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The Role of Construction Companies in the Reconstruction Process of Apartment Buildings in Korea

Jinu Kim[1], Michael Brand[1], Hyun-Soo Lee[2], and Moon-Seo Park[2]
[1]The University of New South Wales, Sydney, Australia
[2]Seoul National University, Seoul, Korea

ABSTRACT

The housing reconstruction project was put in place to remove deteriorated apartment buildings and develop new apartment buildings in Korea. The main actors in the reconstruction process include: the reconstruction association, the construction company, the buyers (association members and new buyers), and the local authority. This study investigates the roles of construction companies during the reconstruction process of apartment buildings in Korea. There are two types of project participation for construction companies in the reconstruction process; the traditional contractor arrangement and the turnkey base (design/build) contract. To select a construction company, the characteristics of the construction company, itself, are more important to the reconstruction association than the project tender price. The results of the study show that construction companies are critical to the success of reconstruction projects because of their performance guarantees for project financing and their brand names for sales of apartment units.

Keywords: apartment building, brand name, construction companies, project finance, reconstruction

Email contact: j.kim@unsw.edu.au

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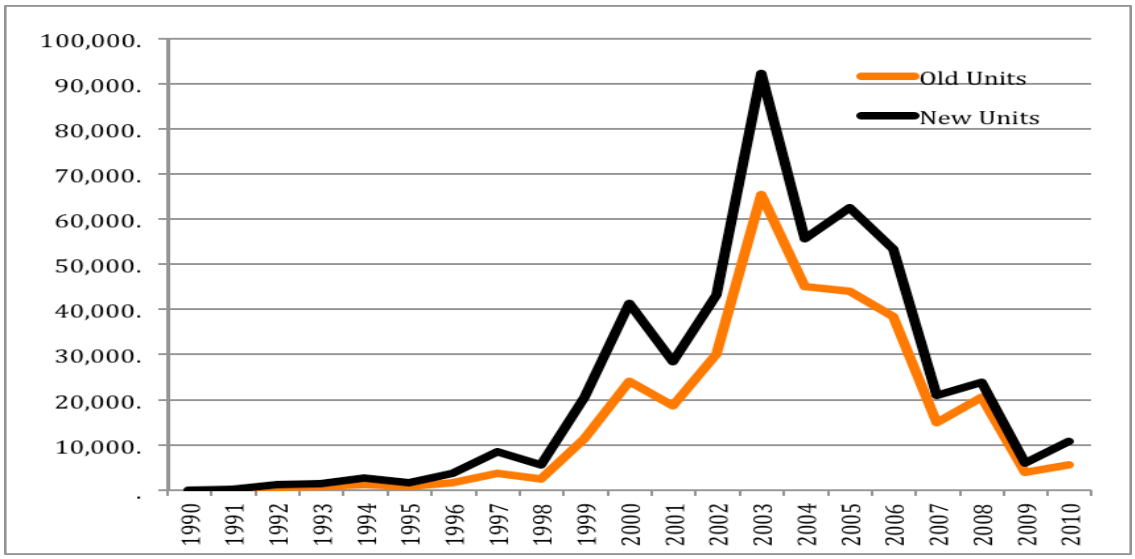
1. INTRODUCTION

From the 1970s the Korean government's promotion of large scaled multiple family housing construction project was driven in response to ongoing national housing shortages. In the 1990's alone, the Korean government promoted two million housing units construction projects domestically.

Since the 1990's, the multiple family housing buildings (mainly apartment buildings) built in the 1970's and 1980's had become appreciably deteriorated. Consequently demand for urban regeneration to improve the quality of old apartment buildings has increased. The enactment of the *Urban and Housing Environment Regeneration Act* 2002 provided a turning point for urban consolidation and housing redevelopment/ reconstruction projects in Korea. There were significant increases in the number of reconstructed housing units after 2002. Figure 1 shows the numbers of old and new housing units in reconstruction projects from 1990 to 2010 in Korea.

Figure 1: Number of Old and New Housing Units in Reconstruction Projects (Development Application approved)



Source: Ministry of Land, Transport and Marine Affairs (MLTM), Korea

The main purpose of the housing redevelopment project is to remove run-down houses and to take steps to prevent the areas from further deterioration. The housing reconstruction project was also put in place to remove deteriorated apartment buildings and develop new apartment buildings (see Table 1). As the results, new high-rise apartment buildings were generally developed in those areas.

Table 1: Differences between Redevelopment and Reconstruction

	Redevelopment	**Reconstruction**
Legislation	- *Urban Renewal Act* 1976 - *Urban and Housing Environment Regeneration Act* 2002	- *Multiple-units Building Act* 1984 - *Housing Construction Promotion Act* 1987 - *Urban and Housing Environment Regeneration Act* 2002
Zone	Poor infrastructure condition and within Urban Regeneration Zone	Sound infrastructure condition
Project Scope	- Develop housing units and supporting welfare facilities, or - Supply vacant site for development	- Develop housing units and supporting welfare facilities
Association membership	- Land title owners, building title owners, and lease-hold title holders - Compulsory membership	- Land (and building) title owners - Voluntary membership
Building Safety Inspection	Not applicable	Necessary
Existing owners not support project	Compulsory acquisition	Disposal claim
Public/private	Public oriented	Private oriented

Source: Kim (2011)

The aim of this study is to investigate the roles of construction companies during the reconstruction process of apartment buildings in Korea. The paper is composed with the following five sections; (i) introduction, (ii) reconstruction process, (iii) selection of construction company, (iv) case study, and (v) conclusion.

2. RECONSTRUCTION PROCESS

The reconstruction process must be undertaken in accordance with the procedures in the existing laws. Existing owners of old apartment buildings voluntarily form a reconstruction association, then demolish deteriorated existing apartment buildings and construct new apartment buildings jointly with construction company on the site where the old buildings were located. The *Urban and Housing Environment Regeneration Act 2002* defines a deteriorated housing building for redevelopment/reconstruction as: (i) a structure that is extremely damaged or partly collapsed whereby the potential for total collapse is high or potential safety hazard; (ii) a building that is located in very poor housing environment compared to the neighborhood land use condition; (iii) there is a considerable increase in the expected utility if demolished and redeveloped as compared to undertaking excessive repairs

and maintenance costs; and (iv) 20 years have passed since initial construction and needs to be demolished due to poor urban landscape, structural defects by aging and deficient construction.

Table 2: Redevelopment/ Reconstruction Process

	Steps	**Details**
1	Urban/ Housing Regeneration Plan	Prepared and approved by Metropolitan City Mayor or approved by Regional Governor (prepared by City Mayor)
2	Urban Regeneration Zone	Prepared by District Office and approved by Metropolitan City Mayor. For **redevelopment** project
3	Promotion Committee	Approval with more than half of the existing ownerships
4	Building Safety Inspection	For **reconstruction** project only
5	Establishing of Association	- **Redevelopment:** approval with more than 3/4 of total ownerships and more than 1/2 of land ownerships - **Reconstruction:** approval with more than 3/4 of total ownerships (Community) and more that 2/3 ownerships in each building (Strata)
6	Registration of Association	Approved by District Office Project plan and Development Application
7	Development Application Approval	Approved by District Office
8	Selection of Construction Company	Tender, Presentation by the construction companies, Selected by association general meeting
9	Ownership Control and Transfer Scheme	Finalization of Credit portion Application of purchase by the association members Approved by association general meeting
10	Construction/ Sales	Association members moving-out Demolition and construction Public sale start after 80% of structure construction
11	Completion/ Moving-in	Completion of construction and move-in
12	Resolving Association	Resolving association general meeting

Source: *Urban Regeneration Act* 2002

The Table 2 shows typical procedures of the redevelopment/ reconstruction of apartment buildings. A District Office establishes a ten-year 'Urban Housing Regeneration Plan' and reviews it every five years. Based on the Urban Housing Regeneration Plan, a deteriorated

site area could be designated as 'Urban Regeneration Zone'. A group of existing land and housing owners within Urban Regeneration Zone can organize a redevelopment promotion committee, while a group of existing owners of old apartment buildings can organize a reconstruction promotion committee. The aim of the committees is to persuade existing owners to consent to redevelopment/reconstruction process based on the preliminary cost-benefit analysis or feasibility analysis.

The reconstruction promotion committee must submit a 'Building Safety Inspection Application' to the District Office. The agencies assigned by the District Office thoroughly inspect any physical deterioration, defects and damage to structures and submits inspection reports to the District Office. Existing owners must vote to decide whether they will pursue any reconstruction process. In order for reconstruction to be possible, three-quarters (75 per cent) of existing owners in the complex, and two-thirds (67 per cent) of existing owners in each building must vote in favour of any reconstruction proposal. If the proposal is consented to in the association general meeting, a reconstruction association can be established.

A 'Disposal Claim' would be issued to existing owners who do not want to participate in the reconstruction project. If the old apartment buildings pass (negatively) the Building Safety Inspection test, the District Office reviews the appropriateness of reconstruction plan and the association members' qualifications (only the existing owners of housing units can be members) and officially approves the reconstruction association (Lee *et al.* 2005).

The association selects a construction company or companies (if it is a large-scale development), and the association and the construction company submit a development application to the District Office, and obtain an approval for demolition and construction from the District Office. The association and the construction company finalize the 'Ownership Control and Transfer Scheme' that the values (the 'Credit Portion') of existing association members' old housing units are decided.

During the construction period, existing owners should move out from the complex. During the construction period, existing owners must move out from the complex. Most of them find their temporary housing in the neighborhood community as rental tenants. The construction company fully or partly subsidizes any rental costs based on the size of old housing unit.

If there are any additional units available in new housing buildings other than existing owners as the result of increased floor space ratio (FSR), those additional units could be sold. The income generated from the sales would normally be the main source of payments to the construction company. After the construction is completed, existing owners and new buyers move into the new apartments, at which time the reconstruction association is dissolved.

A reconstruction association can determine the number of new housing units and their sizes if it satisfies certain regulated Floor Space Ratio (FSR[1]) constraint, but each existing owner is

[1] Gross Floor Area divided by Site Area

allowed to obtain only one new housing unit after reconstruction. As shown in the Table 3, the FSR has been increased since 1977, and it has been kept as high with few adjustment later. However, the number of housing units developed in a complex through reconstruction is normally greater than the existing number of units since the new project has a higher FSR than existing buildings (e.g., high rise apartment buildings with more and larger size units). This high rise and high density building is a result of combinations of an increased FSR by the Government, the profit-maximizing behaviour of the existing units owners, and generally sufficient demand for housing units in Korea.

Table 3: Change of Floor Space Ratio (FSR) of Apartment Buildings in General Residential Zone

Month/ Year	Building Coverage Ratio (BCR)	Floor Space Ratio (FSR)
Jul 1977	25%	200%
Mar 1979	20% (up to 5 storey) 18% (more than 6 storey)	280%
Oct 1985	30% (up to 5 storey) 25% (more than 6 storey)	250%
Apr 1990	30%	300%
Nov 1990	60%	400%
Apr 1998	60%	300%
Jul 2003	60% (type 1) 60% (type 2) 50% (type 3)	100 ~ 200% (type 1) 150 ~ 250% (type 2) 200 ~ 300% (type 3)

Source: Kim (2010), Various related Acts and Regulations

Through the reconstruction process, it is found that the main actors in the reconstruction process are (i) the reconstruction association, (ii) the construction company, (iii) the buyers (association members and new buyers), and (iv) the local authority.

3. SELECTION OF CONSTRUCTION COMPANY

The selection of a construction company is the most important step for a successful reconstruction project. The construction company not only provides the construction services based on the contract, but also acts as a developer and a lender for the project. The construction company and the reconstruction association are working as partners in the reconstruction project. Whilst the construction company is virtually always a strong organization in terms of knowledge and experiences, the reconstruction association is likely

to be a relative weak organization. For this reason, the construction company normally manages the reconstruction project.

Table 4: Contract Methods with Construction Company

	Traditional Contract	**Turn-Key Base Contract**
Definition	Total contract amounts for construction works is fixed when the contract is made. (Traditional contract method)	The contractor is responsible for all necessary costs for the project. The Credit Portion of the existing owners is fixed when the contract is made.
Scope of work	- Association: responsible for indirect construction costs, other costs, fees, and taxes - Construction company: responsible for direct construction costs	- Association: responsible for members' taxes and fees - Construction company: responsible for all project costs including construction costs
Escalation and change	Escalation possible based on inflation Change possible based on revision of scope and design	No escalation and change possible after contract
Members' credit portion	Members' Credit Portion can be changed according to the project revision.	As the Credit Portion is fixed at the contract, there is no change after.
Project closing	Development profit or loss belongs to the association (100%)	Development profit less fixed members' Credit Portion and additional construction costs to the construction company

Source: Ministry of Construction and Transportation (2000) Reconstruction Process Manual

In the early stage of the reconstruction process, the reconstruction association only has the old run-down apartment buildings as a financial asset. However, there will be some revenues from sales of additional new units and retail areas, which is likely to be the main source of funds to pay the construction company. The construction company is not only undertaking the construction works, but also supports the operational expenses of the association.

There are two types of contract between the association and the construction company depending on how the parties share the development profits. The contract types include: (i) traditional contractor arrangement; and (ii) turnkey base (design/build) contract. See Table 4 above.

In general, the traditional contract arrangement has been the dominant contract method for reconstruction projects. However, since 1990, many reconstruction projects were commenced under Government (relaxed) regulations, and so the turnkey base (design and build) contract has been the preferred contract arrangement. However, since the Asian Financial Crisis in 1998, the construction companies seem to have preferred the traditional contract method.

The factors considered by the reconstruction association in selecting a construction company are (a) the brand power of the company; (b) the debt ratio of the company, (c) total contact amounts of the company in previous year; and (d) the bidding price for the project (Kim 2009). It appears that the characteristics of the construction company, itself, are more important to the reconstruction association than the project tender price in selection a construction company.

The first priority factor is brand power of apartment name from the construction company. In 1998 the brand name of an apartment building was introduce in Korean housing market (Shin 2009). Since then, the brand naming became very popular in apartment buildings. A housing buyer considers the trustful brand name as one of the most important factors in decision-making process (Ji 2005). As the location of reconstruction project is fixed, the transportation and surrounding environment cannot be changed, which are important factors in decision-making of purchasing an apartment unit. Hence, the association members put the brand power of the construction company as the most important factor to select a construction company, which attract high demands for public sales, and increase the values of their units at the disposal stage.

The debt ratio and the size of the construction company are important because of its key role in the real estate development project finance system in Korea. The construction company ought to submit a completion guarantee in which it promises to timely finish the object buildings by the completion date in the contract. Moreover, the construction company must serve a joint liability on guarantee with the association (borrower). Charging construction company with heavy burdens of Cash Deficit Support (CDS), completion guarantee and debt obligation, a lender can deal a risky credit loan for the borrower (association), which has no hard asset security and is uncertain about the sufficiency of repayment resource in maturity (Kim & Sakong, 2009).

4. CASE STUDY

'Project A' was a reconstruction project in the southern part of Seoul, Korea. There were 2,400 housing units in old five-storey buildings before reconstruction. The new development included 3,410 housing units in 44 new apartment buildings (29 storey with two basement levels), and other welfare facilities. The Development Application was approved in October 2004, and the Ownership Control and Transfer Scheme was approved in February 2005. The construction was commenced in April 2006, and completed in March 2009. See Table 5 below.

As the FSR was increased from 80% to 26%, the old 2,400 housing units with average 64.7 m^2 per unit were demolished and 3,140 housing units with average 166.9 m^2 per unit, were developed. The association members purchased 2,377 units, and among the remaining 1,033 units, 593 units were sold to the public with 440 units assigned as public rental housing. The Credit Portion of the existing owners was finalized as USD 1,239 million in the Ownership

Control and Transfer Scheme. Total costs of the project were estimated as USD 822 million including direct construction cost of USD 504 million.

Table 5: Summary of the Project A

	Description
Developer	BJ3 Reconstruction Association
Construction	OO Construction Co Ltd
Location	Seocho-gu, Seoul Korea
Zone	General Residential (type 1), Apartment Zone
Site area	194,118 m^2
Old Buildings	FSR: 80% Total building area (above ground): 155,295 m^2 2,400 housing units
New Buildings	FSR: 269% Total building area (above ground): 524,086 m^2 44 apartment buildings (2 basement levels and 29 storeys) 3,140 housing units and other welfare facilities
Credit Portion	194,118 m^2 x \$6,385 per m^2 = U\$1,239.4 million
Costs	Total costs: U\$822 million Construction: \$504 million Design, financing, and others: \$318 million
Revenue	Total revenue: U\$ 877.5 million Members' contribution: \$372.6 million General public sales: \$425.9 million Rental housing compensation: \$79 million (value: \$226.5 mil)
Development Profit	U\$1,345.1 million (\$560,500 per unit) (Total value – Credit Portion – Total costs) Total value: \$3,406.5 million (524,086 m^2 x \$6, 500 per m^2)

Source: Jung (2006), Kim (2006) (USD 1 = KRW 1,164)

The association members' contribution for purchasing was estimated as USD 372.6 million, and the revenue incomes from public sales were initially estimated as USD 652.4 million. However, as the Government introduced the compulsory rental housing inclusion for reconstruction project in March 2006, 10% of the additional building areas should be developed as public rental housing units - the regulation is 25% of additional building areas. As the Development Application of the project was approved by March 2006, this project

was allowed to supply 10% of additional building areas as rental housing units. The rental housing compensation from the Government was USD 79 million instead of the worth USD 226.5 million. The total incomes of the project were estimated as USD 877.5 million, which provided USD 55.5 million as profit for the development.

The initial development profit was estimated as USD 1,345.1 million, - an average of USD 560,500 per existing owner. The introduction of compulsory rental housing units created a significant setback in development profit. The value of new housing unit was estimated as USD 6,500 per m^2. However, the new housing value was estimated as USD 9,100 per m^2 when the project was completed in 2009.

OO Construction Co Ltd is a part of a large conglomerate and viewed as having a top brand name and sound credit rating (A2). It could provide not only superior construction service for the project, but also a necessary guarantee for project finance. As the contract method was a turnkey base (design/build), the construction company would be responsible most of costs and profits from the project variation once the Credit Portions of the association members were fixed. The construction company provided a completion guarantee and a joint liability with the association to the lender for project finance.

As this reconstruction project was located at one of the best residential areas in Seoul, and is close to the transportation facilities, there was expected to be very high demand for public sales. The reconstruction project was approved the Ownership Control and Transfer Scheme on February 2005, one year before the Government's Reconstruction Control Plan on March 2006, which setup the high bars for new reconstruction projects (Jung 2006). Hence, this project is very attractive to the existing owners as well as general public. However, the lender requests the construction company to serve the joint liability on guarantee with the association, notwithstanding that the construction company (with sound credit rating) provided the completion guarantee.

5. CONCLUSION

There are four main actors in reconstruction project: (i) the reconstruction association; (ii) the construction company; (iii) the buyers (association members and new buyers); and (iv) the local authority. There are two types of project participation for construction companies in the reconstruction process; the traditional contractor arrangement and the turnkey base (design/build) contract. To select a construction company, a reconstruction association considers (in descending importance): (i) the brand power of the company; (ii) the debt ratio of the company; (iii) size of the company; and (iv) bidding price for the project construction to be the key factors. The brand power of the construction company is the most important factor for sales of reconstructed apartment units because the location of the project cannot be changed. The debt ratio and size of the construction company are also very important for the project success because a lender normally requires the construction company to provide a completion guarantee and a joint liability on guarantee with the association (borrower) even

though the reconstruction project is seen to be very profitable. Hence, the selection of a construction company is the critical step for the successful reconstruction process in Korea.

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