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# Real estate development analysis in China

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development in  
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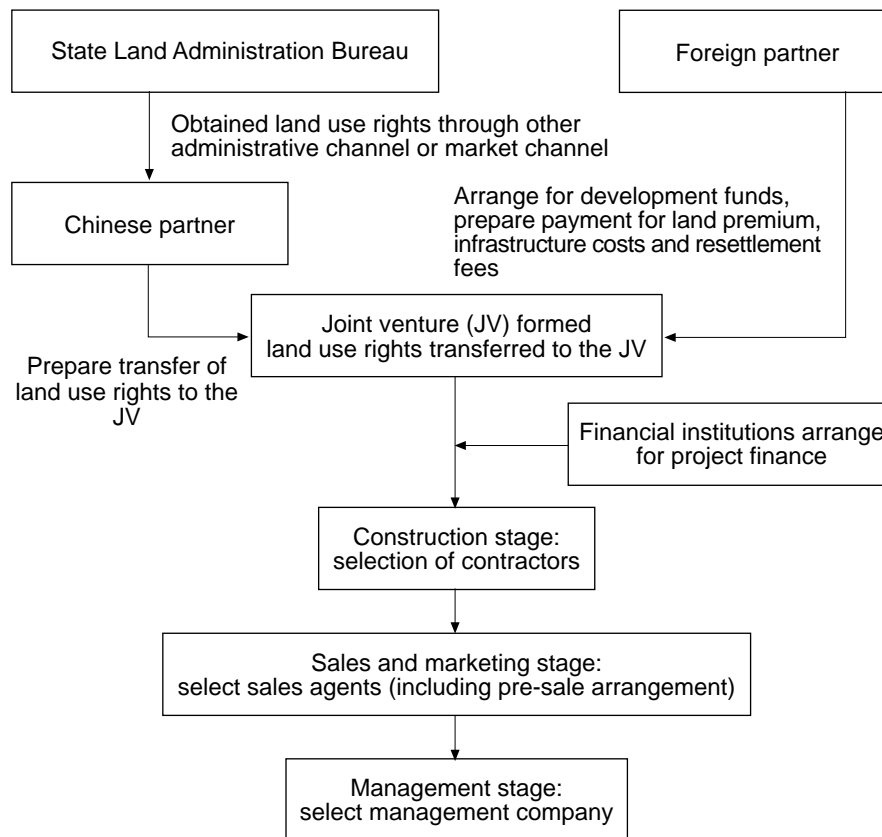
## **Introduction**

When a new land market is being developed, a common issue that normally emerges is the measurement of asset values for investment purposes. In the privatization process of most socialist economies, verifying asset values is especially important as the state enterprises usually own a substantial proportion of real assets in the country. In China, owing to the practice of administrative allocation of land assets before the land use rights reforms (Walker and Li, 1994), the understanding of the problems in the appraisal of investment values for either the real estate assets themselves or the enterprises which own these assets is essential. In this paper, an attempt is made to explain the common practice of establishing the asset values in China by valuers and financial consultants in Hong Kong and the problems most real estate investors will face when carrying out investment analysis for real estate development in this market. A case study of a joint venture development between a developer from Hong Kong and a Chinese partner is examined and the issues involved in the development analysis are discussed.

## **Joint venture projects in China**

Figure 1 explains the normal stages involved in a joint venture real estate development project in China. For the Chinese partner, the first stage is to apply for the transfer of administratively-allocated land to market land (Walker and Li, 1994). This stage involves primarily the assessment of the value of land to be used as capital share of the Chinese partner.

In 1994, a joint policy document by the Ministry of Finance, the Ministry of Construction, the State Land Administration Bureau and the National Administrative Bureau of State-owned Property entitled "Regulations on the appraisal of land value in the audit of state assets" (Wang and Wang, 1995) was announced. The main purpose of these regulations is to set the baseline land prices for land assets that belong to the state enterprises after a general audit of the property rights, areas and boundaries of these assets has been carried out. State enterprises include those using their land asset as capital share in the joint venture activities and those changing into share-capital mode. Similar regulations are also set out for appraising assets bought by foreign investors under the *Administration Procedures of the Appraisal of Assets Invested by Foreign Investors* (1994) (referred to as the 1994 Procedures hereafter). Part three of the 1994 Procedures lists the methods of appraisal:



**Figure 1.**  
Stages in joint  
venture real estate  
development in China

- (1) *Article 10.* The appraisal of foreign investment assets must be conducted in accordance with the appraisal methods and relevant provisions set forth in these Procedures and on the basis of the current state, degree of wear, indications of performance, technical parameters, replacement cost, profitability, etc. of the assets.
- (2) *Article 11.* The methods of appraising foreign investment assets shall include on-site inspection, technical test and value appraisal, of which value appraisal shall include:
  - the market-based method;
  - the cost-based method;
  - the profit-based method; and
  - other methods prescribed by the Ministry of Finance or the State Administration for Commodity Inspection.
- (3) *Article 12.* Where the market-based method is used to appraise the value of foreign investment assets, reference shall be made to the current market price of identical or similar assets.

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- (4) *Article 13.* Where the cost-based method is used to appraise the value of foreign investment assets, the re-estimated value shall be determined on the basis of replacement cost of the assets being appraised as brand-new assets less the cumulative depreciation calculated on the basis of the replacement cost with respect to factors such as changes in productivity, degree of newness, etc. Alternatively, the re-estimated value of the assets may be obtained by determining their degree of newness on the basis of the current state and useful life of the assets being appraised with regard to factors such as changes in function, etc.
- (5) *Article 14.* Where the profit-based method is used to appraise the value of foreign investment assets, the current value of the assets being appraised shall be calculated on the basis of the reasonably expected profitability of such assets at a suitable discount rate.
- (6) *Article 15.* The appraisal of foreign investment assets shall be conducted in accordance with the following procedures:
- the applicant files an application for appraisal;
  - the appraisal authorities accept the application following preliminary examination of information;
  - appraisal personnel draft an appraisal plan;
  - receipts, certificates and information provided by the applicant are examined and verified and market surveys are conducted inside and outside China;
  - an on-site inspection is conducted;
  - a suitable appraisal method is selected for the appraisal; and
  - a Certificate of Appraisal is issued.
- (7) *Article 16.* Applicants applying for the appraisal of foreign investment assets shall fill out an application form, clearly stating the purpose and objects of and requirements for appraisal, and shall also provide information such as a list of property items, Customs declaration list, contract, receipts, insurance policy, a list of maintenance expenses, technical documentation concerning equipment, etc.

In addition, according to Regulation 7 of the 1994 *Regulations on the Appraisal of Land Value in the Audit of State Assets*, those local authorities which have compiled their benchmark land prices (Li, 1995) and any other adjustment can base their appraisals of land values on the published benchmark prices in accordance with the *Interim Regulations of the People's Republic of China on Granting and Transferring the Rights to the Use of State-owned Land in Cities and Towns* (1991) and the *Provisional Procedures for the Administration of Appraisal Practice in the Urban Real Estate Market* (1992). Theoretically therefore, local government as well as developers should have a common reference point when assessing development potential of various urban sites.

Under Regulation 10 of the same document, it is stated that the valuation methods used in the asset valuation are recommended to be one of the following:

market comparison; investment method and cost approach. In addition, Regulation 13 requires the state enterprises to form an asset valuation committee to oversee the valuation work which should take into account the following data:

- Historical background of the ownership and use of the land.
- Site map with boundary, land registration document etc.
- Locational advantages and quality of the land.
- Benchmark prices and other adjustment in the locality.
- Data on the local property market.
- Other relevant factors that will affect the asset values of the enterprises.

In real life, however, the system may not work as smoothly as expected. The following development analysis will try to explain this.

#### **Joint venture – case study**

In this analysis, we examine a joint venture project in Beijing, the capital city of China, and compare the ways the market views development value of land and the benchmark land price set by the government in negotiating with foreign investors. The project started in August 1993 and is located in the Chaoyang district on the south-east fringe of the city. The details of the site are as follows:

- Site area: 37,233sq.m.
- Use: commercial (25 per cent)/residential (75 per cent) mixed development.
- Building height: not exceeding 99.6m.
- Plot ratio: not exceeding 5.99.
- Length of land use rights: 70 years for residential and 40 years for commercial.

The site in this case study is ranked as grade four land in the Chaoyang District, and according to the Beijing 1993 benchmark land price table (BMP table) (see Table AI in the Appendix), benchmark land price for this particular site in Beijing city should lie between the lower end figures and the upper end figures, therefore:

$$\begin{aligned} & \text{US\$}180 \times 4.2 + [\text{US\$}68 + \text{US\$}20] \times 5.99 + \text{US\$}740 \times 2 + \text{US\$}20 \\ & = \text{US\$} 2,783.12/\text{sq.m.} \end{aligned}$$

This represents the lower end figures of the BMP table for grade four land for apartment use. The term is chosen because in China, mixed office and residential building is normally classed as apartment building. Hence, the lower end benchmark land price for this site is estimated to be:

$$\text{US\$}2,783.12 \times 37,233\text{sq. m} = \text{US\$}103.6 \text{ million (or 880 million Yuan at the exchange rate of US\$1 = 8.5 Yuan).}$$

If on the other hand the site represents prime location in this neighbourhood, the average land price should become:

$$\begin{aligned} & \text{US\$}230 \times 4.2 + [\text{US\$}100 + \text{US\$}50] \times 5.99 + \text{US\$}980 \times 2 + \text{US\$}56 \\ & = \text{US\$ } 3,880.5/\text{sq.m.} \end{aligned}$$

This represents the upper end figures of the BMP table for grade four land for apartment use. Hence, the upper end benchmark land price for this site is estimated to be:

$$\text{US\$}3,880.5 \times 37,233 \text{ sq. m} = \text{US\$}144.5 \text{ million (or 1,228 million Yuan).}$$

However, when we examine the professional valuation report (which was dated as at April 1995) for the foreign partner of this project, the transfer fee of the land, which is the agreed land price for the particular site to be paid to the local government, amounts to US\$16.8 million (or 142 million Yuan) only. This sum is substantially smaller than the official benchmark land price.

If Table AI represents benchmark land prices in Beijing in 1993 only, then we should envisage much higher figures for the BMP table for 1995 given the strong expected demand in the property market in Beijing between 1993-1996 (Lin, 1994). If this is the case, there is no way a developer can carry out development analysis based on the guideline land prices compiled by the government.

This case however is not an isolated one. We can observe the divergence between market development analysis of real estate projects and the official benchmark land prices from other market activities in Beijing city.

We can observe from Table I that market land prices fall below the level of the official benchmark land prices in the major urban districts in Beijing. For instance, lot 1 in the above table is an average site of grade one land (Wangfujing Street is the main shopping and business street in Beijing) for commercial use. It has a plot ratio of 8.4 where the existing tenant is assumed to be a state enterprise. The average base land price of this site should be in the region between:

$$\begin{aligned} & \text{US\$}400 \times 6.3 + [\text{US\$}68 + \text{US\$}20] \times 8.4 + \text{US\$}740 \times 2 = \text{US\$ } 4,739.2/\text{sq.m} \\ & \text{(low end figures in the BMP table) to:} \end{aligned}$$

$$\begin{aligned} & \text{US\$}680 \times 6.3 + [\text{US\$}100 + \text{US\$}50] \times 8.4 + \text{US\$}980 \times 2 = \text{US\$ } 7,504.4/\text{sq.m.} \\ & \text{(upper-end figures in the table).} \end{aligned}$$

However, the actual market transaction price is : US\$3,716.5/sq.m, which is 22 per cent below the minimum BMP and 50 per cent lower than the maximum figures in the BMP table.

In the other example, we can look at the last transaction in Table I which is also a Chaoyang District development. According to the benchmark land prices in Table AI, the land price should fall between:

$$\begin{aligned} & \text{US\$}400 \times 4.2 + [\text{US\$}68 + \text{US\$}20] \times 5.12 + \text{US\$}740 \times 2 = \text{US\$ } 3,611/\text{sq.m.} \\ & \text{(lower end figures in the BMP table) to:} \end{aligned}$$

$$\begin{aligned} & \text{US\$}680 \times 4.2 + [\text{US\$}100 + \text{US\$}50] \times 5.12 + \text{US\$}980 \times 2 = \text{US\$}5,584/\text{sq.m.} \\ & \text{(upper end figures in the BMP table).} \end{aligned}$$

Again, the actual market transaction price for this site is only US\$903 /sq.m.

**Table I.**  
Comparison of market  
land sale records and  
BMP in Beijing in 1994

Location	Lot area (sq.m)	Plot ratio	Use	Unit price (US\$/sq.m)	BMP <sup>a</sup> (US\$/sq.m)	Market price BMP <sup>a</sup>	BMP <sup>a</sup> (US\$/sq.m)	Market price BMP <sup>b</sup>
Wangfujing Street	19,045	8.4	Office	3,176.5	6,159.6	0.52	4,143.6	0.76
Chaoyang District	12,200	3.93	Mixed	567.1	3,540.9	0.16	2,787.4	0.20
Chungwen District	21,691	1.08	Resid.	165.9	2,181.5	0.08	2,000.0	0.08
Haidien District	10,600	2.83	Comm.	349.6	3,126.0	0.11	2,515.0	0.14
Xicheng District	5,740	2.09	Mixed	767.8	2,923.5	0.26	2,398.0	0.32
Chungwen District	19,000	6.37	Mixed	974.9	4,868.0	0.20	3,520.5	0.28
Dongcheng District	618	13.77	Office	3,625.9	7,754.6	0.47	5,091.0	0.71
Dongcheng District	2,650	11.0	Mixed	3,953.8	6,763.0	0.58	4,646.0	0.85
Haidien District	20,000	0.5	Resid.	126.5	2,112.5	0.06	1,930.0	0.07
Haidien District	18,000	1.25	Resid.	151.1	2,201.8	0.07	2,019.0	0.07
Dongcheng District	9,600	3.65	Mixed	918.4	3,507.6	0.26	2,754.0	0.33
Chungwai Main Street	10,000	2.22	Mixed	281.1	5,312.6	0.05	2,583.8	0.11
Xicheng District	13,900	5.52	Office	974.6	4,682.9	0.21	3,338.9	0.29
Xuanwu District	11,364	4.31	Mixed	646.8	3,950.9	0.16	2,988.4	0.22
Chaoyang District	5,179	5.12	Office	902.9	4,635.3	0.19	3,291.3	0.27

**Notes:**

Exchange rate of Chinese Yuan and US\$ in 1994 was about: 1US\$ = 8.5 Yuan

<sup>a</sup> This represents the estimated BMP on grade one land in the respective district with averaged figures<sup>b</sup> This represents the estimated BMP on grade four land in the respective district with averaged figures  
Resid. refers to residential development and Mixed refers to mixed office and residential development**Source:** Wang and Wang (1995)

There is however one way of explaining this. When we look back to Figure 1, we may notice that while the Chinese partner is preparing the transfer of land from administratively-allocated land to market land, the foreign partner should prepare for the development funds which include the payment of land premium and the other fees such as infrastructure and resettlement. Here, we can divide the financial burden of a developer into two major parts, namely the land premium and the preparation fees. Table AI in the Appendix shows that the last three columns (or the land development fees) give a fixed sum to each plot of land irrespective of the development characteristics of the land. To this extent, it distorts the residual nature of land value. Hence, when we turn back to Table I, we may re-apply only the first section of the official benchmark land price formula (i.e.  $BMP/sq.m = (1) \times \text{plot ratio factor} + [(2) + (3)] \times \text{plot ratio}$ ) to the compilation of benchmark land prices and they are shown in Table II.

From Table II, we begin to see a relatively logical function of the BMPs. In the ratios between the actual market land prices and the corresponding BMPs, it shows that in most cases BMPs can serve as a reference point for both the developer and the local authority. This is especially obvious in grade four land where BMPs can serve as the minimal land price, or where the upset price in an ordinary auction case and final market price actually exceed the BMP.

For any new player in this market, the only piece of official information on market land price is the BMP table. This is supposed to be the reference information for both the local authority, who has power to sell land use rights, and the developer to negotiate in the transitional period of the setting up of a real market mechanism. However, the benchmark land price as appraised by the authority is composed of several elements such as the conveyance fee of the land use rights (i.e. the first component of the Beijing BMP formula), payment for infrastructure development in the neighbourhood and the compensation payment for sitting tenants. This is conceptually different from what developers from market economies would normally perceive land price to be. Developers and investors will therefore have to be more critical in utilizing this official information.

For a proper development analysis to be carried out in this market, foreign developers have to be very careful in interpreting information. Here, we will utilize the information available in the market as well as the official benchmark land price table to try to analyse and re-structure the development potentials of the project in the case study:

- Land cost: US\$75/sq.m of floor area or accommodation value[1].
- Construction cost: US\$210/sq.m (see [2] and Tables AIII and AIV of the Appendix).
- Preparation fees: US\$486.5/sq.m of floor area[3].
- Total cost: US\$ 771.5/sq.m of floor area.
- Selling price: US\$210/sq.m of floor area[4].



**Table II.**  
Comparison of market  
land prices and  
re-compiled BMP in  
Beijing in 1994

Location	Lot area (sq.m)	Plot ratio	Use	Unit price (US\$/sq.m)	BMP <sup>a</sup> (US\$/sq.m)	Market price BMP <sup>a</sup>	BMP <sup>b</sup> (US\$/sq.m)	Market price BMP <sup>b</sup>
Wangfujing Street	19,045	8.4	Office	3,176.5	4,401.6	0.72	2,385.6	1.33
Chaoyang District	12,200	3.93	Mixed	567.1	1,782.9	0.32	1,029.37	0.55
Chungwen District	21,691	1.08	Resid.	165.9	423.5	0.39	241.02	0.69
Haidien District	10,600	2.83	Comm.	349.6	1,368.2	0.26	757	0.46
Xicheng District	5,740	2.09	Mixed	767.8	1,165.51	0.66	640.3	1.20
Chungwen District	19,000	6.37	Mixed	974.9	3,110	0.31	1,762.5	0.55
Dongcheng District	618	13.77	Office	3,625.9	5,796.6	0.63	3,332.6	1.09
Dongcheng District	2,650	11.0	Mixed	3,953.8	5,005	0.79	2,887.5	1.37
Haidien District	20,000	0.5	Resid.	126.5	354.5	0.36	172	0.73
Haidien District	18,000	1.25	Resid.	151.1	443.8	0.34	261.3	0.58
Dongcheng District	9,600	3.65	Mixed	918.4	1,749.6	0.52	996.1	0.92
Chungwai Main Street	10,000	2.22	Mixed	281.1	1,178.6	0.24	825.9	0.34
Xicheng District	13,900	5.52	Office	974.6	2,924.9	0.33	1,580.9	0.61
Xuanwu District	11,364	4.31	Mixed	646.8	2,192.89	0.29	1,230.4	0.53
Chaoyang District	5,179	5.12	Office	902.9	2,877.3	0.31	1,533.3	0.59

**Notes:**

Exchange rate of Chinese Yuan and US\$ in 1994 was about: 1US\$ = 8.5 Yuan

<sup>a</sup> This represents the estimated BMP on grade one land in the respective district with averaged figures<sup>b</sup> This represents the estimated BMP on grade four land in the respective district with averaged figures  
Resid. refers to residential development and Mixed refers to mixed office and residential development**Source:** Wang and Wang (1995)

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From this simple analysis, we find that the total development cost (i.e. land costs plus construction costs plus preparation fees) is about 772 Yuan/sq.m of gross area. This sum when converted into unit cost of the site area is about 4,624 Yuan/sq.m of the site area. This figure falls between the range of the BMP (3,611-5,584 Yuan) for this site estimated above. Consequently, the official BMP table does provide useful information for developer, but not what the table itself implies. By looking at the BMP table in this case study, it enables the developer to have a clearer understanding of the total costs, rather than just the land cost which the table implies, that he is going to face. By analysing the estimated development costs from the BMP table, financial feasibility of the project can then be deduced.

### Conclusion

We have seen from the case study above that a major problem in carrying out development analysis for real estate development projects in China is the analysis of market and official information. This mainly emerges from the different interpretation of “value” under the socialist economy (Li, 1996). The references given by the state could be misleading if care is not given to counter-check the possible double-counting of various costs.

This is also one of the major reasons why the Hong Kong Stock Exchange (HKSE) has issued a further set of guidelines to the surveyors in Hong Kong when they are valuing land assets in China for the purposes of listing in the HKSE (Chau and Lai, 1995). But this set of guidelines is only good for asset valuation practice in China when the enterprises are going to be listed in the HKSE.

In a new and emerging market, information is always important to developers. However, since the market has yet to operate efficiently, official information is the only source of organized information in the market. This type of information is only useful and meaningful if and only if care is taken to re-structure the content so that the real implications of the information can be revealed. Reading between the lines is vital to developers at the initial stage of the feasibility study so that the full potential and pitfalls of the project can be identified.

### Notes

1. Land cost is calculated by dividing the conveyance fee of US\$16,803,840 paid to the State Land Administration Bureau of Beijing City by the total floor area (i.e. site area 37,233sq.m multiplied by the plot ratio of 5.99).
2. As this is a mixed development, the average construction cost for residential projects for local residents (relatively average construction standard) of US\$118/sq.m and the average cost for office development of US\$307/sq.m are given together. Assuming this project is of a higher standard, an estimated cost of US\$177/sq.m (or 50 per cent higher than local housing construction cost) for residential project is made. Given the ratio of floor area between residential and commercial is 75:25, the average construction cost of US\$210/sq.m is assumed here for the whole development.

3. Preparation fees include all the infrastructure and resettlement fees, i.e. listed items 2, 3, 4, 5 in the Appendix.
4. This is the average price of properties in the mixed development for sale on the open market in the Chaoyang District.

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**Appendix. Beijing land and property prices**

With reference to Table AI:

- (1) is the different land uses such as commercial, apartment, residential and industrial;
- (2) is the fee charged for urban services and the connection of public utilities e.g. gas, etc.;
- (3) is the fee charged for neighbourhood infrastructure;
- (4) is the resettlement fee in urban areas;
- (5) is the resettlement fee in urban fringe areas;
- (6) is the resettlement fee in rural areas.

Land grade	Conveyance fee				Infrastructure fee		Land development fee		
	Com(1)	Apt(1)	Res(1)	Ind(1)	(2)	(3)	(4)	(5)	(6)
One	400-680	380-580	250-340	40-70	68-100	20-50	740-980	20-56	
Two	300-400	280-380	200-250	30-40	68-100	20-50	740-980	20-56	
Three	250-300	230-280	125-200	25-30	68-100	20-50	740-980	20-56	
Four	190-250	180-230	100-125	20-25	68-100	20-50	740-980	20-56	
Five	125-190	125-180	75-100	15-20	68-100	20-50	740-980	20-56	
Six	65-125	65-125	50-75	10-15	68-100	20-50	740-980	20-56	10-23
Seven	50-65	40-65	20-50	5-10	68-100	20-50	740-980	20-56	10-23
Eight	10-50	10-40	8-20	4-5	68-100	20-50			10-23
Nine	8-10	5-10	4-8	3-4	68-100	20-50			10-23
Ten	5-8	4-5	3-4	2-3	68-100	20-50			10-23

**Notes:**

Exchange rate between US\$ and Chinese Yuan before the introduction of the reform in exchange rate system on 1 January 1994 was 1 US\$ : 10 Yuan

**Source:** Beijing City Government Document No. 34, 1993

**Table AI.**  
Benchmark land prices  
table for Beijing City  
in 1993

The benchmark price for particular use (1) for a particular land grade is obtained by the following formula:

$$\text{BMP/sq.m} = (1) \times \text{plot ratio factor} + [(2) + (3)] \times \text{plot ratio} + (4) \times \text{adjustment factor} + (5) \text{ or } (6)$$

Where:

- the adjustment factor is 2 when the sitting tenant to be resettled is a state enterprise, and 4 when it is a commercial or special land user;
- the plot ratio is the ratio of gross floor area to site area;
- the plot ratio factor is obtained from Table AII.

Plot ratio factor	1 or less	2	3	4	5	6	7	8	9	10
	1	1.91	2.74	3.5	4.2	4.9	5.6	6.3	7	7.7

**Table AII.**  
Determination of plot  
ratio factor

Items	Unit price (US\$/sq.m)	Percentage of total cost
Civil engineering	83.6	70.75
Mechanical and electrical engineering:	13.6	11.54
HAVC	8.2	6.96
Sanitation facilities	10.6	8.96
Telephone lines	0.9	0.80
Public antenna	1.2	1.00
Total	118.0	100.00

**Table AIII.**  
Construction cost  
breakdown for typical  
local residential  
housing in Beijing

**Source:** Lin (1994)

Items	Unit price (US\$/sq.m)	Percentage of total cost
Civil engineering	135.3	44.03
Mechanical and electrical engineering: power supply, antenna, security system, telecommunications network, etc.	40	12.99
HAVC	52	16.86
Sanitation facilities	4.3	1.41
Fire protection	6.8	2.20
Gas, elevator and others	69	22.49
Total	307	100

**Table AIV.**  
Construction cost  
breakdown for typical  
office buildings  
in Beijing

**Source:** Lin (1994)