

PLANNING A NEW AGRICULTURAL WHOLESALE MARKET IN SEOUL

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I. Introduction

The role of agricultural wholesale markets in an economy may change according to change in marketing conditions such as income level, consumer's demand for marketing services, specialization of production, marketing facilities, social environment and institutional arrangements.

Wholesale markets should be those places or mechanisms whereby producers can sell all they want to sell at reasonable prices, where retailers and/or consumers can buy all they want to purchase at affordable prices and where merchants can bring about quickly a balanced supply and demand with reasonable profits which give enough incentive for them to engage in fair trading activities.

Construction of a new wholesale market should be designed to solve the weaknesses and problems in the existing wholesale market system. The study¹ of the agricultural wholesale market system in Seoul showed the following deficiencies:

- (1) Total capacities of wholesale markets are too small to meet the increasing demand for agricultural and fishery products in Seoul.
- (2) Shortages and poor conditions of market facilities such as traffic congestion in and near the markets, unsuitable storage and selling facilities, and poor sanitation and dirty premises arising from a lack of space, have resulted in high social costs for the operation of markets.
- (3) The wholesaler's companies as the wholesalers appointed by the Seoul City Government (SCG) have more interest in rental receipts than income from the efficient operation of the market because they own the facilities.
- (4) The shortage of operational funds for wholesalers makes the advance of credit to producers and shippers possible only in limited amounts. The appointed wholesalers, as a corporation,

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¹ Sung Bai-Yung, "Efficiency in Agricultural Wholesale Market Activities in Seoul," *Journal of Rural Development*, Vol III, No. 1, KREI, June, 1980.

have to keep good records of the advance credit which results in the receivers suffering much red tape to get the credit.

On the other hand, many small wholesalers in the quasi-wholesale markets, which have developed alongside the public wholesale market, provide advance credit to certain producers without limits on the amount and without red tape to be supplied with the products they need by the producers. Fresh and ungraded vegetables are not suitable for auction or bids in the public wholesale market. The Value Added Tax on the wholesaler's commission and the jobber's fee might be converted into quasi-wholesalers' income because they are not incorporated and report underestimated trading volumes.

- (5) The fixed commission rates such as the wholesaler's commission and the jobber's fees in the wholesale market seem too high since the trading volume has grown. The high commission rates provide an incentive for wholesalers and jobbers to actively participate in marketing, but cause lower producer prices and higher consumer prices.
- (6) The system of locating jobber's stores in the market building and the disorderly market arrangement by commodity groups impede the flow of produce through the market. But this situation has been slowly changing to accelerate the flow of fresh produce.
- (7) Despite the agricultural and fishery cooperative's attempts to improve packaging and grading and standardization in some producing areas, most perishable products arrive at the wholesale market ungraded, badly sorted and improperly packaged. This undermines the confidence of buyers, makes sample selling difficult, and causes quick deterioration of the products. The market information system based on the efficient standardization of product is not adequate to provide complete, exact and timely market news to marketing participants and the public. Most information on marketing and production is obtained by telephone and through the dealer's own experience.
- (8) There is no evidence of any attempt to train and educate participants in marketing. The marketing business is becoming more complicated and competitive and requires advanced knowledge and techniques which can then be enhanced through on-the-job training and education.

II. Proposition of a New Wholesale Market

The new wholesale market is planned to be invested in mostly by the public sector like the central government and the SCG, aiming at providing sufficient facilities for increasing the marketing volume of agricultural pro-

ducts, improving the poor conditions of existing market facilities and relocating congested wholesale markets to cope with the shortcomings of their location and layout.

It also aims at providing a mechanism through which competitive and fair prices can be established by efficient management and an open market operation system. And it can be a 'model' market of a workable and efficient operation and institutional arrangement.

In order to reach these aims and to perform market functions efficiently, the new market should be designed to be a part of a whole marketing system more efficient than ever before in terms of distribution costs, and physical and pricing efficiencies.

Basic assumptions are made to make the framework for a wholesale market network in Seoul. It is assumed that only retail markets are located in the central part of the city while wholesale markets are relocated in the suburbs along outer ring roads to make the inflow of products possible at any time of the day. It is contended that trucks larger than 2.5 tons come into the downtown area from 7:00 a.m. to 10:00 p.m. leading to traffic congestion. It is also assumed that the new wholesale market would be a combined market where all the agricultural and fishery products such as fruits and vegetables, fresh and dried fish, livestock products and grains are handled.

Considering the conditions of the entry roads and the population distribution in Seoul, four wholesale market zones are proposed—the Southeast, Southwest, Northeast and Northwest districts (Figure 1). A new market is designed to serve the southeast zone while other markets will be constructed in the future after the rehabilitation of existing wholesale markets when Seoul needs more wholesale facilities. The Yong-san area market, however, will be closed in keeping with the urban planning scheme. The closing of the Yong-san area market might be postponed until the new market is opened. Therefore, the new market should be designed to accommodate part of the activities and marketing volume of the Yong-san area market.

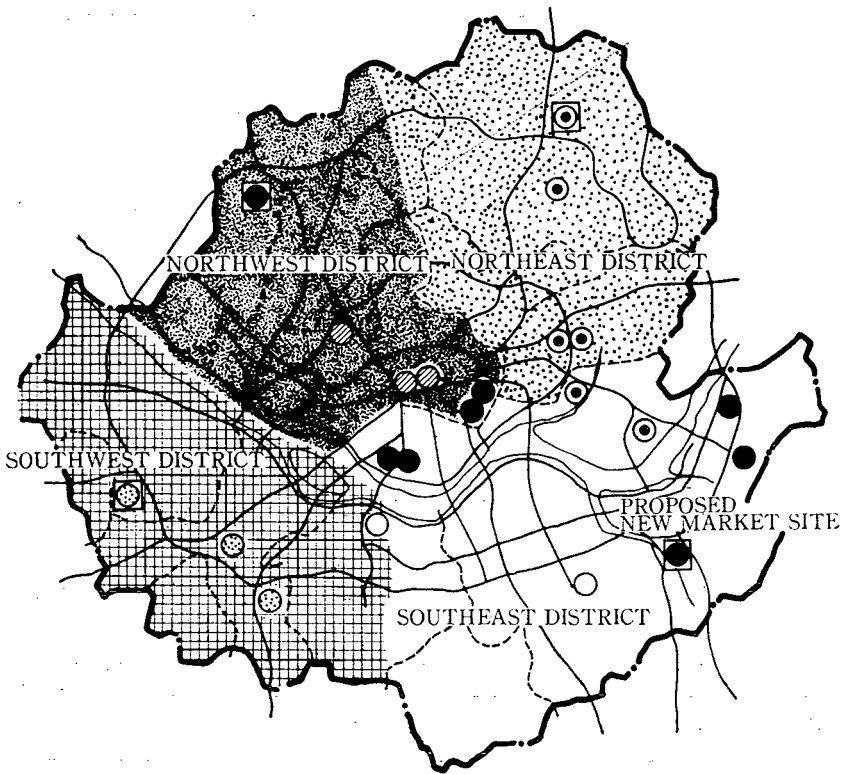
III. Formulation of the New Wholesale Market

1. *Outline*

The first Seoul wholesale market will be a modern complex where fruits and vegetables, fish, livestock, grain, etc., in sum, all the agricultural and fishery products are handled. The market also will have all the facilities related to marketing and will have outside space enough to make the market efficient.

The market will use the auction system to induce fair price formation and take the leading role in national price determination for agricultural and fishery products. This price determination role of the market will

FIGURE 1 PROPOSED NEW WHOLESALE MARKET DISTRICT IN SEOUL



help the stabilization of agricultural products.

The location of the market will reduce greatly traffic congestion, noise disturbance, and environmental pollution caused by garbage and will reduce transportation cost by improving the marketing network.

2. Location

Garag-Dong in Gangdong-Ku was chosen as the most suitable site for a newly constructed wholesale market.

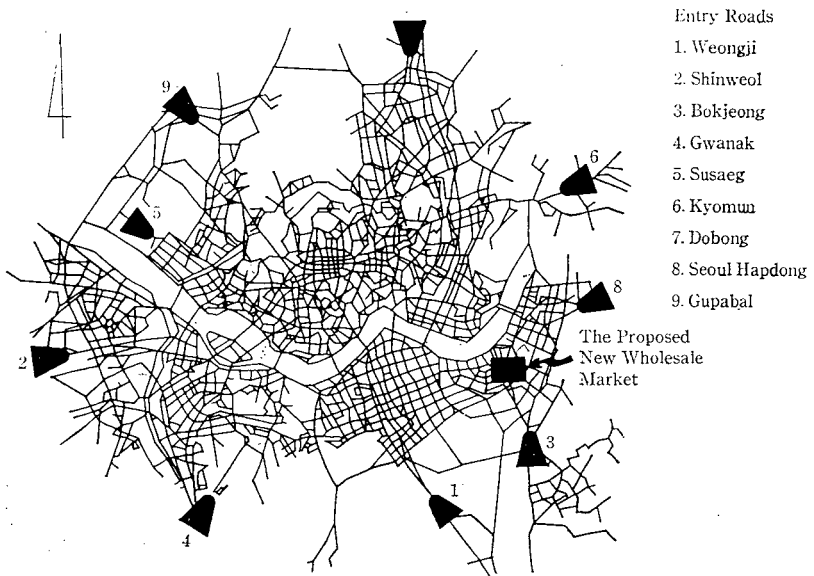
The site of the proposed market is located in the southeast sector of Seoul about 15 kms. from the center of the city. It is well located with respect to both the area of the greatest projected population growth and the existing and proposed transportation network. The Seoul-Pusan Expressway and Bogjeong entrance road which carry about 69.5% of the agricultural and fishery products coming into Seoul are nearby (Table 1 and Figure 2).

The site is presently 50 meters from the Songpa Road which connects Seoul and Seongnam City and the Bogjeong entrance road, 50 meters from the South Circulating Industrial Semi-express way on the north, 35

TABLE 1 DAILY INFLOWS OF AGRICULTURAL AND FISHERY PRODUCTS BY ENTRY ROADS TO SEOUL, AVERAGE OF JAN.-APR. 1980

Road	(percent)					
	Grains	Fruits	Vegetables	Livestocks	Fishery Products	Total (Average)
Weongji	33.8	74.7	92.2	37.0	79.2	63.8
Shinweol	32.4	0.9	0.2	1.0	6.9	12.3
Bokjeong	4.8	13.0	1.7	8.8	8.1	5.7
Gwanak	5.2	2.4	0.9	7.6	3.0	3.3
Susaeg	9.0	0.4	0.2	1.0	0.1	3.3
Kyomun	1.2	0.6	2.0	6.8	0.9	1.8
Dobong	1.3	0.4	0.3	13.8	0.3	1.7
Seoul Hapdong	0.5	0.4	0.8	5.2	—	0.9
Gupabal	1.1	0.2	0.4	2.6	0.1	0.7
Others	10.7	7.0	1.3	16.2	1.4	6.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

FIGURE 2 LOCATION OF THE PROPOSED NEW WHOLESALE MARKET AND ENTRY ROADS TO SEOUL



meters from a new road which leads to the Seoul-Pusan Expressway on the south, and 15 meters from another new road to the west along the Tan Stream to be constructed surrounding the newly constructed market. Land acreage is 166,433 pyung (550,194 m²) which is thought sufficient to deal with the planned throughputs and capable of expansion to meet future growth.

3. Site Preparation

The proposed site is now used as a paddy field and the level of the field is lower than the surrounding roads. Topsoil to more than a 0.3m depth would have to be removed before reclamation is undertaken. Earth needed will be removed from a small hill across the Songpa Road.

4. Size Determination

A. Estimates of Seoul Population by Area

The population of Seoul which includes towns belonging to the metropolitan living zone was 8.02 million in 1978 and is estimated at 8.85 million in 1981 and projected as 10.46 million in 1986.

The geographical distribution of projected population has been estimated for the areas south and north of the Han River and for the suburbs of Seoul (Table 2).

TABLE 2 ESTIMATES OF SEOUL POPULATION, 1978-1986

	1,000 persons			
	Gangnam	Gangbug	Suburbs	Total
1978	2,883	4,926	212	8,021
1979	3,132	4,930	232	8,293
1980	3,391	4,939	241	8,571
1981	3,660	4,942	250	8,852
1982	3,937	4,945	259	9,142
1983	4,238	4,948	270	9,456
1984	4,540	4,952	281	9,772
1985	4,858	4,957	292	10,106
1986	5,194	4,962	305	10,461

Source: Korean Institute of Science and Technology (KIST).

B. Projected Demand for Agricultural and Fishery Products

The total inflows of agricultural and fishery products to Seoul in 1978 was estimated to be 2,288 thousand M/T of fruits and vegetables (411 thousand M/T of fruits and 1,877 thousand M/T of vegetables), 390 thousand M/T of fishery products including fresh and dired fish, shells, etc., and 960 thousand M/T of grain. This amounts to annual per capita throughputs of 51kg of fruits, 234kg of vegetables, 49kg of fishery products, and 120kg of grain.

The per capita consumption in 1978, estimated rate of increase of per capita income for urban households and income elasticities for each commodity (Table 3) being used and per capita throughputs have been projected up to 1986. The results are 285kg in 1978, 312kg in 1981 and 341kg in 1986 for fruits and vegetables, and 49kg in 1978, 56kg in 1981 and 66kg in 1986 for fishery products.

On the basis of these per capita throughputs and population projections the total marketing volume of agricultural and fishery products

TABLE 3 FORECASTS OF SEOUL PER CAPITA DISPOSABLE INCOME GROWTH RATES AND INCOME ELASTICITIES AND PER CAPITA CONSUMPTION GROWTH RATES

	1970-78	1979-81	1982-86
Annual Growth Rates of Per Capita Income in Urban Areas (%)	9.0	8.0	7.0
Income Elasticities of Demand:			
Fruits	0.90	0.70	0.50
Vegetables	0.35	0.30	0.20
Fisheries	0.70	0.60	0.50
Rice	0.10	0.10	0.15
Annual Growth Rate in Per Capita Consumption:(%)			
Fruits	8.1	5.6	3.5
Vegetables	3.2	2.4	1.4
Fisheries	6.3	4.8	3.5
Rice	—	-0.8	-1.05

for the greater Seoul area is estimated to be 3,568 thousand M/T for fruits and vegetables (750 thousand M/T of fruits and 2,818 thousand M/T of vegetables), 695 thousand M/T of fishery products and 1,160 thousand M/T of rice in 1986 (Tables 4, 5 and 6).

C. Daily Market Throughput

For determining the sale of the proposed new market, the daily throughputs of 1986 are used as the target volume. The daily throughputs for fruits and vegetables through the proposed market were estimated by a linear programming model which was developed for use in minimizing the marketing cost for distributing the commodities from the entrance road gates to

TABLE 4 MARKETING VOLUME AND CONSUMPTION OF FRUITS AND VEGETABLES IN SEOUL

	1978			1981			1986		
	Fruits	Vegetables	Total	Fruits	Vegetables	Total	Fruits	Vegetables	Total
Total Throughput (1000 MT/year)	411	1,877	2,288	534	2,224	2,758	750	2,818	3,568
Daily Throughput (M.T./day)	1,174	5,363	6,537	1,526	6,354	7,880	2,143	8,051	10,194
Per Capita Throughput (kg/year)	51.24	234.0	285.24	60.34	251.26	311.6	71.66	269.34	341.0
Loss in Marketing (kg/person)	6.56	70.2	76.76	7.72	75.38	83.1	9.17	80.8	89.97
Loss Rate(%)	12.8	30		12.8	30		12.8	30	
Per Capita Consumption (kg/year)	44.68	163.8	208.48	52.62	175.88	228.5	62.49	188.54	251.03

Note: Fruit vegetables such as strawberries, tomatoes, watermelons and sweet melons are included in vegetables.

TABLE 5 MARKETING VOLUME AND CONSUMPTION OF FISHERY PRODUCTS IN SEOUL

	1978	1981	1986
Total Throughput (1,000 MT/year)	390*	495	695
Daily Throughput (MT/day)	1,114	1,414	1,986
Per Capita Throughput (kg/year)	48.26	55.96	66.47
Loss in Marketing (kg/person)	4.20	4.87	5.78
Loss Rate (%)	8.7	8.7	8.7
Per Capita Consumption (kg/year)	44.06	51.09	60.69

* Fresh fish, 60 %; frozen fish, 20%; dried and salted fish, 20 %

TABLE 6 MARKETING VOLUME AND CONSUMPTION OF RICE IN SEOUL

	1978	1981	1986
Total Throughput (1,000 MT/year)	960	1034	1160
Daily Throughput (MT/day)	2743	2954	3314
Per Capita Throughput (kg/year)	119.70	116.85	110.84
Loss in Marketing (kg/person)	5.99	5.84	5.54
Loss Rate (%)	5	5	5
Per Capita Consumption (kg/year)	113.71	111.01	105.3

the retail zones through the wholesale markets under the assumption that all of the existing wholesale markets except the Yongsan market remain the same as they function now. For computing the daily transaction volume in the market, the zoning and the population size of each zone estimated by the Korean Institute of Science & Technology² was utilized. Estimation of the daily throughputs of fishery products through the new market were based on the ratios of marketing volume through the existing wholesale market and of population in the area served by the new market. The thirty three percent of total fishery products marketed through the existing wholesale market in 1978 is expected to increase to 60% in 1986 when the new market will be fully operating. Population distribution in areas served by the existing fishery market at Noryanjin which has modern facilities and the proposed market is estimated to be 55% and 45% respectively in 1986.

² KIST, The Capital City Transportation Master Plan, 1979.

The marketing volume of rice through the wholesale market, including the Government release program, accounted for 60% of the total throughout in Seoul in 1978.

The government rice program including the double price system will be a main factor in determining the throughput of the new market. It is assumed that 30% of the rice will be marketed through the new market including a quantity released by the Government and managed by cooperatives.

The estimated daily throughputs of the new market totaled 3,030 M/T of fruits and vegetables (640 M/T of fruits and 2,390 M/T vegetables, 540 M/T of fishery products, and 960 M/T of rice; Table 7).

All products coming into the new market will be auctioned for

TABLE 7 THE ESTIMATED DAILY THROUGHPUTS OF THE NEW MARKET IN 1986

	Throughput (MT/day)
Fruit & Vegetables	3,030
Fruits	640
Vegetables	2,390
Radish & Chinese cabbage	1,310
Fishery products	540
Rice	960
Meat	297

Note: KDI, *Korea First Urban Wholesale Market Project*, 1978.

TABLE 8 BUILDINGS AND INCIDENT FACILITIES IN THE PROPOSED MARKET

	Area (m ²)
Fruit and Vegetable Market	106,858.77
Fish Market	39,843.60
Meat Market	6,615.55
Freezer Storage	4,870.13
Trucksale Area	3,840.00
Related Item Market	11,167.76
Retail Stores	3,175.20
Administration Building	11,529.87
Service Facility	3,247.24
Gas Station	690.00
Guard Station	77.09
Elec. Substation	549.16
Sewage Treatment	213.81
Water Treatment Plant	112.32
Waste Treatment	1,320.88
Pumping	26.88
Grain Market	14,324.00
Total	208,462.26

Source: Seoul City Government and Hanyang Engineering Co. Ltd.

purchase and sale and some vegetables like raddish and Chinese cabbage will be auctioned on a truck basis as a packaging unit. Raddish and Chinese cabbage are brought to the market by truck in bulk and unloaded into small trucks.

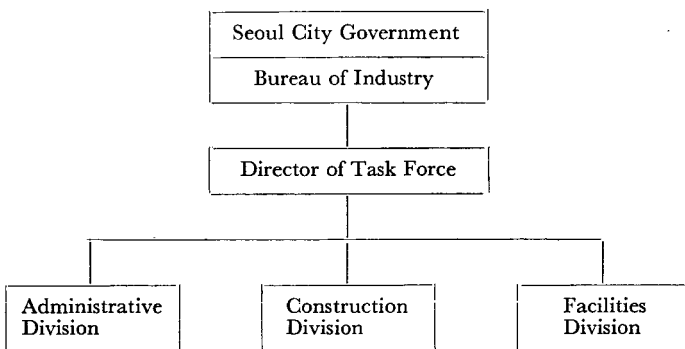
The size of market throughputs is converted into market facilities. This job is much involved with the knowledge and techniques of engineers (Table 8).

IV. Organization and Management (Proposed)

1. *Project implementation*

The Seoul City Government (SCG) will have full responsibility for the proposed wholesale market construction. A special task force with the sole function of implementing the project has already been formed under the direction of the Bureau of Industry of the SCG and has started to work. The task force has undertaken work such as the drawing up of the preliminary design and land purchase for market and is now under way with site preparation and drawing up the execution design. The task force will have three divisions under the director of the task force as shown in the organization chart below.

FIGURE 3 ORGANIZATION CHART OF THE TASK FORCE



The personnel of the task force encompasses all of the skills necessary to implement the project and is augmented where possible from other SCG departments/with the balance recruited locally. The task force be supervised by the SCG's Bureau of Industry which will also arrange coordination with other GOK and SCG departments. The task force will work directly with technical consultants in the planning, design and tendering stages. During market construction the task force will be responsible for project organization, contract, management, inspection and certification of contractor invoices. It will also coordinate the supply of GOK controlled and im-

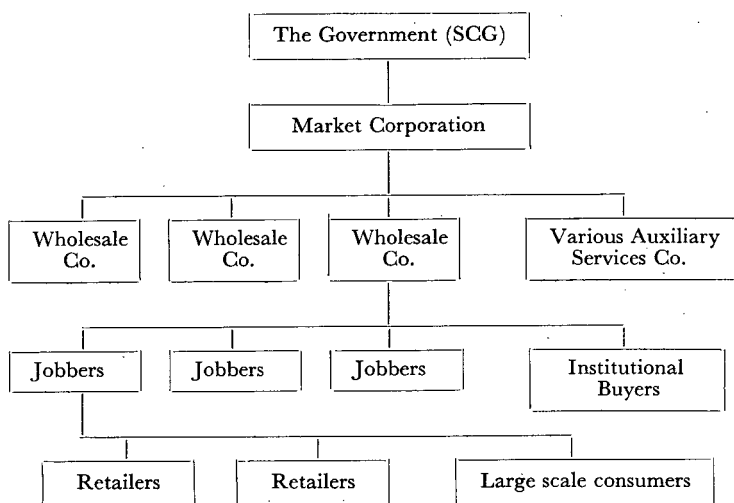
ported supply items to contracting firms.

On completion of the implementation of the project the task force personnel will return to their respective departments. However, consideration should be given to absorbing suitable or key personnel into the market organization to provide continuity.

2. Organization and Management of the Wholesale Market

For the efficient management of the new market, the organization chart is proposed as follows.

FIGURE 4 ORGANIZATION CHART OF THE PROPOSED MARKET



A. The Government (SCG)

When the proposed market is open, SCG which has all of the responsibility for the construction of the market will be the owner of the market. SCG organizes the market with consultation and help from the Ministry of Agriculture and Fisheries and the Ministry of Commerce and Industry. SCG also controls and inspects the market for efficient operation. Moreover SCG will be in charge of the repayment of the World Bank loans and will set the regulations about rent, commissions, fees etc.

B. Market Corporation

The market corporation has the full responsibility for the maintenance and operation of the proposed market and the coordination of possible conflicts between market participants. The market authority will be formed as a public corporation. There have been a number of discussions among persons concerned on the form of the market corporation. The form of public corporation has been generally agreed upon. Though the form

of public corporation also has some shortcomings, it has the following merits as compared to other alternative forms such as the SCG's direct operation and a private company.

- (1) A public corporation is more public-oriented than a private company;
- (2) A public corporation is a reliable organization for the amortization of IBRD loans;
- (3) A public corporation can effectively be controlled by the government;
- (4) Compared with SCG's direct operation form, a public corporation will be more flexible and efficient in adjustment to any significant change of circumstances; and
- (5) It can easily hold the necessary specialists as a public corporation is not subject to frequent personnel transfers in the government, and so it can operate the market consistently and efficiently.

Market corporation will have an organization such as Figure 5 manifests. The scale of the estimated initial personnel is 107 persons.

Specific functions of the Market Corporation are as follows:

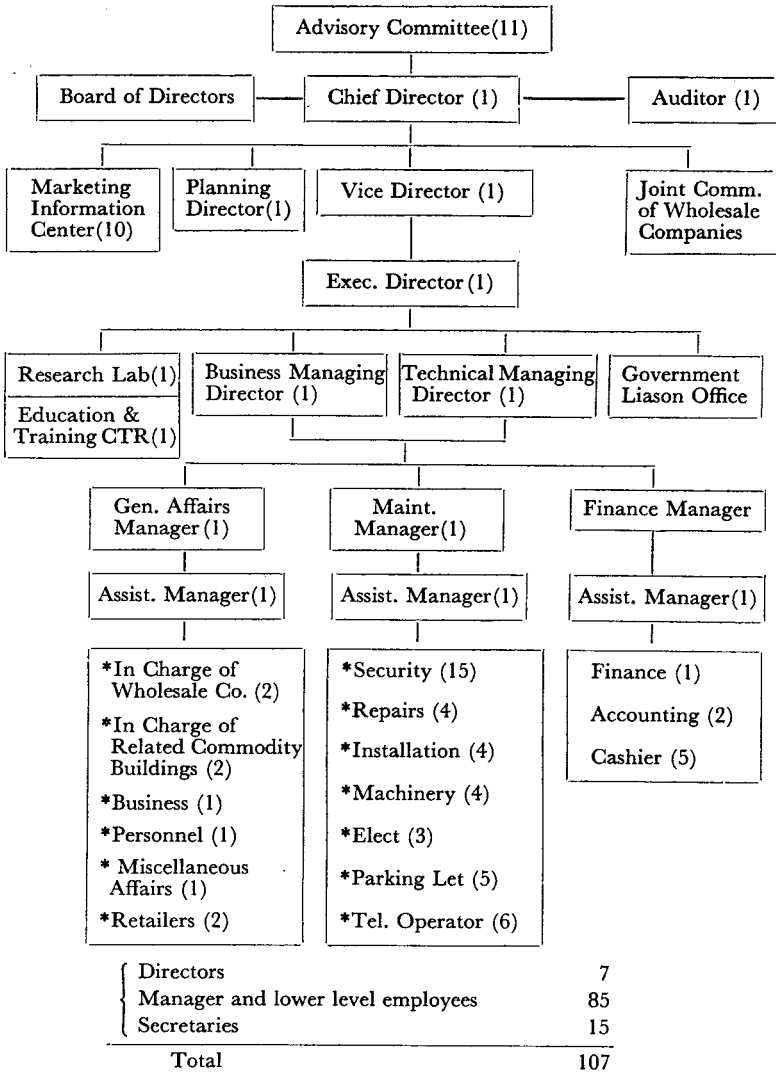
- (1) Maintenance and management of the facilities of the market;
- (2) Leasing the facilities and collecting the rents;
- (3) Guidance for market participants and checking the utilization of the market;
- (4) Expansion and improvement in accommodation in accordance with the increasing marketing volume;
- (5) Maintenance and administration of a market information system;
- (6) Offering various services such as cleaning, security etc.;
- (7) Checking the quality and hygiene of commodities;
- (8) Management of common facilities and offering convenience for market utilizers;
- (9) Collecting rental fees for market facilities; and
- (10) Education of merchants.

The Advisory Committee will consist of functional representatives. This committee will make an effort to make wholesale market companies conduct efficient operations. The committee also will assume the following functions:

- (1) Controlling overall business of the wholesale market;
- (2) Harmonizing conflicts of interest between the concerned parties in the market;
- (3) Consultation regarding management improvement of the wholesale market; and
- (4) Evaluation, coordination and planning for the education of the market participants.

The advisory consultants will be entrusted by the market establisher (SCG) and are nominated to honorary posts. The Board of Directors

FIGURE 5 BASIC ORGANIZATION CHART OF MARKET CORPORATION



consists of two groups—appointed directors who are paid and automatic directors who are not paid. The appointed directors are appointed by the market founder, SCG, while the automatic directors are selected from among the representatives of the wholesale markets or by SCG.

The Board of Directors will assume the rôle of determining the principal policies of the Market Corporation. The president of the Board of Directors represents and manages the Market Corporation and recommends advisers and members of the Board of Directors.

The Council of Wholesale Companies consists of 2 representatives of directors from each wholesale company and it discusses the mutual concerns of the companies and reports the results to the board of directors. A computer center for market information will be set up to ensure an effective market function by adjusting demand and supply and stabilizing prices.

Moreover, an education hall will be set up for educating the market participants.

3. Fruits and Vegetables Wholesale Market Companies

The wholesale company will be engaged in the marketing business. The establisher of the company will be selected from among men with rich experience in the agricultural marketing field and with capital supply capabilities for such an establishment. For fruits and vegetables, 4 wholesale companies will be established mainly with the merchants in the existing Yongsan market which is expected to be closed. Auction will be introduced for the transactions, except for truck-sales for radish and cabbage and pricetagged sale or bargaining sale for small bundles will also be introduced. Each wholesale company has to induce shippers to secure products for sale and have the duty of selling to them at reasonable prices. The companies are also encouraged to maintain fair competition between themselves. Each company should have at least 48 vegetable jobbers, 28 fruit jobbers and 4 auctioneers for fair price formation in the market. The major specific functions of the wholesale company are as follows:

- (1) Selecting, guiding and monitoring of jobbers;
- (2) Selling of the consigned agricultural products;
- (3) Settlement of transacted accounts;
- (4) Loans in advance to producers and shippers for the inducement of products;
- (5) Preparing various services for shippers, purchasers and jobbers; and
- (6) Collecting, analysing, and distributing market information.

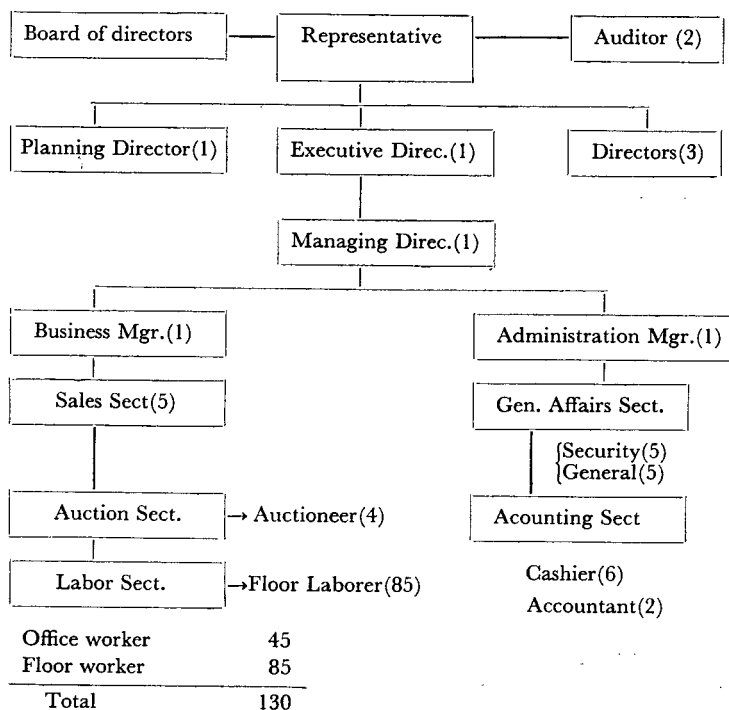
A typical fruits and vegetable wholesale market company will have about 45 staff members and 85 laborers. The company will have an organization as shown in Fig 6.

Dependent upon individual abilities, each company can have 7-10 institutional buyers. The company will receive a consignee fee of up to 6.6% of the total transaction. Out of this 0.5% of the total transaction is paid to the market authority for market charges.

4. Fishery Products Wholesale Market Company

The function of fishery products wholesale market companies will be almost the same as that of the fruits and vegetables companies. The fishery products will have two wholesale companies. The companies will have

FIGURE 6 ORGANIZATION CHART OF TYPICAL FRUITS AND VEGETABLES WHOLESale MARKET COMPANY



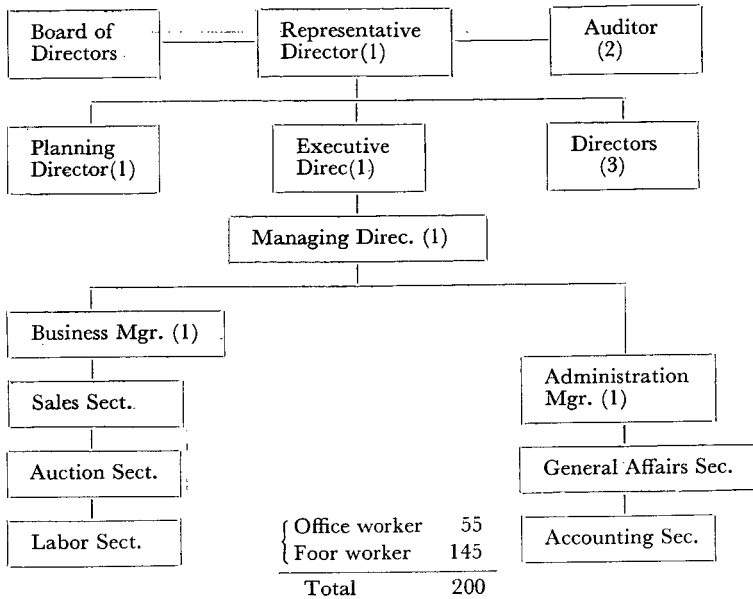
approximately 100 jobbers and the fresh fishery products wholesale company will have 55 staff members and 145 laborers. The typical company will have an organization as shown in Fig. 7

The fishery products wholesale company will receive a consignee fee of up to 5% of the total transaction value, and 0.5% of the total transaction will be paid to the market authority for market charges.

5. Jobbers

The function of jobbers is to transfer commodities by auction from shippers to purchasers such as retailers and big consumers. And in compensation for it, they receive a commission from purchasers. Jobbers can buy products on their own account to accelerate trading in the case of indivisibility of volume to retailer's requirement. Jobbers need some capital and knowledge of commodity marketing. They should have a license from a wholesale company. The institutional buyer, which is a big consumer, can take part in auction after obtaining a license from a wholesale company but he cannot sell his commodities at the market. Jobbers transfer the selling money from retailers to the wholesale company. The minimum

FIGURE 7 ORGANIZATION CHART FOR TYPICAL FISHERY PRODUCTS WHOLESALE MARKET COMPANY



number of jobbers will be 192 for vegetables, 102 for fruits and 200 for fishery products. The jobbers will employ 2 persons for business and they will receive a commission from retailers of up to 4% of the total transaction value for fruits and vegetables, and up to 3% for fishery products.

6. *Auxiliary Services Companies*

The auxiliary services companies include the operators of various facilities provided for the efficient marketing and for the convenience of market users, such as freezing and cooling storages, dining halls, related commodities and retail stores, bank, post office, gas station, and so on. These facilities can be managed by the wholesale companies or by the Market Corporation, or may be leased to individuals by the Market Corporation.

V. **Economic Justification**

A market layout is designed for every commodity group such as vegetables and fruits, fishery products, rice and meat. But the design of buildings and facilities and cost estimation have been made for only vegetables and fruits and fishery products. The total cost of the market is estimated to be about US \$117 million at 1981 prices.

The construction of this market should contribute much to improve the agricultural marketing system in Seoul as well as in Korea. The market

project will include marketing information systems development (including back-haul information services), training and education components and a national marketing master plan study to be a more valuable project as marketing projects. It has turned out that all parties participate in market management and operation such as the market management corporation, wholesale companies, and jobbers are financially viable for the 20 year life time of the project.

Economic analysis was performed to estimate the expected benefits to the national economy. The construction of the new wholesale market will affect various social and economic aspects.

In the analysis, however, only the quantifiable benefits were considered even if there are various benefits which cannot be quantified. The unquantifiable benefits include the employment increase from the construction and environmental improvement in the central jammed areas, the contribution to the people's health through the treatment of food, the establishment of a more competitive and fair transaction system, and the price stabilization of food through the effective use of the price information system. The benefits included in this analysis are as follows:

- (1) Loss saving and quality improvement of commodities;
- (2) Reduced cost accrued from mitigating traffic congestions, internal and external, to the existing wholesale markets;
- (3) Social benefits accrued from alternative land uses of the market which is expected to close; and
- (4) Reduced distribution costs accrued from improvements in the transportation network;

Using survey data for related markets and estimated parameters, more than a 50% rate of economic return was obtained.

REFERENCES

- Abbott, J. C., *Marketing Fruits and Vegetables*, 2nd ed. of Marketing Guide No. 2, FAO, 1970.
- Covent Garden Market Authority, *A New Site for Covent Garden Market*, April 1964.
- The Fantus Company, *Study for the Recocation of Covent Garden Market for Covent Market Authority*, Mar. 1963.
- Le Fevre, A. J. and J. F., Pickering "The Economics of Moving Covent Garden Market," *Journal of Agricultural Economics*, Vol. XXIII, No. 2, 1972. pp. 35-48.
- KIST, *The Capital City Transportation Master Plan*, 1978.
- KREI, *A Study on Agricultural Wholesale Market Activities and Improvement in Food Marketing in Seoul*, Dec. 1979.
- Mittendorf, H. J., *Planning of Urban Wholesale Markets for Perishable Food*, FAO/UN, 1976.
- Seoul City Government, *Agricultural Wholesale Market, Planning and Preliminary Design*, 1981.

- Sung, Bai-Yung, "Efficiency in Agricultural Wholesale Market Activities in Seoul," *Journal of Rural Development*, Vol. III, No. 1, KREI, June 1981, pp. 127-151.
- UEDA, *Designing Wholesale Markets for Asian Cities*, FAO, 1975, RAFE 21.
- USDA, *New York City Wholesale Fresh Fruit and Vegetables Market*, Washington, 1965 (Marketing Research Report No. 389).