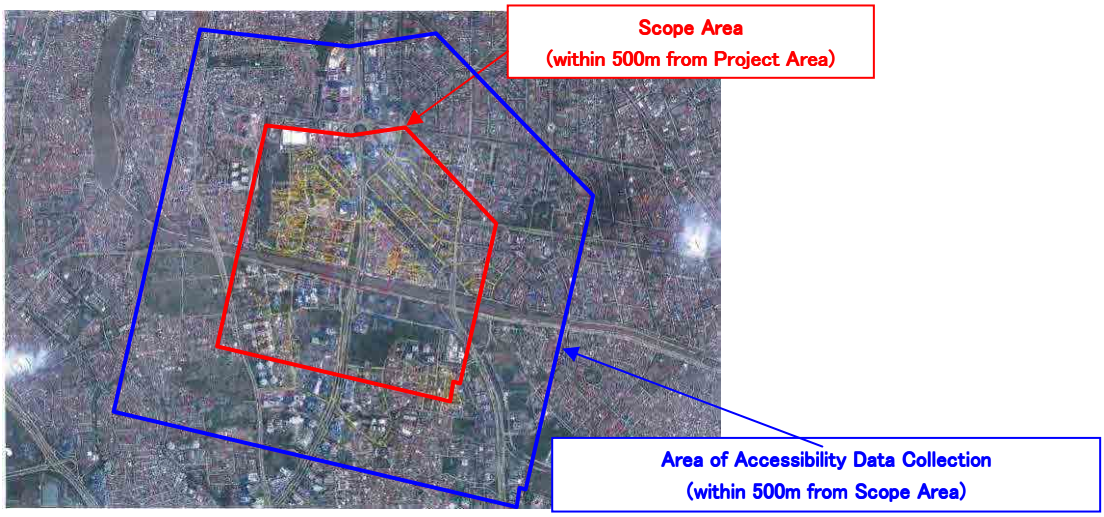


Fig. 9.3.4 Area for collection of accessibility data (Source: Study Team)

[Reference] Accessibility data

Accessibility data is a concept that expresses the convenience (convenience for shopping, etc.) of a point. The convenience is expressed in accordance with the scale of urban functions and proximity to urban functions.

Approach to accessibility data

Distance *Ln* to center of urban function n

Urban function *n*

Scale *An*

Point *X*

Accessibility to urban function *n* at point *X*=

Scale *An* of urban function *n* / Distance $Ln^{1.2}$ to urban function *n*

$$X_{ACCm} = \sum_{n} Anm / Lnm^{1.2}$$

X_{ACCm} : Accessibility for purpose *m* at point *X*

n : Facility number

m : Purpose

A_{nm} Scale of facility number *n* of purpose number *m*

L_{nm} Distance from point *X* to facility of facility number *n* of purpose number *m*

(4) Collection and organization of data

For each sample point, the items of data collected and organized for the objective variables and explanatory variables are shown in Table 9.3.1, by reference to the “Socio-economic Benefit Estimation Manual.”

Table 9.3.1 List of data for objective variables and explanatory variables (Source: Study Team)

Classification	Item		Method of calculation
Objective variables	Land price		Set based on the database of the Indonesian Ministry of Finance homepage
Explanatory variables	Candidate variables for expressing the characteristics of the area	(1) Usage zone	For commercial or business use, select (commerce) 1, and 0 for others. (Set based on the database of the Special Capital Region of Jakarta Planning Bureau homepage)
		(2) Floor area ratio	Set based on the database of the Special Capital Region of Jakarta Planning Bureau homepage
		(3) Width of the road to the front (m)	Set based on measurements from both 1/2,500 digital maps (obtained from Special Capital Region of Jakarta Planning Bureau) and Google Maps aerial photographs
		(4) Distance to the center of the CBD (m)	Central business district (CBD): set as the center of the rotary of Bunderan HI
	Candidate variables for expressing convenience (accessibility data)	(5) Convenience of large scale commercial facilities	Calculated from the "total floor area[*4]" and "distance from each point" of large scale commercial facilities[*1] in the data collection area
		(6) Convenience of open spaces	Calculated from the "site area"[*4] and "distance from each point" of open spaces[*2] in the data collection area
		(7) Convenience of large scale office facilities	Calculated from the "total floor area"[*4] and "distance from each point" of large-scale office facilities[*3] in the data collection area

*1: The applicable facilities were as follows:
"Citywalk Sudirman," "Plaza Indonesia," "Grand Indonesia," and "Thamrin City"
*2: The applicable facilities were as follows:
"Menteng Park" and "Suropati Park"
*3: The applicable facilities were as follows:
"Plaza Tower," "Wisma Nusatara," "Graha Mandiri," "Menara BCA," "UOB Plaza,"
"The City Tower," "Landmark BNI," "Wisma46," "Wisma Indocement Kyoei," "Prince,"
"Indofood Wisma," "Nugra Santana," "DiamondPlaza," "Mid Plaza," "Chase Plaza," "Wisma BCA"
*4: The site area or total floor area of large scale commercial facilities, open spaces, and large scale office facilities were calculated by the following procedures
(1) Measurement of the size of the sire or building from Google Maps aerial photographs
(2) Measurement of the number of stories from 3-dimensional models
(3) Calculation of total floor area

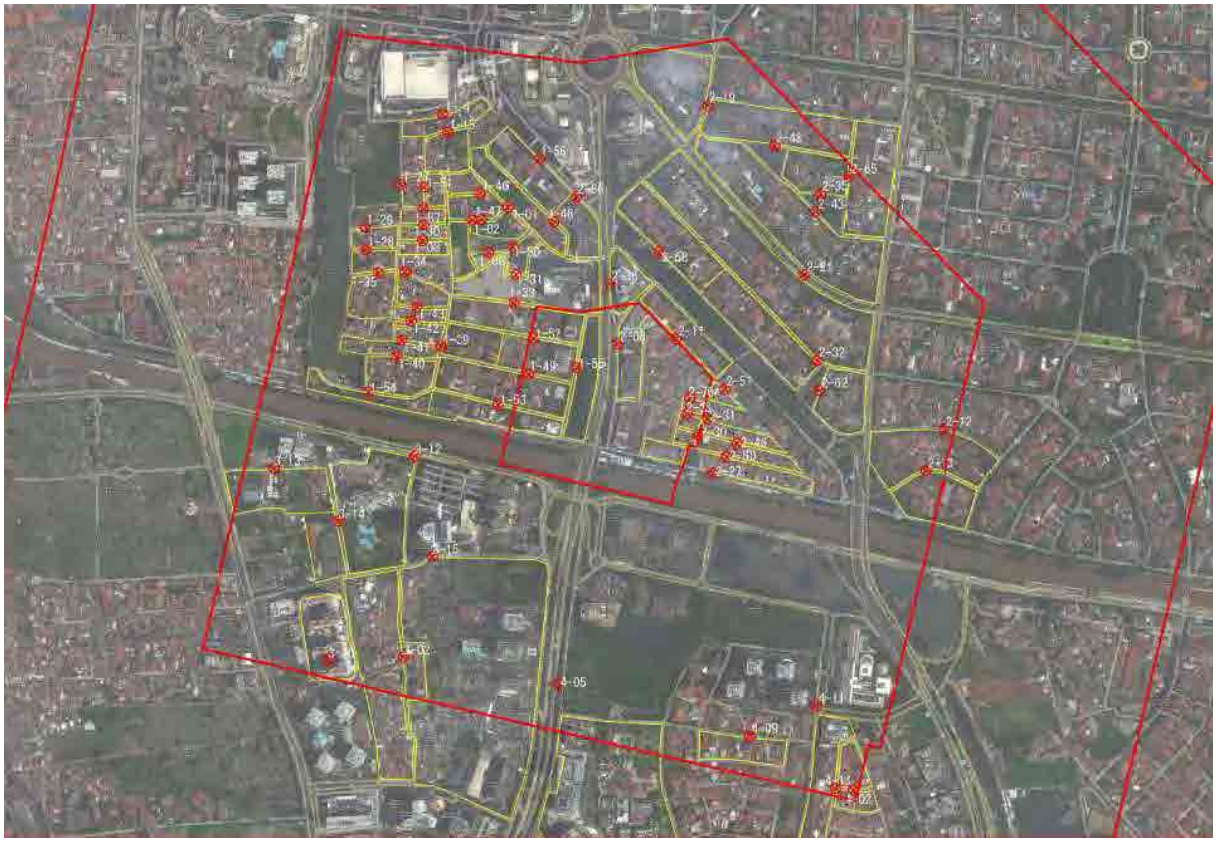


Fig. 9.3.5(1) Land price setting points (Source: Study Team)

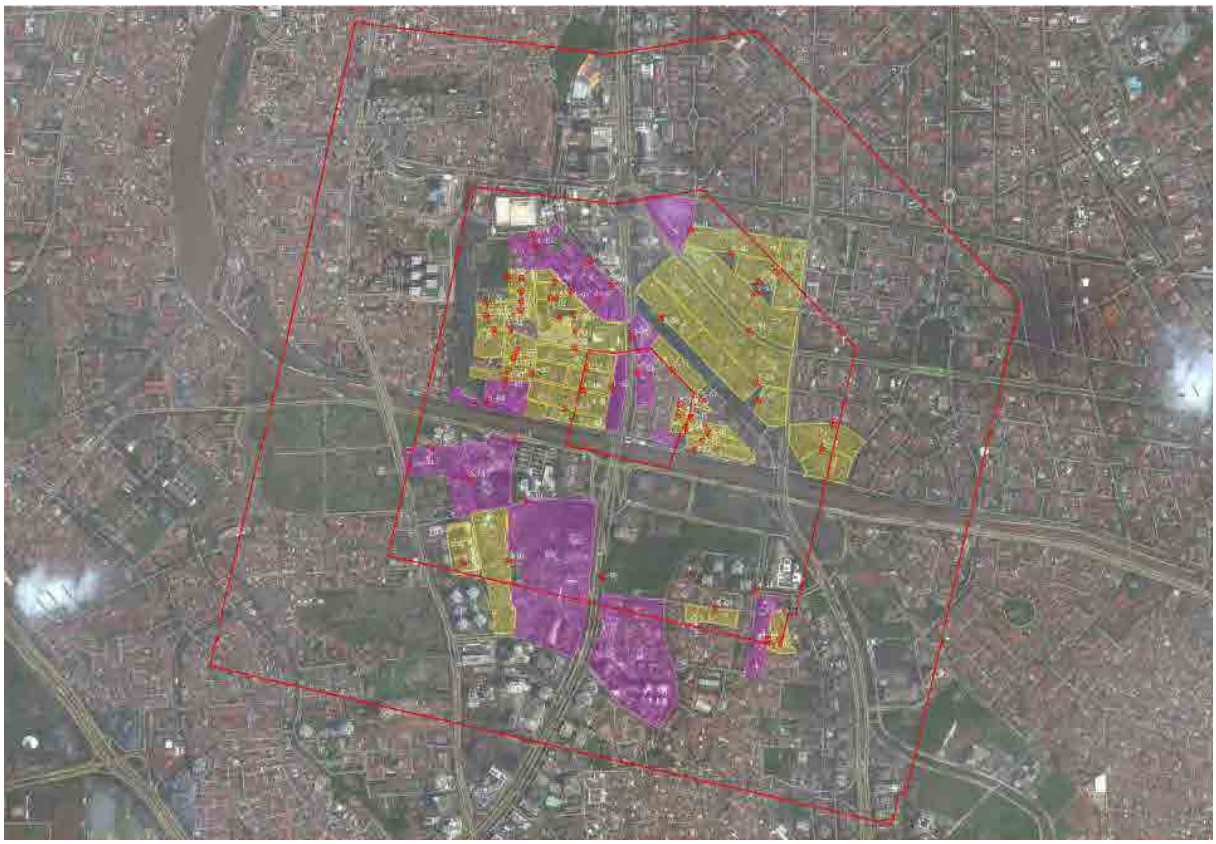


Fig. 9.3.5(2) Usage zones (Source: Study Team)

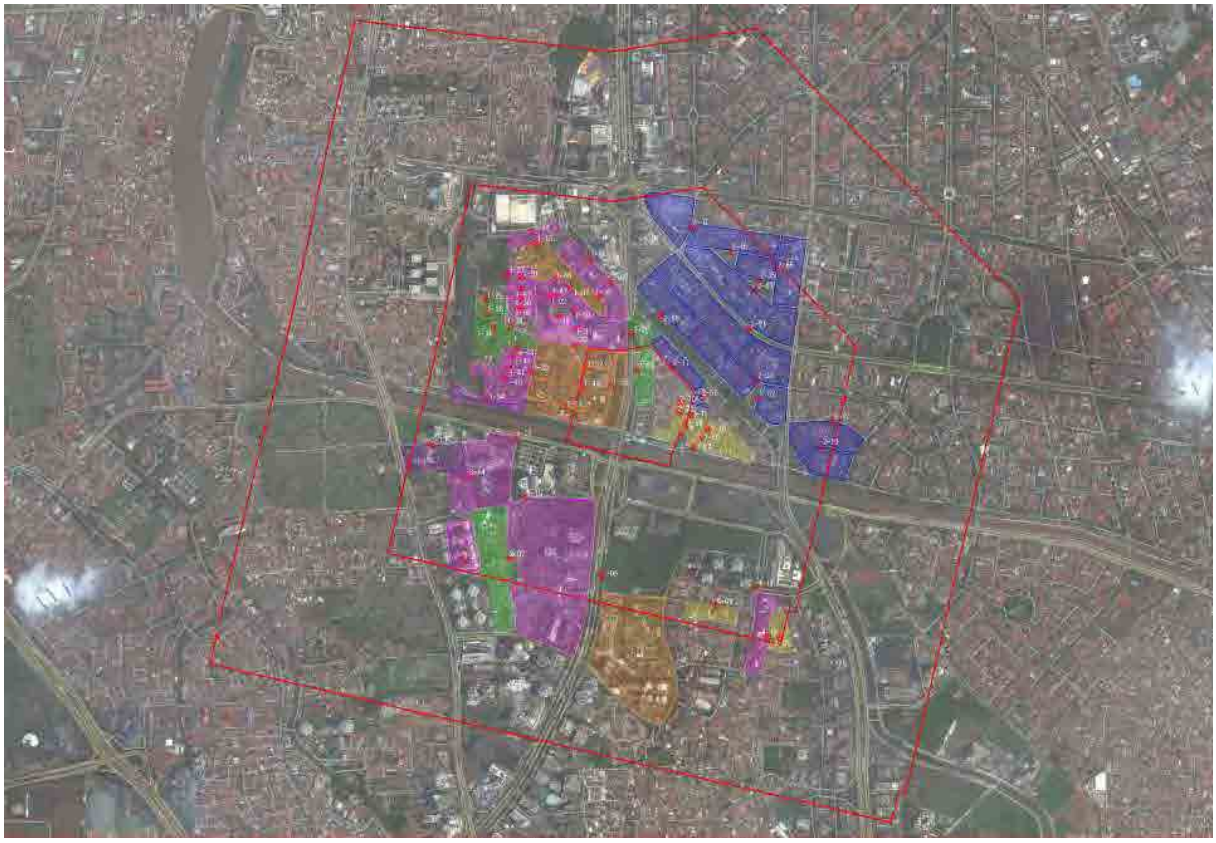


Fig. 9.3.5(3) Floor area ratios (Source: Study Team)

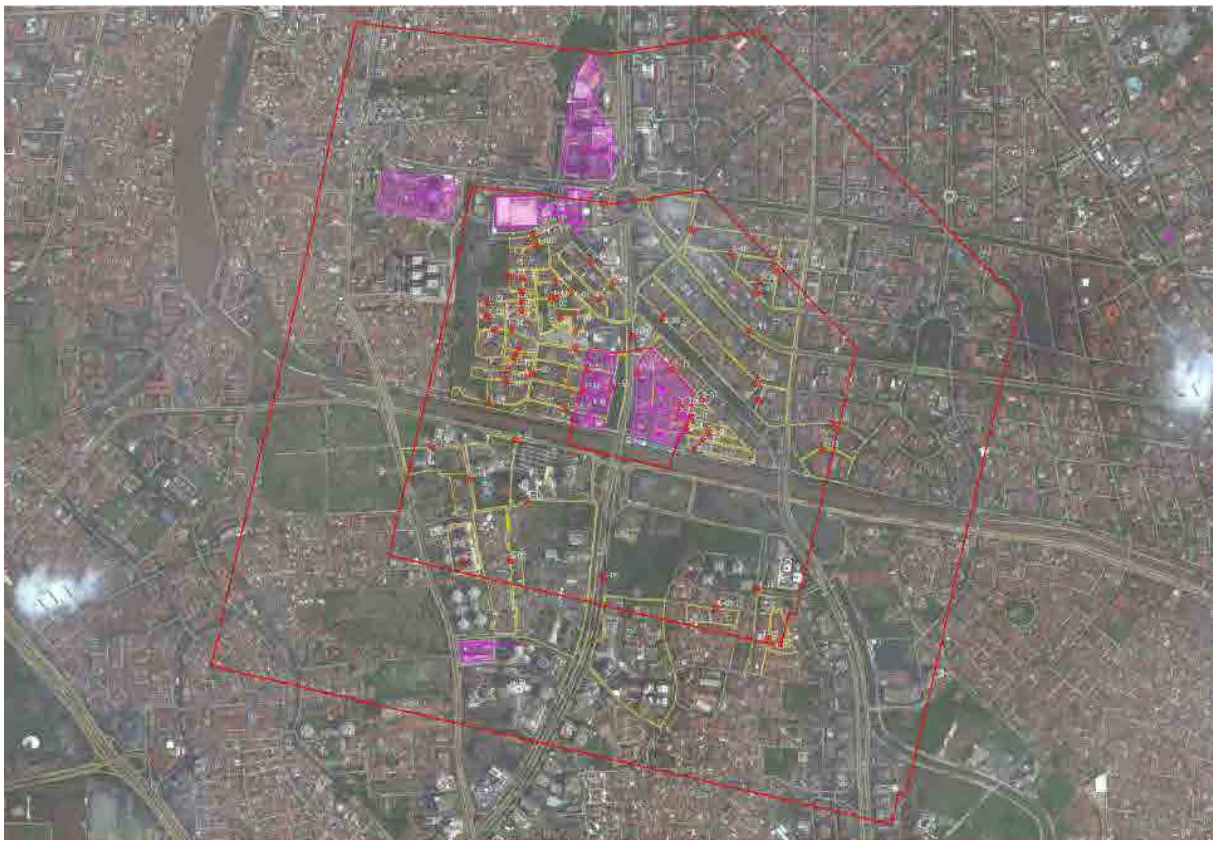


Fig. 9.3.5(4) Large-scale commercial facilities (Source: Study Team)

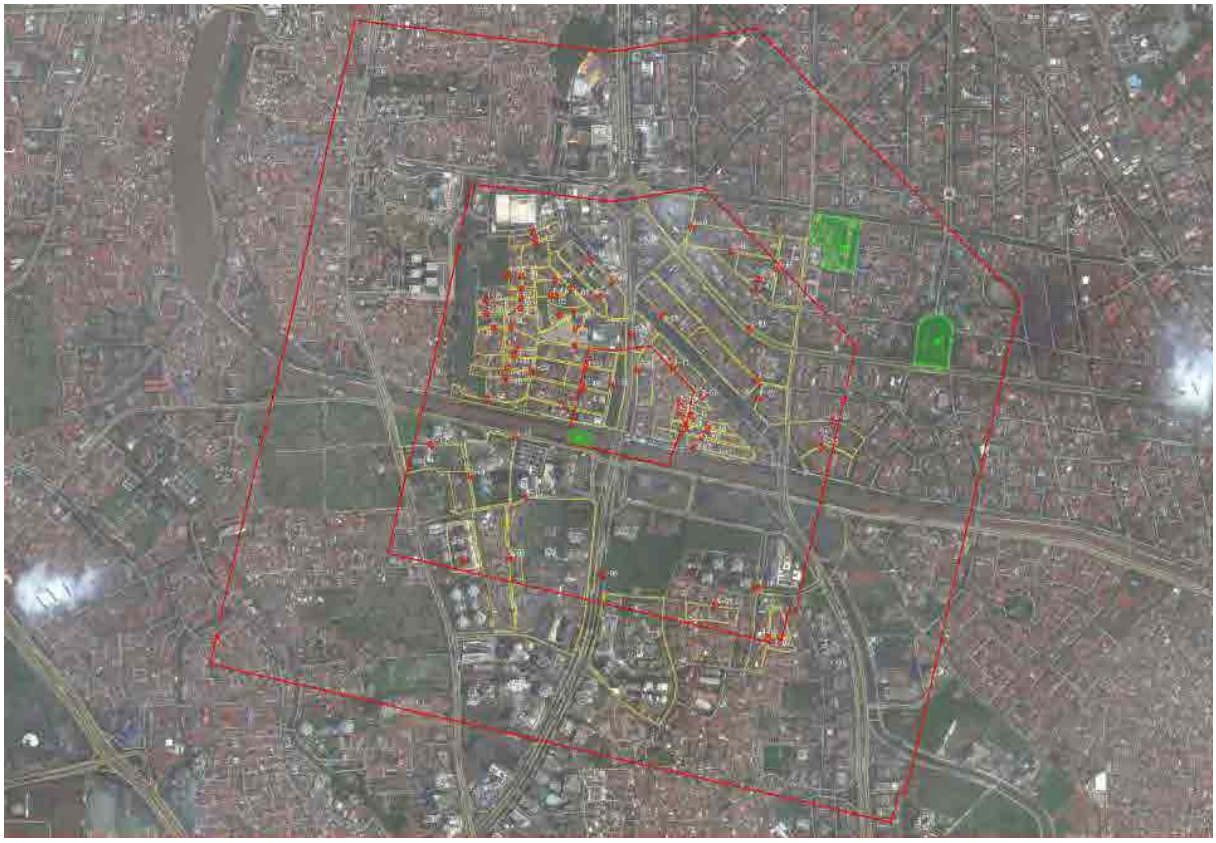


Fig. 9.3.5(5) Parks and open spaces (Source: Study Team)

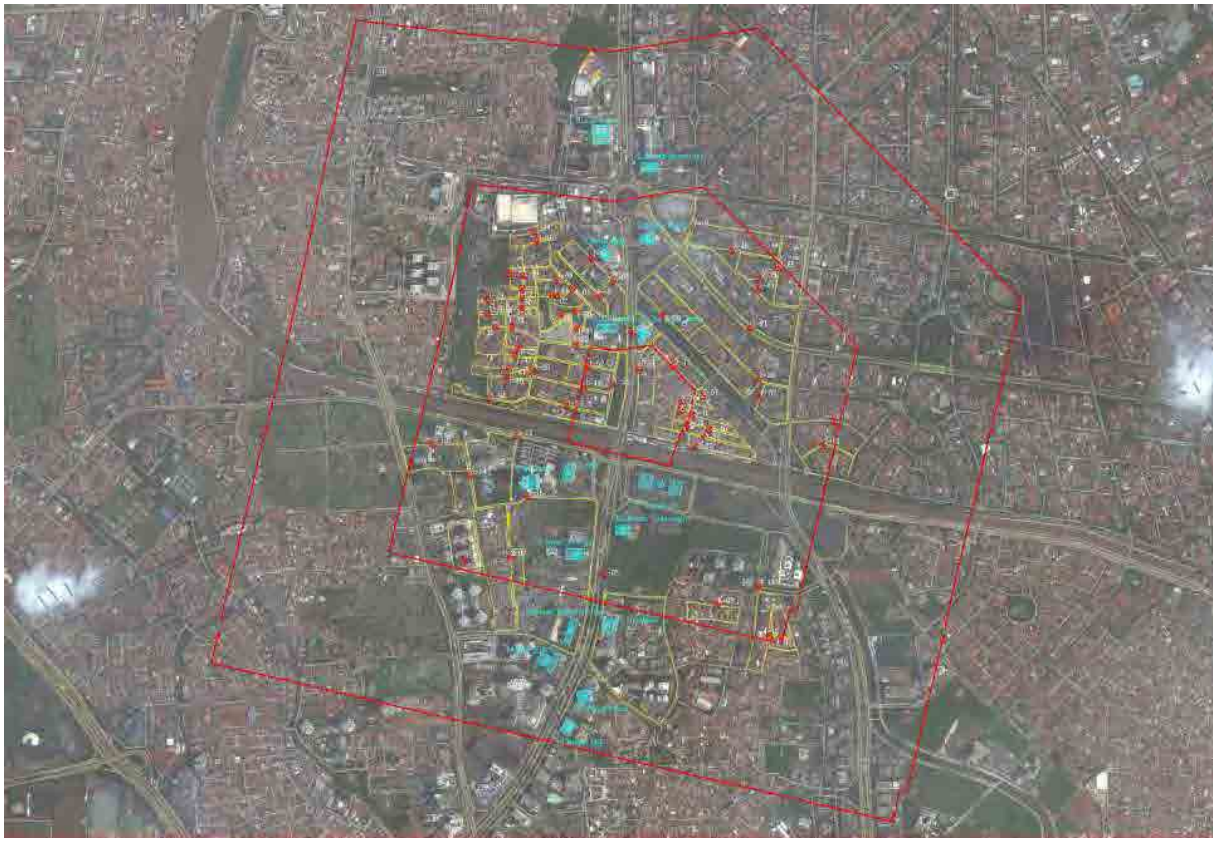


Fig. 9.3.5(6) Large-scale office facilities (Source: Study Team)

(5) Creation of land price functions

Based on the above databases, the land price functions were estimated by correlation analysis.

The functions were linear functions, log-log functions, and log-linear functions (with the explanatory variables as the log), and the function that expresses the characteristics of the area and the function of the accessibility data were selected as appropriate by trial study.

The variables finally adopted for the land price function were “width of the road to the front,” “open space convenience (accessibility),” and “office convenience (accessibility).”

As a result, the following CASE 1-3 models which have the highest reproducibility accuracy were selected based on model reproducibility (models with a negative coefficient of floor area ratio were unsuitable, models with a positive coefficient of distance to the center of the CBD were unsuitable, models with a negative coefficient of accessibility were unsuitable) and the overall statistical accuracy of the model (multiple correlation coefficients R), etc.

Table 9.3.2 Results of estimation of land price functions (Source: Study Team)

explanatory variable	Linear Model(Y=AX1+BX2+・・・)				Log-Log Model(LnY=ALnX1+BLnX2+・・・)				Log-Linear Model(Y=ALnX1+BLnX2+・・・)				
	CASE1-0	CASE1-1	CASE1-2	CASE1-3	CASE2-0	CASE2-1	CASE2-2	CASE2-3	CASE3-0	CASE3-1	CASE3-2	CASE3-3	CASE3-4
an intercept	−1748.35	−621.66	−928.60	−1887.69	3.65	5.30	2.58	5.21	−80887.16	−81368.84	−26168.39	−89073.42	−26932.62
(t varue)	(−0.55)	(−0.51)	(−0.70)	(−1.48)	(0.96)	(6.72)	(0.61)	(5.97)	(−2.02)	(−2.04)	(−3.14)	(−2.12)	(−3.06)
Land use	3448.92	3038.50			1.06	0.98			8129.79	7608.58	7852.98		
(t varue)	(3.66)	(3.53)			(4.04)	(3.80)			(2.94)	(2.80)	(2.87)		
Floor area ratio (%)	−644.19				−0.25				−1544.22				
(t varue)	(−2.01)				(−1.67)				(−0.99)				
Width of a front road (m)	475.07	401.07	440.94	450.81	0.34	0.32	0.40	0.39	4253.25	4165.94	4061.37	4749.84	4652.80
(t varue)	(7.72)	(10.72)	(11.34)	(11.38)	(5.59)	(5.35)	(6.32)	(6.31)	(6.68)	(6.61)	(6.43)	(7.56)	(7.37)
Distance to Central business district (m)	0.91				0.14		0.21		4516.27	4514.36		5084.14	
(t varue)	(0.51)				(0.47)		(0.64)		(1.41)	(1.41)		(1.51)	
Accessibility (commercial area)	−3.71	−5.96	−4.48		−0.18	−0.34	−0.20	−0.34	1117.27	613.33	−2209.21	1012.97	−2164.24
(t varue)	(−1.33)	(−2.95)	(−2.08)		(−0.85)	(−5.17)	(−0.91)	(−4.60)	(0.51)	(0.29)	(−3.14)	(0.45)	(−2.91)
Accessibility (open space)	231.53	385.89	348.51	370.48	0.52	0.71	0.72	0.61	5261.78	6849.28	4738.84	6367.84	3963.86
(t varue)	(2.07)	(5.82)	(4.88)	(5.11)	(2.23)	(6.46)	(3.59)	(5.19)	(2.12)	(3.63)	(4.07)	(3.21)	(3.31)
Accessibility (office area)	2.51	2.57	4.09	3.74	0.43	0.35	0.55	0.50	4743.60	4466.29	3326.76	5764.23	4522.79
(t varue)	(1.53)	(1.82)	(2.80)	(2.51)	(2.84)	(2.71)	(3.46)	(3.67)	(2.95)	(2.82)	(2.42)	(3.61)	(3.27)
Multiple correlation coefficient “R”	0.906	0.915	0.896	0.889	0.885	0.878	0.848	0.846	0.857	0.855	0.849	0.833	0.826

※Land use data：in the case of Log-Log Model and Log-Linear Model,used varue 0⇒2,1⇒3

Adopted land price function model

Land price (Rp1,000/m^2) = -1887.69
+ 450.81 × width of road to the front (m)
+ 370.48 × (open space convenience (accessibility))
+ 3.74 × (office convenience (accessibility))

Note) Hatched area: Items for which the data changes before and after the development

(6) Calculation of social benefits (amount of theoretical change in land price) due to implementation of the project

Based on the land price function estimated in (5), the social benefits (amount of theoretical change in land price) resulting from implementation of the project were calculated.

The calculation was carried out for a total of six cases of floor area developed by this project.

The change due to the newly developed floor area improves the accessibility from each sample point to facilities. Therefore, by applying the amount of change to the land price function, the social benefits (theoretical change in land price) are estimated.

The calculation results are summarized in the following table, and the details for each point are on the following page.

Table 9.3.3 Results of estimating the social benefits (theoretical change in land price) (Source: Study Team)

Redebelopment Area	Floor area ratio	Area that is produced by redevelopment (㎡)			theoretical rise in land prise		Benefit per year (interest rate＝8%)	
		commercial area	open space	office area	(billion IDR)	(billion JPY)	(billion IDR)	(billion JPY)
Block A	600%	15,232	2,500	60,926	782	7.82	63	0.63
	1000%	27,632	2,500	110,526	893	8.93	71	0.71
	1500%	43,132	2,500	172,526	1,032	10.32	83	0.83
All area (BloceA,B,C,D)	600%	57,811	2,500	231,242	1,203	12.03	96	0.96
	1000%	107,171	2,500	428,682	1,679	16.79	134	1.34
	1500%	168,871	2,500	675,482	2,273	22.73	182	1.82

※100 IDR＝1 in terms of the JPY

(7) Conversion into annual benefits based on the social benefits (theoretical change in land price)

The annual benefits were calculated from the following equation as the equivalent annual land rent for the social benefits (theoretical change in land price) calculated in (6).

Annual benefit (land rent equivalent to the theoretical change in land price) =

Social benefits (theoretical change in land price) × interest rate*

* The interest rate used in this calculation was 8%, the same as the interest rate used in the financial analysis.

From the above, the annual benefit of this project, as shown in Table 8.2.8, for A block only is calculated to be, for floor area ratio 1,500%: Rp83 billion/year, floor area ratio 1,000%: Rp71 billion/year, and floor area ratio 600%: Rp63 billion/year.

Also, for all areas (ABCD), the annual benefit is calculated to be, for floor area ratio 1,500%: Rp182 billion/year, floor area ratio 1,000%: Rp134 billion/year, and floor area ratio 600%: Rp96 billion/year.

Table 9.3.4 (Reference) Results of estimation of social benefits at each evaluation point (Source: Study Team)）

No.	Street	Area of the same land price (㎡)	Block A (FAR:600%)		Block A (FAR:1,000%)		Block A (FAR:1,500%)		All area(Block A,B,C,D) (FAR:600%)		All area(Block A,B,C,D) (FAR:1,000%)		All area(Block A,B,C,D) (FAR:1,500%)	
			theoretical rise in land unit prise (1,000 IDR／㎡)	theoretical rise in land prise (1,000 IDR)	theoretical rise in land unit prise (1,000 IDR／㎡)	theoretical rise in land prise (1,000 IDR)	theoretical rise in land unit prise (1,000 IDR／㎡)	theoretical rise in land prise (1,000 IDR)	theoretical rise in land unit prise (1,000 IDR／㎡)	theoretical rise in land prise (1,000 IDR)	theoretical rise in land unit prise (1,000 IDR／㎡)	theoretical rise in land prise (1,000 IDR)	theoretical rise in land unit prise (1,000 IDR／㎡)	theoretical rise in land prise (1,000 IDR)
1-01	JL BATU RAJA/JL BATU RAJA UJUNG	3,920	626	2,453,291	718	2,815,685	834	3,268,678	1,097	4,301,417	1,597	6,259,467	2,221	8,707,030
1-02	JL BATU RAJA GG MUARA DUA	4,380	637	2,791,313	726	3,180,476	837	3,666,931	1,094	4,793,889	1,578	6,911,889	2,183	9,559,388
1-03	JL BATU RAJA GG TIMAH	2,380	633	1,505,910	715	1,701,213	817	1,945,342	1,051	2,501,107	1,494	3,555,662	2,048	4,873,856
1-14	JL INDRAGIRI/JL INDRAGIRI UJUNG	5,810	416	2,416,377	477	2,772,901	554	3,218,556	698	4,052,747	1,002	5,823,839	1,383	8,037,704
1-15	JL INDRAPURA	6,920	443	3,064,427	508	3,513,347	589	4,074,497	745	5,155,335	1,071	7,411,427	1,479	10,231,542
1-27	JL KEBON SAYUR	2,780	493	1,369,624	560	1,557,367	645	1,792,045	816	2,267,350	1,162	3,230,752	1,595	4,435,006
1-28	JL KEBON SAYUR GG INTAN	3,690	565	2,085,337	636	2,347,779	725	2,675,832	911	3,360,150	1,280	4,723,864	1,742	6,428,505
1-29	JL KEBON SAYUR GG PLATINA	3,650	525	1,917,352	593	2,165,471	678	2,475,618	851	3,106,089	1,200	4,381,286	1,637	5,975,282
1-30	JL KEBON SAYUR GG TIMAH	2,430	595	1,446,940	674	1,638,938	773	1,878,935	993	2,412,335	1,415	3,437,978	1,942	4,720,032
1-31	JL KERTAPATI	23,430	895	20,960,447	1,018	23,852,898	1,172	27,468,461	1,615	37,843,473	2,360	55,292,188	3,291	77,103,083
1-33	JL KOTA BUMI	14,550	1,069	15,560,259	1,208	17,571,938	1,381	20,086,536	1,936	28,166,348	2,821	41,039,564	3,927	57,131,084
1-34	JL KOTA BUMI DALAM	5,060	685	3,465,076	769	3,890,089	874	4,421,355	1,115	5,642,340	1,571	7,947,090	2,140	10,828,028
1-35	JL KOTA BUMI UJUNG/JL KOTA BUMI UJUNG IV	7,870	635	4,995,632	712	5,604,943	809	6,366,580	1,020	8,029,292	1,431	11,258,543	1,943	15,295,107
1-36	JL LAHAT	1,090	761	829,126	864	942,008	994	1,083,110	1,327	1,446,647	1,920	2,092,291	2,660	2,899,345
1-39	JL MARTAPURA/JL MARTAPURA UJUNG	7,420	1,119	8,305,643	1,234	9,154,674	1,377	10,215,964	1,763	13,083,626	2,433	18,053,641	3,270	24,266,160
1-40	JL MARTAPURA Ⅰ	9,230	932	8,606,846	1,029	9,493,941	1,149	10,602,810	1,426	13,163,500	1,948	17,984,460	2,601	24,010,660
1-41	JL MARTAPURA Ⅱ	5,170	900	4,652,266	996	5,146,984	1,115	5,765,380	1,398	7,225,333	1,923	9,941,136	2,579	13,335,888
1-42	JL MARTAPURA Ⅲ	3,350	863	2,890,554	959	3,211,115	1,078	3,611,817	1,368	4,581,625	1,899	6,361,705	2,563	8,586,806
1-43	JL MARTAPURA Ⅳ	2,440	826	2,014,221	920	2,245,178	1,038	2,533,875	1,328	3,240,316	1,856	4,529,411	2,517	6,140,781
1-46	JL MUARA ENIM	2,680	573	1,536,588	656	1,758,642	760	2,036,210	987	2,644,334	1,427	3,823,044	1,976	5,296,431
1-47	JL MUARA Ⅱ UJUNG	5,130	643	3,300,444	734	3,765,791	847	4,347,474	1,112	5,705,499	1,608	8,247,044	2,227	11,423,975
1-48	JL PALEMBANG	10,430	686	7,156,141	794	8,286,227	930	9,698,834	1,245	12,980,950	1,835	19,139,537	2,573	26,837,771
1-49	JL PLAJU	17,840	2,110	37,645,241	2,315	41,301,833	2,571	45,872,573	3,630	64,752,731	5,142	91,732,765	7,032	125,457,808
1-50	JL RENGAT	2,900	762	2,209,745	871	2,525,489	1,007	2,920,169	1,359	3,940,335	1,982	5,749,104	2,762	8,010,065
1-51	JL SABENI//JL SABENI (DALAM/ I /RAYA)	2,220	518	1,150,927	590	1,310,177	680	1,509,240	866	1,922,400	1,238	2,748,122	1,703	3,780,275
1-52	JL SUNGAI GERONG	10,710	1,448	15,504,121	1,626	17,419,619	1,850	19,813,991	2,745	29,396,594	4,040	43,267,282	5,659	60,605,641
1-53	JL TALANG BETUTU	11,090	2,705	29,997,901	2,885	31,996,063	3,110	34,493,766	3,820	42,367,370	4,962	55,024,379	6,388	70,845,639
1-54	JL TALANG BETUTU UJUNG	6,090	886	5,397,745	975	5,938,842	1,086	6,615,213	1,313	7,998,446	1,771	10,786,486	2,343	14,271,535
1-55	JL TANJUNG KARANG	9,660	1,890	18,260,686	2,175	21,015,293	2,532	24,458,552	3,801	36,712,889	5,731	55,356,836	8,143	78,661,770
1-56	JL TELUK BETUNG/JL TELUK BUTUNG (GG INDRAPURA/UJUNG)	11,860	519	6,157,230	601	7,128,594	703	8,342,799	907	10,757,834	1,324	15,704,700	1,846	21,888,281
1-57	JL TIMAH	2,370	558	1,323,446	634	1,502,659	729	1,726,676	932	2,208,762	1,330	3,152,624	1,828	4,332,451
2-08	JL BLORA	8,520	1,388	11,825,235	1,678	14,294,940	2,040	17,382,071	2,893	24,644,825	4,481	38,180,707	6,467	55,100,560
2-11	JL CEPU	9,640	1,105	10,653,472	1,390	13,402,376	1,747	16,838,506	2,106	20,304,559	3,260	31,427,919	4,703	45,332,118
2-12	JL CIANJUR	21,330	402	8,564,679	490	10,448,235	600	12,802,679	625	13,335,772	909	19,384,904	1,263	26,946,319
2-13	JL CICURUG	13,300	428	5,693,742	523	6,960,877	642	8,544,796	657	8,743,158	953	12,675,785	1,323	17,591,569
2-19	JL H AGUS SALIM	19,210	393	7,545,867	465	8,926,255	554	10,651,741	676	12,993,008	994	19,091,649	1,391	26,714,951
2-21	JL IMAM BONJOL	54,040	528	28,533,227	646	34,910,390	794	42,881,843	893	48,264,724	1,329	71,800,271	1,873	101,219,705
2-23	JL JUANA	1,180	1,894	2,234,458	2,689	3,173,061	3,683	4,346,315	2,415	2,849,944	3,695	4,359,860	5,294	6,247,255
2-27	JL KENDAL	2,820	1,451	4,091,451	1,980	5,583,948	2,642	7,449,571	1,776	5,009,511	2,609	7,358,693	3,651	10,295,170
2-30	JL KUDUS	1,180	1,867	2,202,472	2,672	3,153,198	3,679	4,341,607	2,157	2,545,768	3,251	3,835,997	4,618	5,448,784
2-31	JL KUDUS GG JUANA	3,740	1,518	5,677,422	2,100	7,853,092	2,827	10,572,680	2,026	7,577,004	3,070	11,480,739	4,374	16,360,408
2-32	JL KUSUMA ATMAJA,DR SH	19,400	614	11,907,799	766	14,859,718	956	18,549,616	989	19,181,711	1,468	28,488,302	2,068	40,121,541
2-35	JL LUMAJANG	9,590	413	3,956,430	497	4,763,521	602	5,772,385	698	6,698,462	1,031	9,886,146	1,446	13,870,751
2-36	JL M H THAMRIN/JL MH THAMRIN	6,520	932	6,076,641	1,103	7,189,298	1,316	8,580,119	1,826	11,908,417	2,769	18,054,674	3,947	25,737,494
2-43	JL PANARUKAN	41,920	436	18,272,515	526	22,059,273	639	26,792,721	739	30,985,639	1,093	45,811,932	1,535	64,344,800
2-46	JL PATI	5,310	1,162	6,170,669	1,553	8,245,148	2,041	10,838,247	1,589	8,437,359	2,363	12,548,411	3,331	17,687,226
2-48	JL PEKALONGAN	21,720	400	8,684,057	477	10,368,746	574	12,474,608	684	14,860,736	1,008	21,901,422	1,414	30,702,280
2-50	JL PURWODADI	7,360	1,291	9,504,225	1,745	12,845,572	2,313	17,022,256	1,678	12,346,925	2,483	18,278,469	3,491	25,692,899
2-51	JL REMBANG	1,420	1,119	1,588,426	1,474	2,092,924	1,918	2,723,548	1,742	2,473,299	2,646	3,757,939	3,777	5,363,739
2-58	JL SUMENEP	17,610	724	12,744,289	867	15,268,754	1,046	18,424,335	1,352	23,804,260	2,038	35,895,169	2,897	51,008,806
2-62	JL TAMAN LAWANG	11,060	640	7,082,435	803	8,886,521	1,007	11,141,629	1,006	11,130,200	1,490	16,478,390	2,094	23,163,628
2-66	JL TELUK BETUNG	19,560	607	11,878,465	708	13,839,843	833	16,291,567	1,094	21,400,813	1,615	31,588,302	2,266	44,322,663
2-70	JL WELERI	1,120	1,586	1,776,244	2,173	2,434,248	2,908	3,256,754	2,345	2,626,559	3,610	4,042,689	5,190	5,812,852
3-02	JL ABDUL JALIL(PUJASERA)/JL ABDUL JALIL//JL ABDUL JALIL RAYA	35,800	658	23,563,978	735	26,305,518	831	29,732,443	917	32,817,296	1,218	43,593,306	1,594	57,063,320
3-12	JL KARET PASAR BARU TIMUR/JL KARET PASAR BARU TIMUR RAYA	31,280	1,358	42,471,649	1,468	45,927,741	1,606	50,247,855	1,871	58,509,445	2,424	75,827,624	3,116	97,475,348
3-13	JL KARET PASAR BARU TIMUR Ⅰ	17,320	577	9,995,114	641	11,104,664	721	12,491,601	845	14,630,259	1,140	19,751,545	1,510	26,153,152
3-14	JL KARET PASAR BARU TIMUR Ⅱ	88,010	758	66,706,232	836	73,532,636	932	82,065,641	1,071	94,259,988	1,420	124,945,529	1,855	163,302,456
3-15	JL KARET PASAR BARU TIMUR Ⅲ	121,630	1,181	143,656,038	1,288	156,707,926	1,423	173,022,786	1,575	191,534,911	2,023	246,103,766	2,584	314,314,833
3-20	JL PANCA MARGA/JL PANCA MARGA Ⅰ/JL PANCA MARGA UJUNG	15,170	522	7,913,104	584	8,853,926	661	10,029,954	742	11,253,002	995	15,091,414	1,311	19,889,429
4-01	JL SETIABUDI TIMUR Ⅲ	3,780	316	1,194,567	373	1,410,458	445	1,680,321	466	1,762,526	654	2,473,887	890	3,363,088
4-02	JL SETIABUDI TIMUR Ⅳ	3,170	330	1,045,567	390	1,236,625	465	1,475,447	486	1,541,404	683	2,165,141	929	2,944,813
4-04	JL SETIABUDI Ⅶ	9,560	373	3,565,731	439	4,200,951	522	4,994,975	544	5,199,999	760	7,261,589	1,029	9,838,577
4-05	JL SUDIRMAN, JEND	86,800	727	63,117,442	829	71,982,243	957	83,063,245	1,004	87,105,933	1,347	116,885,220	1,775	154,109,327
4-09	JL SETIABUDI Ⅲ	8,600	457	3,929,188	540	4,641,751	643	5,532,454	659	5,663,200	918	7,891,072	1,241	10,675,911
4-11	JL SETIABUDI TENGAH	13,860	429	5,951,905	512	7,095,854	615	8,525,790	626	8,679,765	881	12,208,642	1,199	16,619,738
4-13	JL SETIABUDI TIMUR Ⅰ	4,540	342	1,552,456	404	1,835,312	482	2,188,883	503	2,282,407	705	3,202,314	959	4,352,197

2) Calculation of the project economic internal rate of return EIRR

The EIRR was calculated based on the annual benefits of the project as described above.

In the "Socio-economic Benefit Estimation Manual," the scope of measurement of the benefits is set as follows.

Within the project area: The benefit of the improvement in the amount of income of the income-generating business (leasing business) Around the project area: It is not possible to determine the improvement in income, so the benefit is taken to be the theoretical change in land price.

Based on the above concept, the benefit within the project area corresponds to the income of the private businesses in "8.2.1 Project financial analysis." Also, the benefit around the project area corresponds to the annual benefit as estimated above.

Based on the above, the economic internal rate of return EIRR of the project was calculated. The results are shown in the following figure, taking floor area ratio 1,500% and public burden charge percentage 100% as an example.

As a result of adding the EIRR to Fig. 8.2.2 and Fig. 8.2.3 described above, in the case of A block only, the EIRR is increased in the range of a minimum and a maximum of 2.4% compared with the project IRR, and as a result it is estimated to be in the range of a minimum of 14.6% to a maximum of 15.6%.

In the case of all blocks (ABCD), the EIRR is increased in the range of a minimum of 1.3% and a maximum of 1.4% compared with the project IRR, and as a result it is estimated to be in the range of a minimum of 13.3% to a maximum of 14.2%.

In all cases the EIRR exceeds the 12% set for the discount rate, so it can be concluded that the project has sufficient social value.

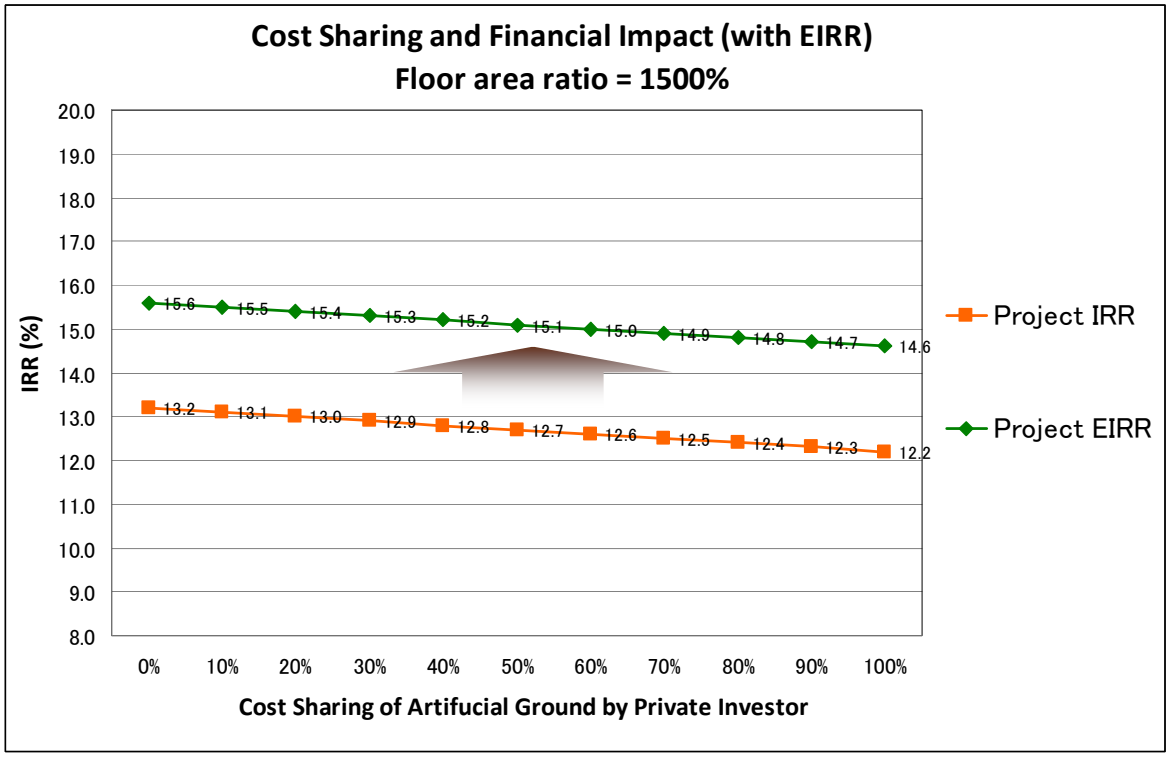


Fig. 9.3.6 Calculation of project economic internal rate of return EIRR (A block only)
(Source: Study Team)

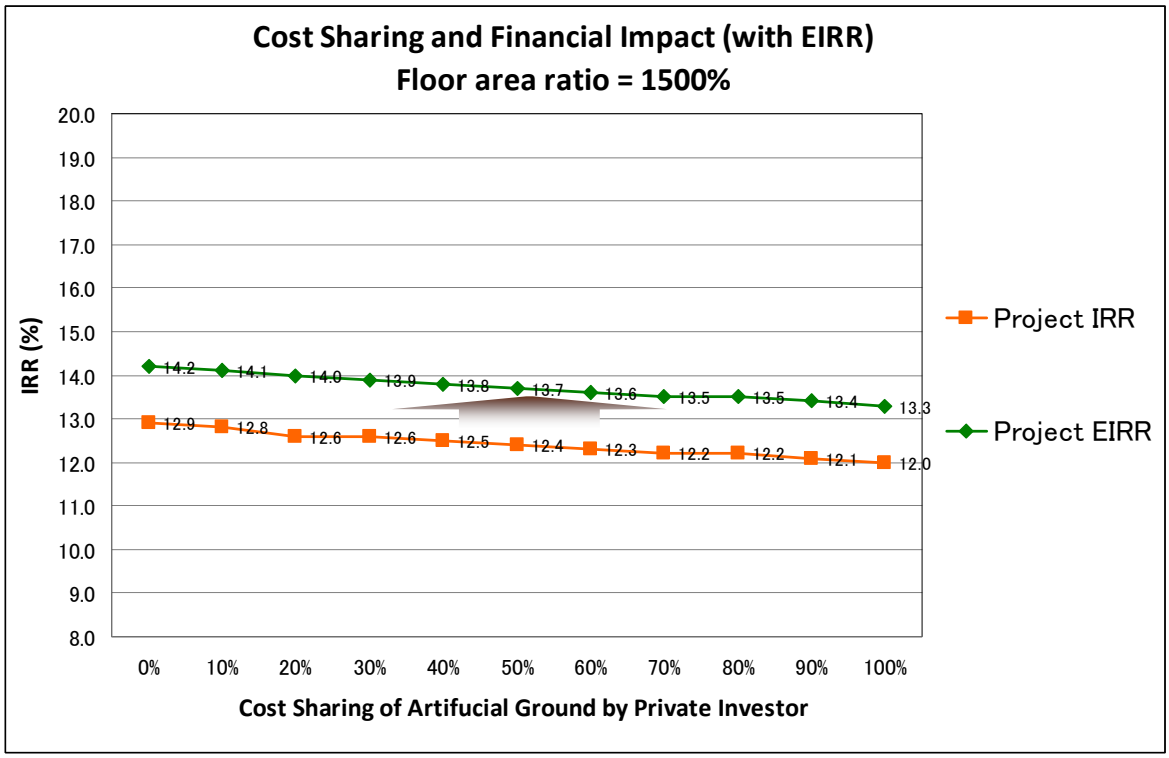


Fig. 9.3.7 Calculation of project economic internal rate of return EIRR (all blocks (ABCD))
(Source: Study Team)