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KRIHS seeks to improve knowledge and understanding of the conditions and problems of the nation's resources and their interaction with people, to assist the government in formulating long-lange development plans and make policy recommendations on related matters, to collaborate with the international research community in solving theoretical and practical problems concerning human settlement issues and planning, and to provide research expertise and consulting services as well as training problems for foreign governments and institutions.

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SPACE and ENVIRONMENT

GIS for Environmentally Sound Development and Conservation Planning

armony between development and conservation has been a traditional issue among planners. It is particularly important in developing countries which face the problem of environmental degradation as a side effect of rapid economic growth. A recent international workshop hosted by KRIHS and Cheju Provincial Government attempted to address this traditional issue with an emphasis on how to apply GIS technology to achieve harmony between the two. Six successful cases from U.S.A., Australia, Indonesia and Korea including Cheju GIS Project were presented and possibilities of its application to other Korean cities discussed at the workshop.

The province of Cheju, one of the most famous tourists resorts in Korea, suffered from the side effect of reckless development. On the one hand, it needs development of tourism facilities and proper infrastructure to attract more tourists and to provide better service. On the other hand, it needs conservation to keep natural beauty, clean water and other tourism resources. The pres-

sure for development has been put on the mid-mountain area of Cheju Province. which has exotic scenic beauty but is a major source of water supply and therefore very vulnerable to water contamination. It is of urgent priority for the Cheju Provincial Government to establish rational criteria to determine future land use with a view to meet the

demand for development as well as to maintain environmental sustainability

The Cheju GIS project is designed to provide fifty theme layers of 1/5,000 map based on site surveys. For the first time, it utilizes the product of National GIS Initiative Project and the 1/5,000 topographic map. A pilot study revealed that GIS is a very useful tool for land use planning with environmental consideration. The area for absolute conservation has been easily identified according to the conditions laid out in the "Special Act for Development of Cheju Province." The area with special soil type which has proven to be very vulnerable to water contamination and the area for rare species and historic sites are categorized as "absolute conservation." The principle of hierarchical dominance was applied to the remaining area to allocate other land use categories. The data used for this analysis includes height, slope, vegetation, soil, current land use, historic site, and so on.

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Promotion of Construction Manpower is the Key to International Competitiveness

When the construction market fully opens over the next couple of years, the only way for the Korean firms to survive international competition is to foster and maintain competitiveness in construction technology. This requires a substantial level of construction R&D investment and also well trained, highly competent construction professionals, i.e.,

engineers and technicians in particular.

The construction industry in Korea has been slow to catch up with advanced building technologies, and construction firms tend to rely largely on antiquated technologies. A large number of people in the industry think new building technology too costly (and also too risky) to apply, and this kind of negative attitude toward new technology results in inadequate investment in construction research and development and also in the shortage of well trained and qualified construction professionals. A recent study suggests that Korean firms are about 50 to 75 percent behind those of the advanced countries in a number of key construction technologies, including sanitary, transportation, environment, and intelligent building.

This study was conceived with these issues in mind. The study first examines the quantity and quality of the officially registered construction engineers and technicians. It also identifies and analyzes various factors which have negatively affected pro-

motion of the high quality construction manpower. Then the study projects the demand for engineering and technician manpower of the construction sector over the next ten years. Projection is made with consideration of the industry's structural change. The industry is expected to change its mode of production from labor intensive to capital intensive.

The demand for construction labor will increase rather modestly to the extent that it reaches about 2.1 million by the year of 2005. But the demand for the highly qualified engineers and other specialists will increase at a faster rate, and its share of the total labor force will grow up to 10 percent (approximately 205,000). The current ratio is 8.5 to 9.0 percent, depending on the definition of the construction professionals.

The potential sources of supply are largely the universities and two year technical colleges. It is found that the demand-supply mismatch will be rather significant if efforts are not

made to expand the engineering schools' student body and to upgrade their curricula. The estimated shortage level ranges from a minimum of 2,075 up to 7,788 a year during the period of 1995-2000 and from a minimum of 283 up to 4,607 a year during the period of 2001-2005, depending upon various assumptions on the pace of the industry's structural change.

Various institutional measures are evaluated in terms of effectiveness of each in promoting well trained and internationally qualified engineers and building technicians. Among them are; the current system of technologically oriented construction manpower administration, licensing and examination, and particularly the remedial and supplementary education and job training programs. Various problems therewith are identified and suggestions are made to rectify them. The discussion emphasizes: i) that the premium for a license is too high and the licensee's rent seeking behavior must be discouraged, ii) that the nation's engineering schools' enrollments must be expanded and the quality of their curricula be updated to cover new building technology and related softwares and hardwares, packages; and iii) that rigorous programs for remedial and supplemental education must be established throughout the country to improve technological skills and expertise.

Manpower Demand in Construction Industry



Projected Techn	Projected Technical Manpower Increment in Construction Industry (unit: person)				
	Demand	Supply	Shortage		
1995-2000	8,432	3,887	4,545		
2001-2005	5,962	3,887	2,075		

Note: Numbers are annual average.

Clean Water Becoming the Most Crucial Resource

egardless of the scale of the development, the source of clean water supply has become the most critical element in determining the feasibility of the project in Korea now. The annual average precipitation is 1,274mm and it is substantially more than the world average. The per precipitation, however, is just 10% of the world average of 34,000ton.

The management of water resource is extremely tough in Korea due to the heavy rainfall in the restricted areas during four rainy months and the drought rest of the year. Kwang-Mook Kim of KRIHS estimated, in his recent study on National Water Resource Management, the total demand for water to reach 222 billion ton in 2001 and 376 billion ton in 2011. With the suggested reserve rate of 10.4%, the total water supply will have to be around 415 billion ton in 2011. Conventional source of water supply, stream and underground Water, will provide only about 58 percent of the projected demand. Rest of them have to be covered by the construction of new dams. Kim suggested 23 dams to be constructed nationwide by 2011 along five major rivers of Korea.

The enlargement of water supply facilities and the diversification of water resources will require establishment of the middle and long term projects for integrated domestic and industrial water supply system, as well as the optimization of existing facilities and the development of artificial rain

The establishment of alarm systems for floods together with the environmentally sound development of leisure space is strongly recommended. Promoting public awareness for water conservation, supply of water saving apparatus, deregulation of water price and pipeline repairs to stop leakage of water is also advised.

			(unit : millio	n ton/year)
		1993	2001	2011
	Domestic Water	5,193	7,167	8,456
	Industy	2,624	3,355	4,138
Demand	Farm	14,966	16,295	17,629
	Maintenance Water	5,742	6,436	7,383
	Total	28,525	33,253	37,606
Supply	Stream	16,875	18,039	18,881
	Underground Water	1,786	2,307	2,830
	Total	18,661	20,346	21,711
Shortage		9,864	12,907	15,895
Dam Supply		13,325	15,518	19,794

Dam Construction

Han river areas (8dams): 2,379 Nakdong river areas (7dams): 977 Kum river areas (3dams): 486 Yongsan · Somjin river (5dams): 65

Emerging Patterns of Urban Concentration of Industries

n spite of the ongoing policies of long-term industrial decentralization, Seoul is still the largest industrial center in Korea, accounting for twenty-nine percent of the nation's manufacturing establishments. Manufacturing industry in Seoul is dominated by small and medium-sized enterprises(SMEs): eighty-two percent of the establishments employ less than thirty workers. The dominant manufacturing sectors in the city are printing, clothing and machinery.

Why do they prefer Seoul? Among others, in the case of the SMEs in Seoul, horizontal and vertical linkages are important determinants. Forty-nine percent of printing firms in Seoul considered linkages with other firms as the most important location factor. And they were concentrated in urban core areas.

However, new locational patterns are now emerging. Over the last five years, most rapidly growing regions have not been urban core areas but suburban and outer-urban industrial areas. There are two factors which have influenced this intra-urban loca-

tional shift: newly created market niches resulting from the decentralization of offices and service activities, and high land prices and the shortage of available land in core areas. However, this is only the case of medium and large firms who possess vertically-integrated production system.

For small firms specializing in narrow production process, move to outer-urban areas is not feasible since their operations are dependent on other firms. To overcome the shortage of available land in core areas, these small firms relocate to near-core areas, which result in the spatial expansion of the existing industrial district.

From a planning point of view, these locational changes bring about numerous urban problems such as noise, traffic congestions, and land use conflicts. This is particularly serious in near-core areas where manufacturing facilities are invading the quality of residental and commercial areas. The Seoul Metro-

(unit: won/pyong)

88.1

79.6

Problems of Industrial Estates Development Diagnosed

Philippines

ndustrial estates in Korea occupy about fifty-three percent of the entire industrial land and accommodate thirty-four percent of manufacturing employment. These ratios are, however, far below the goal set by the government plan. In fact, a recent survey by KRIHS suggests that many entrepreneurs avoid building their plants on industrial estates planned and developed by the government.

The research identified three factors that prohibit decision-makers from choosing industrial estates as their location sites: delays in development process, high land price, and lack of diversity in sales package and development

types

It is criticized that the slowness of development process is mainly due to the monopoly of planning powers by the central government. In Korea, the central government has nearly all the control and authority over the industrial estate development including the designation of industrial estates and approval of development plans. The operation of this centralized planning system is often time-consuming.

High land price is the result of the high acquisition cost. On top of that, developers of local industrial estates are obliged to provide infrastructure facilities including roads, utilities, and sometimes even the extension of subways, which have an

incremental effect on lot price.

According to the Industrial Location

According to the industrial Location and Development Act, local governments can provide infrastructure facilities to promote local industrial estate development. Howev-

er, local governments have no legally binding responsibility to provide them, and in fact most of them can not afford financially such development. In addition, there are various types of charges are

levied on industrial estate development.

Dealing with these problems the study suggests that the local government have more power in the development process and that the role of the central government be focused on managing conflicts among local governments. More assistance and incentives for relocating industries are recommended. It is also suggested that the government regulation be further eased and that the private sector participation be actively promoted. The role of the public sector should be minimized to national-wide development projects and development of depressed areas, where the private sector cannot play a meaningful role.

	Country Industrial Estate		Price	Namdong	Taebul
	Country	madothar Estate	per pyong	=100	=100
	Korea .	Namdong	554,000	100.0	243.0
		Teabul	228,000	40.9	100.0
	Japan	Hirokawa(Kyushu)	793,412	143.2	347.9
		N. Sendai(Tohoku)	430,000	77.6	188.6
	HongKong	Tai Po IE	466,901	84.9	244.7
	Hongrong	Yeun Long	415,023	75.5	99.5
		Cikarang	120,213	21.9	57.8
1	Indonesia	Daan Mogot	400,712	25.3	66.8
	madridola	Modern Cikande	63,157	11.5	30.4
		East Jakarta	138,946	25.3	66.8
		Rayong	127,558	23.2	61.3

Price Comparison of Industrial Estate Among Asian Countries

Thailand 32.3 85.1 Eastern 176,989 Gate Way City 104,727 190 50.3 Pontian IE 46,808 8.5 22.5 Parit Raja 41,609 7.6 20.0 Malaysia 2.8 Pengkalan 2 15,606 4.5 11.9 Kampung Achen 24,650 Laguna Int'l IE 123,007 22.4 59.1

Wellgrow

Luisita

Gateway BP

183,273

57,659

165,628

30.1

Note: 1) Price for Namdong and Taebul Industrial Estate is 1994 constant won. 2) pyong = 3.3m³

GIS for Environmentally Sound Development from page 1

The Cheju GIS project is going to develop database for the mid-mountain area of the province (577km) by January 1997. Once completed, the system will bring several benefits to Cheju Provincial Government. First of all, effective management of land resources is possible due to the integration of different kinds of land information. Secondly, the integration of maps and other documents will save reproducing, maintaining and upgrading efforts. Lastly, a more rational policy-making is possible by applying diverse simulation techniques available from GIS software. The Cheju GIS is expected to make a model case of new land use planning system which supports environmentally sound development strategy.

Sustainable Development : Challenge for Kyongju Master Plan

yongju is Korea's ancient capital city of Shilla dynasty (B.C. 57~A.D. 935). Shilla was the first unified nation in Korean history and Buddhist civilization reached its zenith in those days. Now Kyongju is a city with a population of two hundred eighty thousand and covers an area of 1,319km³.

Kyongju is a typical Korean historical city along with Seoul, Kaesong, Kongju and Puyo. About 11% of Korea's national treasures, 6% of local treasures, and 72 historic sites are located in Kyongju. More than six million tourists are coming to the city annually, but most of them are domestic tourists yet.

Though the city is endowed with plenty of valuable historic and cultural resources, national park and beach resorts nearby, there has been continuous decrease in resident population because developable land is limited, land use controls are strict, and industrial and other conventional economic bases are weak

The key to the success of the comprehensive development plan for Kyongju is, therefore, to harmonize historic preservation of the city with the

GRP-creating development programs which could boost city's economy. Historic resources alone can not sustain the local economy. A multi-purpose recreational and leisure function should be added, under the well thought out master plan, to make this site of cultural and historic relics a spot of total tourist attraction. Industrial development to an extent that would not disturb the unique local environment should be reinforced.

The city has recently consolidated surrounding rural areas and become one of the first urban-rural integrated jurisdictions. High-speed rail, which will be completed by 2001, will pass the outskirt of the city and there will be a new station. Therefore, it needs a new city plan under the concept of urban-rural integration and with the consideration of the new station. It should provide new function and spatial structure not only for the existing planning district but for the newly included rural areas.

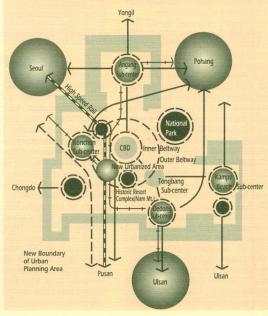
In order to achieve the balanced development between urban and rural area within the jurisdiction, existing industries should be relocated. New jobs should be created in the service sector and non-pollution hightech industries. Around the new high-speed rail station a multi-structure complex of public, commercial, residential and distribution facilities is planned accommodating about 20 thousand people.

Five sub-centers with new residential complex of about 10 thousand residents will be developed. They are supposed to decentralize the core functions of the city as well as to connect the development axis toward rural area and eventually lead to the balanced development of the whole city.

Based upon natural and scenic resources, a scenery master plan and a green network will be developed to harmonize relic places and developed areas within the city. Scattered cultural and historic spots around Nam mountain is to be put in order with the development of two city parks. 970 thousand new housing units will be constructed on 14km newly developed residential land. A race track with 10 thousand seats, a silver town(0.6km), and total resort complex(4km) on the Kampo beach will be developed. Historic tour rout of half day to three full day will also be developed.

With the master plan completely implemented by 2025, the city of Kyongju will have 410 thousand resident population and expect 17.4 million tourists. Per capita GRP will reach 33,200 dollars.

Long-Term Development Concept for Kyongju City



Presale Scheme As Non-Institutional Housing Finance

n Korea home builders are permitted to sell housing units prior to the completion of construction. They can sell housing units even in starting stages of construction if they get a guarantee from Korea Housing Finance Cooperative. During periods of house price inflation and price regulation, demand for housing surpasses the supply. Excess demand aiming at sales premium is the major cause for the existence of pre-sale, since expected capital gain is higher than opportunity cost of prepayment of house price. As a result of two million housing construction plan (1988-92) and of anti-speculation policies, skyrocketing house price began to decrease since April of 1991. At the same time, expected capital gain from new house acquisition decreased to be smaller than interest cost of prepayment. Potential home buyers now started to complain about the pre-sale scheme and called for change to the sale after completion of construction.

A recent research by KRIHS explains the nature of pre-sale scheme, identifies the merits and problems, and suggests ideas of improvement. It was recognized that pre-sale of housing is a kind of non-institutional housing finance in the absence of an institutional one. Financing from prospective consumers to constructors have much contributed to the supply of housing and alleviated housing shortage problem in Korea. One of crucial problems of pre-sale scheme is that it structurally leads to low quality and high density housing. With the existence of excess demand searching for sales premium, consumers tend to be interested more on speculative capital gains than on the quality of the house. The price regulation causes constructors to further minimize their cost via lower quality and higher density. Constructors need not to make efforts to increase

the quality of house as long as there exists an excess demand in the market. On the other hand, constructors may encounter financing difficulties, resulting in bankruptcies, and bringing about economic loss for consumers if excess supply emerges during a recess period.

The basic direction to solve the problem of pre-sale scheme is to transform it to the sale after completion of construction. However, sudden change of the scheme may bring about side effects such

as financing problem for constructors, shrinkage of housing construction, increase of sale price, and frictional mismatch of supply and demand for the construction period. Therefore, presale scheme has to be gradually transformed. Systems of monitoring the housing quality and of consumer protection must be developed in order to minimize the side effect of scheme transformation. And institutional housing finance should be introduced to the constructors.

Consumers Opportunity Cost of Prepayment				
Payment	Amount (million won)	Periods of Prepayment	Savings interest	Loan interest
contract (15%)	15	22 months	268.05	302.61
1st payment (15%)	5	20 months	241.80	275.10
2nd payment (15%)	15	15 months	177.90	206.33
3rd payment (15%)	15	10 months	63.75	137.55
4th payment (15%)	15	5 months	31.50	68.78
final payment (30%)	15	-	-	-
(100%)	100		783.00	990.37

Note: 1) Savings interest rate 9.0%(deposit period 1-2 years) and 5.0%(less than 1 year) are applied. 2) Loan interest rate 11.0%

Korea-France Conference on Public-Private Partnership

In collaboration with the French Embassy in Korea, French Ministry of Public Works, Housing, Transportation and Tourism, and Maeil Kyungje-The Economic Daily, KRIHS organized International Conference on Public · Private Partnership in Urban Development Projects on December 12, 1995. Catherine Bersani, Director of Architecture and Urban Planning of the Ministry led the French delegation to the conference. Bertrand Ousset of Epamarne-Epafrance, Michel Quatre of Mission Roissy, Michel Harrus of Euralille, and Genevieve Dubois-Taine of Club der Maitres d'Ouvrage d'Operations Complexes are among the French participants. They present the cases of Marne-la-Vallee new town and Euro-Disney, Roissy airport, Euralille as well as overall issues and future direction of public-private partnership in France. Dong-Ju Kim of KRIHS delivered the case of the New Seoul International Airport Region and Jae-Yoon Yoo discussed development guidelines for station impact area of Taegu high speed rail station. Jeong-Ho Kim addressed the recent policy efforts of private sector involvement in urban development projects in Korea. Among the discussants are Yoon-Ki Kim, vice president of Korea Land Development Corporation, Sang-Choo Lee, vice president of Korea Airport Construction Authority, and Taek-Yong Kim, president of Hanwha Station Development Company.

Construction Industry After the Year 2000

he projections for the construction industry after the year 2000 is of keen interest not only to construction companies but to the government. Here are some forecasts. On the demand side, increase of demand for construction is expected to decline in terms of its share of GDP, due to overall industry restructuring as Korean economy develops to become an advanced one. Up to the year 2000, the amount of construction production will grow at 5-6% rate lower than 7%, the expected growth rate of GDP during the same period. The amount of construction investment will increase at 5.1-5.9%. In addition, maintenance and reconstruction of existing facilities will be a newly emerging market, accounting for 10 % or more of construction investment.

On the supply side, more firms are expected to enter the industry. The number of new entrants and bankruptcies will augment at the same time, indicating a fun-

damental structural change of the industry. For example, general contractors will increase at 18% growth rate, and their number will reach around 7,500, much greater than the present level. Also, specialty contractors will follow the same pattern and will grow up to about 42,000 in number in the year 2000.

Projection for construction demand in the year 2000 (unit: ten billion won)			
	'90 constant	current	
construction production	3,593-3,802	7,268-7,674	
construction investment	6,652-7,042	12,166-12,799	



Revising the Third Comprehensive National Development Plan

With the collaboration of nine Ministries and twelve government research institutes, KRIHS is now working on the task of amending the Third Comprehensive National Development Plan(1992~2001).

The revision of this long-term blue print of national development is set about in the context of globalization of economy, establishment of local autonomy, and increased possibility of unification. To fully reflect all these elements in the revised plan, the planning period has been extended to the year 2011.

The revised plan aims to create an outward development axis by targeting coastal regions as major growth poles and by locating international airport hubs and harbors along the regions. In response to increased localization trend, more roles will be given to the local authority and regional differences will be characterized in the plan.

A new perspective on Greater Seoul Region enabling the area to perform the role of the global core in the Northeast Asia is also being considered. Land use regulations will be streamlined from rigid restrictions towards more market-orientation, from development orientation towards environmentally sound use and preservation. Housing and urban policies will emphasize quality rather than quantity and especially the quality of life will be the backbone concept throughout the revision efforts.

Emerging Patterns of Urban Concentration of Industries from page 3

politan Government recently announced the redevelopment of these areas for more efficient and coordinated land use. Construction of flatted factories and the new complex of printing in-dustry were proposed.

But there is prevailing concern that this plan is only for medium and large enterprises. Plans for the development of small enterprises is still strongly called for.

KRIHS held an International Conference on Land Policy of Market and Transition Economies: A Comparative Perspective, from November 30 to December 1, 1995. The conference focused on the current status and relevant policies of land ownership change in countries with transitional economies such as Russia. China and Hungary, and recent land policy issues of seven advanced countries of market economies. Land policy for Korea was also discussed. Vincent Renard of Polytech University of France, Sumner La Croix of University of Hawaii, Leonid Limonov of Leontief Center in Russia, Nan Shi of China Academy of Urban Planning and Design, Jozsef Veress of the Office of the Hungarian Prime Minister were among the participants.

A Joint Workshop on Chinese and Korean Experience and Perspective on Urban Planning was held at KRIHS between November 29 and 30. Vice President of China Academy of Urban Planning and Design(CAUPD), Liu Rengeng, and KRIHS Urban Affairs Division staff discussed urban planning and design for Longhai-Lanxin Belt and Shanghai for China and "Urban Planning Concepts for Pohang and "Urban Design for Pyongchon New Town for Korea." CAUPD and KRIHS signed an agreement for research collaboration in February, 1995.

Josef Konvitz, the Principal Administrator, Urban Affairs Division of OECD visited KRIHS on October 26 and was briefed on issues and prospects of new town development in Korea. There was also discussion of future collaboration between OECD and KRIHS.

Professor Chang Don Boo and Professor Kwak Jin Hee of the University of People's Republic of China gave a lecture for KRIHS audience on "Chinese Yon Hae Province Infrastructure Development" and "Dooman River Region Development" on October 19.

Three economists from Vietnam



headed by Nguyen Ba An of State Planning Committee, visited KRIHS on September 29 to attend a seminar on Land Development Policies of Korea and Vietnam.

Professor Alster MacFarquhar of the Department of Land Economy at Cambridge University came to KRIHS and lectured on Regional Policy, Economics or Politics on Auguest 21.

Sixty members of International. Geographical Union from 25 countries visited KRIHS on August 9. They were briefed on the main themes of the Third Comprehensive National Development Plan now under revision and the organization and activities of KRIHS.

On August 7, Professor Patsy Healy of University of Newcastle in England visited KRIHS and lectured on The Current Preoccupation of British Planning.

Professor Anwar Fazal of Royal Military Academy of Malaysia who leads the UNDP's ASIA-PACIFIC 2000 Project gave a special lecture on Urban Cities: The Challenge for Asia on July 18.

Professor Edward Anderson of Boston University and personal rapid transit (PRT) specialist Raymond McDonald visited KRIHS on July 17. They introduced PRT system to resolve traffic congestion problems in large Korean cities. The simulated effect of installing PRT in Yoido and Kwanak campus of Seoul National University was presented. Gun Young Lee, President of KRIHS attended Anywise conference held at Seoul Hilton Hotel on June 20 as a speaker on "Challenge for the Newtown: The Case of Five Newtowns." Anywise conference was the fifth event of Anyconference series initiated by Anyone Corporation established as a not-for profit corporation in New York, U.S.A. This time, the theme was "The Challenge of Architecture in the Contemporary City."

KRIHS Abstracts(vol. 5) was published in December, 1995. This English abstracts contains abstracts of 126 research reports conducted between 1993 and 1994.

Cities and Nation: Planning Issues and Policies of Korea (edited by Gun Young Lee and Hyun Sik Kim) was published in November, 1995 by KRIHS and NANAM Publishing House. It contains the collection 25 articles dealing with issues and policies from micro perspective of city planning to the macro context of national development of Korea. The book is divided into four parts: i) national planning and regional strategy, ii) urban function and structure, iii) housing market and policies, iv) land market, construction economy, and environment. It is English written and may be the first effort of this nature. It is for sale on order now.

