The Nature and Transformation of Marginal Areas: The Case Study of Korea*

An-Jae Kim**

〈Contents〉

I. Objectives and Methodology of Study

The limit of small area of Korea highly reguires the necessities of development of marginal areas. The future demand of landuse will be fastly increased in response to a high growth of various industries. Therefore, utilization of marginal areas will be not only necessary, but also inevitable from now in Korea.

---

* This is a paper presented to United Nations University, Tokyo, Japan, as a final report of co-research on marginal resources.

** Ph.D. and Associate Professor, Department of Urban and Regional Planning, Graduate School of Environmental Studies, Seoul National University, Seoul, Korea.

Inter-regional disparity is one of the important problems which we face. The Second National Land Comprehensive Development Plan (1982~1991) presents a balanced growth as one of development policies. For the successful implementation of the policy, marginal areas should be emphasized in depressed regions. In this context, the research on marginal areas has a very significant and important meaning.

This research project has two main objectives in the sense of the expectation of research outcomes. One is to diagnose the present reality and transformation process of marginal areas in Korea by defining the concept of, by classifying the pattern of, and by analysing the situation of marginal areas. The other is to help the governments to develop marginal areas by recommending the transformation and development strategy and method of such areas.

The overall data of the whole country of Korea on marginal areas will be collected through a documentary investigation; that is, a desk research. This data will give us the fundamentally statistical information which is necessary to develop a types and to identify characteristics of marginal areas in Korea.

By both documentary investigation and field survey, a deep study will be made of marginal areas that have either gone through or are undergoing the process of transformation, in order to reveal the physical, ecological, economic, social, behavioural and institutional changes that occur as a result of the transformation process.

II. Definition and Classification of Marginal Areas

A. Definition of Marginal Areas

Marginal areas are a part of marginal resources. Marginal resources are resources which have a weak use, a low economic utility, a traditional technique of development and a weak or non-relationship with modern marketing mechanism, and while which are still valuable as goods and resources. Marginal resources, therefore, exist in every resource which is necessary for human being.

Resources may be arranged continuously on a line from the highest to the lowest one according to a degree of utilization. If we define that resources of high utility are principal resources, and resources of no utility are useless resources, then marginal resources exist between principal and useless resources. Marginal resources have a potentiality of utilization by development, although their present utilization level is low.

In general, marginal resources have such common characteristics as followings:

(1) Their utilization is weak.

(2) Their porductivity is low.

(3) Their marketing is narrow and not modern.

(4) Their development techniques arc underdeveloped.

(5) They are not fully related with formal and institutional instruments.

Marginal resources defined in a sense of geographical space are marginal areas. The term "marginality" of area implies a fringe of spatially productive ability. Marginal areas are common in such characteristics as weak natural resources, geographical isolation and low population density. Since those areas are not satisfactory in production conditions of industry, living facilities and employment opportunity, they show a decreasing trend of population.

However, in order to reduce a shortage problem of land, to raise utilization of resources and to introduce a balanced growth of a country, it is very necessary and desirable for us to have a strong concern on development of marginal areas.

B. Classification of Marginal Areas

When marginal areas are defined in relative term, rural area is marginal to urban area, hinterland is marginal to center in a city, and an area of subsidiary products is marginal to an area of principal products.

In a country, marginal areas may be classified into some types by criteria such as land utilization, economic productivity, resource endorsement, geographical location and population density. This study classifies marginal areas into four categories as follows:

(1) Development-Unfit Area: area that natural conditions are unfavourable for development and a benefit of investment is relatively very low; barren land, swampy land, highland

(2) Production-Limit Area: area which is located at mountainous valley and is limited in agricultural production; dry land, drought-stricken area, flooded area, valley, river side

(3) Activity-Unhandy Area: area which is isolated far from cities and is inconvenient in living and production activities; coastal region, island, oasis

(4) Development-Control Area: area of which development is controlled artificially for conservation; greenbelt, park, military reserve

III. Situation and Transformation of Marginal Areas

A. Overall View of National Landuse

The total area of Korea (South) is 98,992km² as of now. Comparing with 98,477km² in 1970, the area has been expanded by 515km² through land reclamation projects. The government of Korea has a plan to expand the area until 99,720Km² in 1991 by additional land reclamation of 728km² 〈Table 1〉.

〈**Table 1**〉 Total Area of Korea (South): Trend and Plan (Unit: km²)

Year	1970	1975	1980	1986*	1991*	Area increased	
						1970~80	1980~91
Area	98,477	98,807	98,992	99,230	99,720	515	728

* The figures in 1986 and 1991 are planned ones.

Source: Economic Planning Board, Republic of Korea, *Korea Statistical Yearbook*, 1971, 1976, 1981. The Government of the Republic of Korea, *The Second National Land Comprehensive Development Plan: 1982~1991*, 1982.

In 1980, the whole area of Korea was shared by cultivated land of 22.2%, grassland of 0.5%, residential and public area of 1.7%, industrial area of 0.3%, mountainous and forest area of 66.4%, and rivers and others of 7.2%.

The Second National Land Comprehensive Development Plan (1982~1991) indicates that mountainous and forest area will be shared by 2,861km² for other uses. That is, during the next ten years, the area will be shared to cultivated area by 91km², to grassland by 1,216km², to residential area by 516km², to public area by 556km², to industrial area by 136km², and to rivers and others by 1,074km² 〈Table 2〉.

〈**Table 2**〉 National Landuse Plan (Unit: km², %)

	1980*	1986	1991	Change (1980~91)
Cultivated area	21,959 (22.2)	22,050 (22.2)	22,050 (22.1)	91
Grassland area	484 (0.5)	930 (0.9)	1,700 (1.7)	1,216
Residential area	1,721 (1.7)	1,957 (2.0)	2,237 (2.3)	516
Public area	1,647 (1.7)	1,911 (1.9)	2,203 (2.2)	556
Industrial area	332 (0.3)	382 (0.4)	468 (0.5)	136
Mountain area	65,707 (66.4)	64,238 (64.8)	62,846 (63.0)	−2,861
River and others	7,142 (7.2)	7,762 (7.8)	8,216 (8.2)	1,074
Total area	98,992(100.0)	99,230(100.0)	99,720(100.0)	728

* The figures in 1980 are actual situation.

Source: The Government of the Republic of Korea, *The Second National Land Comprehensive Development Plan: 1982~1991*, 1982.

Utilized land will be increased from 26,143km² in 1980 to 28,658km² in 1991, and unutilized land will be decreased from 72,849km² to 71,062km² during the next ten years. By this paln, therefore, marginal area will be transformed to principal area by 1,787km² from 1980 to 1991 〈Table 3〉.

〈**Table 3**〉 Classification of Land Utilization (Unit: km², %)

	1980	1986	1991
Total	98,992(100.0)	99,230(100.0)	99,720(100.0)
Utilized land	26,143 (26.4)	27,230 (28.2)	28,658 (28.8)
• For production	22,775 (23.0)	23,362 (24.3)	24,218 (24.3)
• For service	3,368 (3.4)	3,868 (3.9)	4,440 (4.5)
Unutilized land	72,849 (73.6)	72,000 (71.8)	71,062 (71.2)

Source: Retabulated from Table 2.

B. Situation and Transformation of Development-Unfit Area

The mountainous area can be divided into standing-tree area and nonstanding-tree area. Standing-tree area shows an increasing trend from 57,007km² in 1970 to 63,010km² in 1980. In the same period, nonstanding-tree area was decreased by 6,177km² from 8,597 km² to 2,420km². The proportion of nonstanding-tree area in total mountainous area was changed from 13.1% to 3.7% showing a decreasing trend during the last ten years 〈Table 4〉.

Such change of mountainous area was the result of afforestation projects. Every year during the last ten years, afforestation area was more than 120,000ha, and number of

〈**Table 4**〉 Classification of Mountainous Area by Tree Status (Unit: km², %)

	1970	1975	1980
Total	65,604(100.0)	66,246(100.0)	65,430(100.0)
Standing-tree area	57,007 (86.9)	59,807 (90.3)	63,010 (96.3)
Nonstanding-tree area	8,597 (13.1)	6,439 (9.7)	2,420 (3.7)

Source: Economic Planning Board, Republic of Korea, *Korea Statistical Yearbook*, 1971, 1976, 1981.

〈**Table 5**〉 Records of Afforestation

	1970	1975	1980
Afforestation area (ha)	125,438	173,651	165,583
No. of planting trees (1,000)	318,233	562,409	280,557
Planting density (thousand/ha)	2.54	3.24	1.69

Source: Economic Planning Board, Republic of Korea, *Korea Statistical Yearbook*, 1971, 1976, 1981.

planting trees was more than 300 million 〈Table 5〉.

Some part of marginal area of valley, barren and swampy land, and coastal region has been transformed to industrial area in order to increase land productivity. As of the end of 1981, developed area for heavy chemical industries was nine estates and 96.07km², and designated area for local industrial development was 24 estates and 54.10km² 〈Table 6〉.

〈**Table 6**〉 Designated Industrial Areas (the end of 1981)

	Area (km²)	Proportion (%)
Total (33 estates)	150.17	100.0
Heavy chemical industrial areas (9)	96.07	64.0
• Changwŏn	23.58	15.7
• Yŏchŏn	13.81	9.2
• Onsan	6.82	4.5
• Okpo	3.07	2.1
• Jukdo	2.04	1.4
• Kumi	2.37	1.6
• Pohang	15.34	10.2
• Ulsan-Mipo	23.46	15.6
• Bukpyŏng	5.58	3.7
Local industrial estates (24)	54.10	36.0

C. Situation and Transformation of Production-Limit Area

The cultivated field of Korea is badly conditioned because of broad mountainous and valley areas. In 1980, the irrigation ratio of paddy fields was 68%, and so many paddy fields are of dry farming and low productivity. Dry paddy fields were transformed to irrigated fields by 2,496km² during 1961 and 1971, and by 1,424km² during 1971 and 1980. Therefore, irrigation ratio was increased from 41% in 1961 to 59% in 1971 and to 68% in 1980 〈Table 7〉.

Most flooded area is caused by a deficiency of river sides. In the year of 1979, flood

〈**Table 7**〉 Transformation Trend of Paddy Fields (Unit: km²)

	Total	Irrigated fields	Dry fields	Irrigation ratio (%)
1961	12,112	4,996	7,146	41
1966	12,978	5,581	7,397	43
1971	12,648	7,462	5,186	59
1976	12,900	7,998	4,902	62
1980	13,068	8,886	4,182	68

Source: Economic Planning Board, Republic of Korea, *Korea Statistical Yearbook*, each year.

damage was 220 billion won (about 314 million US dollars) as 1980 constant price in which 82.5 billion won (118 million dollars) was made by break of bank, 75.7 billion won (108 million dollars) by losing of bank, 51.9 billion won (74 million dollars) by overflow of river water, and 9.9 billion won (14 million dollars) by other reasons 〈Table 8〉.

〈**Table 8**〉 Flood Damage by Causes (1979) (1980 constant price)

	In billion won	In million dollars	Proportion (%)
Break of bank	82.5	118	37.5
Losing of bank	75.7	108	34.4
Overflow of river water	51.9	74	23.6
Others	9.9	14	4.5
Total	220.0	314	100.0

Many dams were constructed in order to prevent flood damage and to increase irrigated fields, supply and electric power. Since 1961, seven multi-purposive dams have been built in such regions as Chunchŏn, Sŏmjin-River, Nam-River, Soyang-River, Andong, Daechŏng and Chungju 〈Table 9〉. In addition, river sides were much repaired showing the actual record of 3,303.7km in length during the last twenty years.

〈**Table 9**〉 Construction of Multi-purpose Dams

Name of Dam	Period of construction	Pondage (million m^3)	Benefits				Construction cost (million dollars)
			Flood Control (million m^3/year)	Water supply (million m^3/year)	Electric power (thousand KWH/year)	Irrigation area (ha)	
Chunchŏn. Dam	1961~65	150			145		
Somjin-R. Dam	1961~65	466	27	150	160	9,450	13
Nam-R. Dam	1962~70	136	43	77	40	9,810	24
Soyang-R. Dam	1967~73	2,900	500	1,213	353	7,500	79
Andong Dam	1971~76	1,230	110	926	80	36,670	97
Daechŏng Dam	1975~80	1,490	250	1,469	250	58,800	303
Chungju Dam	1980~85	2,750	600	3,380	765	72,700	481

Source: Ministry of Construction, Republic of Korea, *Handbook of Construction Statistics*, 1980.

D. Situation and Transformation of Activity-Unhandy Area

(1) Coastal Region

The coastline of Korea (South) is 12,800km and frequently runs in and out. Some parts of coastal region are used for harvour and fishery, but most parts are remained without any use. However, many areas of the south and west coasts have been extended to the sea by land reclamation projects.

〈**Table 10**〉 Records of Reclamation Projects on Coastal Area (Unit: ha)

Period	Region		Subjects		
	No. of places	Area	Government	Public	Private
1946~61	354	11,810	7,674	1,124	3,012
1962~66	1,367	4,347.6	55.1	19.9	4,272.6
1967~71	921	6,578.9	668	214.1	5,696.8
1972~76	227	9,310.7	2,179.7	650	6,481
1977~81	169	12,259	2,226	4,893	5,140
Total	3,038	44,306.2	12,802.8	6,901	24,602.4

Source: Ministry of Construction, Republic of Korea, *Survey for Reclamation Resource Uses*, 1979.
Agricultural Promotion Corporation, Republic of Korea, *Survey Report of the Cultivated Land Development by South and West Coastal Reclamation*, 1980.

During 1946 and 1981, the reclamation projects were accomplished by 443.06km^2 at 3,038 places. The lands were reclaimed by 15.7% in 1946~1960, by 30.7% in 1961~1970, and by 53.6% in 1971~1981. The reclamation projects were implemented by national government with 28.9%, by private sector with 55.8% and by other public institutes with 15.6% 〈Table 10〉. Those reclamation projects contributed to an extension of national land as well as to reduce a shortage problem of agricultural and industrial areas.

(2) Islands

The total number of islands in Korea (South) is 3,444. As of 1980, inhabited islands are 561 being 16.3% and uninhabited islands are 2,883 being 83.7% 〈Table 11〉. Comparing 1977 and 1980, 18 islands were changed from inhabited to uninhabited status, and 2 islands were changed from uninhabited to inhabited status. The total area of whole islands is 2,484km^2, which shares 2.5% of the total area of Korea.

〈**Table 11**〉 Number and Classification of Islands (South Korea)

	1 9 7 7	1 9 8 0	Change(1977~80)
Total	3,444(100.0)	3,444(100.0)	—
Inhabited islands	577 (16.8)	561 (16.3)	−16
Uninhabited islands	2,867 (83.2)	2,883 (83.7)	16

Source: Ministry of Home Affairs, Republic of Korea, *Situations of Islands*, 1981.

Among inhabited islands of 561, there are 171 islands within 4km from the mainland of Korea in direct distance, 104 islands between 4 and 12km, 61 islands between 12 and 20km, 119 islands between 20 and 40km, 64 islands between 40 and 80km, and 42 islands in a distance over 80km 〈Table 12〉.

〈**Table 12**〉 Distribution of Inhabited Islands by Distance from the Mainland

	Total	Within 4km	4~12km	12~20km	20~40km	40~80km	Over 80km
No. of islands	561	171	104	61	119	64	42
Proportion (%)	100.0	30.5	18.5	10.9	21.2	11.4	7.5

Source: Ministry of Home Affairs, Republic of Korea, *Situations of Islands*, 1981.

The number of households was decreased from 121,760 in 1977 to 116,241 in 1980 by 5,519 during the three years. Population also showed a decreasing trend from 667,938 to 563,473 by 104,465 during the same period. Therefore, average numbers of households and population per island were 211 and 1,158 in 1977, and 207 and 1,004 in 1980 showing decreasing trends respectively 〈Table 13〉.

〈**Table 13**〉 Trends of Households and Population in Inhabited Islands

		1977	1980	Change (77~80)
No. of households		121,760	116,241	−5,519
Population		667,983	563,473	−104,465
Area (km²)		2,309	2,337	28
Average	households	211	207	−4
per	population	1,158	1,004	−154
island	area (km²)	4.0	4.2	0.2

Source: Ministry of Home Affairs, Republic of Korea, *Situations of Islands*, 1981.

The share of the population of islands in total Korea was 2.02% in 1973, 1.88% in 1976 and 1.51% in 1980 with a decreasing trend of portion 〈Table 14〉.

〈**Table 14**〉 Comparison of the Population of Islands and Total Korea

	1973	1974	1975	1976	1977	1978	1979	1980
Total Korea (in million)	34.1	34.6	35.2	35.8	36.0	37.0	37.3	37.4
Islands (in thousand)	688	685	675	673	668	643	630	563
Proportion (%)	2.02	1.98	1.92	1.88	1.86	1.74	1.69	1.51

Source: Ministry of Home Affairs, Republic of Korea, *Situations of Islands*, 1981.

Regardless of a reducement of population, conditions of islands have been much improved. Basic facilities for ship arrival, bulwark and material-shift were greatly strengthened. Food crops were much replaced by economic crops, and the haul was increased by three times during the last three years 〈Table 15〉.

Living conditions such as housing, water supply, electrification, transportation, communication and road were much improved during the last several years 〈Table 16〉. Comparing with the mainland, however, their level is still under an average.

〈**Table 15**〉 Development of Facilities and Products in Islands

(Unit: facility in m; product in KM/T)

		1977	1980	Change (77~80)
Basic facilities	Ship-arrival	50,834	59,921	9,087
	Tide-preventing	294,293	345,198	50,905
	Bulwark	19,608	21,388	1,780
	Material-shift	6,136	6,284	148
Agricultural products	Total	337	353	16
	Food crops	316	314	−2
	Economic crops	21	39	18
Haul	Fishery	93	251	158
	Cultivated	143	77	−66

Source: Ministry of Home Affairs, Republic of Korea, *Situations of Islands*, 1981.

〈**Table 16**〉 Change of Living Conditions in Islands

		1977	1980	Change (77~80)
Housing	Providing rate (%)	86	87	1
	Population per house	5.5	4.8	−0.7
	Delinquent housing rate (%)	40	35	−5
Water famine area	No. of islands	162	40	−122
	No. of villages	267	53	−214
	No. of households	13,188	1,922	−11,266
	Population	74,673	9,938	−64,735
Ratio of electrification	By island (%)	58	72	14
	By household (%)	92	98	6
Passenger ship	Served islands ratio (%)	47	51	4
Communication	Facility islands ratio (%)	76	88	12
Road	Total (km)	557	589	32
	Country road (km)	329	361	32
	Local road (km)	228	228	—

Source: Ministry of Home Affairs, Republic of Korea, *Situations of Islands*, 1981.

E. Situation and Transformation of Development-Control Area

(1) Green-Belt Area

Green-belt which is designated arround a city in order to prevent spatial extension of urban growth, to conserve natural environment and to provide a resting place for citizens is legally controlled in development and so marginally used. The first green-belt was designated on the area of 1,566.8km^2 surrounding the City of Seoul in 1971. At the present time, 14 regions and 5,397.1km^2 are green-belts. Those areas share 5.5% of total

area of Korea and have connections with 21 cities, 39 counties aud 186 towns and townships ⟨Table 17⟩.

⟨**Table 17**⟩ List of Green-belt Areas (As of the end of 1981)

	Regions connected			Area	Population	Designated date
	Cities	Counties	Towns & townships	(km²)		
Seoul	7	8	39	1,566.8	568,441	30 Jul. 1971
Pusan	1	2	19	597.1	152,914	29 Dec. 1971
Taegu	1	4	21	536.5	63,291	25 Aug. 1972
Kwangju	1	5	27	554.7	128,520	17 Jan. 1973
Chunchŏn	1	2	9	294.4	44,634	27 Jun. 1973
Chŏngju	1	1	9	180.1	45,852	27 Jun. 1973
Dáejŏn	1	6	15	441.1	63,871	27 Jun. 1973
Jŏnju	1	2	10	225.4	61,282	27 Jun. 1973
Ulsan	1	1	9	283.6	25,827	27 Jun. 1973
Masan-Jinhae	2	3	12	314.2	27,199	27 Jun. 1973
Jinju	1	2	9	203.0	30,959	27 Jun. 1973
Chungmu	1	1	2	30.0	8,195	27 Jun. 1973
Jeju	1	1	1	82.6	16,870	5 Mar. 1973
Yŏchŏn	1	1	4	87.6	8,056	18 Apr. 1977
Total	21	39	186	5,397.1	1,246,011	

Source: Eui-Won Kim, *A Study on National Land Development History of Korea*, University Book Co., 1982.

The total area of green-belt is shared by forest area of 57.9%, by farming area of 28.0%, by residential area of 5.5% and by others of 8.6%. The population of green-belt area is 1,246,000.

(2) Parks and Recreation Area

Parks and recreation areas are conserved and controlled in development, and therefore they can be called marginal areas. As of 1980, the area of natural parks was 3,718km² and the area of designated national sight-seeing places was 1,806km². The total of those

⟨**Table 18**⟩ Parks and Recreation Areas (1980)

	Area (km²)	Share in total Korea (%)	Per capita area (m²)	No. of places
Total	5,524	5.5	144.8	126
Natural parks	3,718	3.7	97.5	33
• National park	2,794	2.8	73.3	13
• Provincial park	924	0.9	24.2	20
Sight-seeing region	1,806	1.8	47.3	93
• Designated place	1,492	1.5	39.1	33
• Public Place	314	0.3	8.2	60

areas is 5,524km² being 5.5% of the whole area of Korea ⟨Table 18⟩.

The total number of those places is 126, but the number will be increased if city parks are considered. Parks and sight-seeing places are relatively well remained in natural conservation. However, they are not much relevant to users because of bad-conditioned facilities and low accessibility.

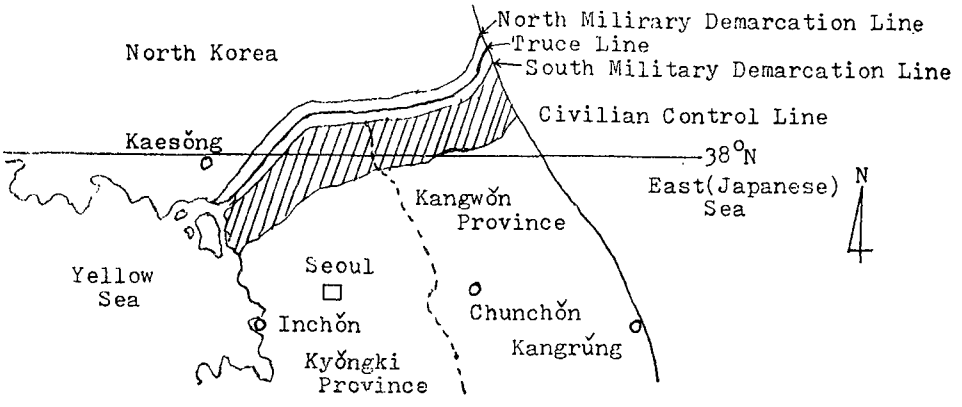
(3) Military Reserve Area

It is general that military reserve is restricted in its development and uses, and so it can be defined as a marginal area. In Korea, a certain area designated along the truce line, the Demilitarized Zone, is limited to civil activity for military operations and security. This is the designation of the civilian control line.

The civilian control line was designated at the first time on the 3rd of February, 1954 by the Number 530-6, Circular Letter of the U.S. Eighth Army in order for the Commander of the U.S. Army to excise administratively controlling power. On the 11th of May 1954, the administrative authority was delegated to the Korean Army. On the 11th of June 1959, admission farming and resident farming were permitted within the guaranty of military operations and security.

The civilian control line is apart by 5 to 20km to south from the South Military Demarcation Line, and its length is 244km from Kanghwa Island, west, to Kosŏng County, east ⟨Figure 1⟩. The area of the civilian control zone is 1,479km², 1.5% of the total area of Korea.

As of 1982, population of the zone was 41,969, being 0.1% of total Korea. Total households of the zone is 8,664, in which natives are 70.3% and new-comers are 29.7%. Farm households are 87.1% and non-farm households are 12.9%. Farm area is 18,111



⟨**Fig 1**⟩ The Civilian Control Zone of Korea

ha, of which per household is 1.58ha. Per household income is 4,013 dollars annually ⟨Table 19⟩.

⟨**Table 19**⟩ Situations of the Civilian Control Zone

(As of 1 March 1982)

	Total	Kyŏngki Province	Kangwŏn Province
Area (km²)	1,479	387	1,092
No. of households	8,664	6,392	2,272
• Farming	7,547	5,536	2,011
• Nonfarming	1,117	856	261
Population	41,969	30,313	11,656
• Male	20,942	14,859	6,083
• Female	21,027	15,454	5,573
Farm area (ha)	18,111	9,976	8,135
• Paddy field	12,735	7,109	5,626
• Dry field	5,376	2,867	2,509
Farm area per household (ha)	1.58	1.6	1.8
Annual income per household ($)	4,013	4,389	3,637

Source: Ministry of Home Affairs, Republic of Korea, *General Situations of the Civilian Control Zone*, 1982.

The population of the zone was increased from 21,073 in 1954 to 39,472 in 1965 and to 43,707 in 1974, but thereafter has been decreased to 42,936 in 1978 and to 41,969 in 1982. Comparing with population of the whole counties of Korea, the decreasing rate of the zone is not much severe.

The area of the zone is shared by farming field of 12.2%, by forest area of 72.8%, by unused area of 3.9% and by others of 11.1% ⟨Table 20⟩. According to the survey, additionally possible area for development is 1,578ha at 27 places.

Farm area of 18,111ha is classified into resident farming area of 66% and admission farming area of 34% by farming method, into private field of 73%, public field of 18% and others of 9% by land ownership, and into owner farming of 69%, rent farming of 15% and owner-rent farming of 16% by farming pattern. The ratio of consolidation of cultivated land is 41%, lower than the national average of 54%, and the ratio of

⟨**Table 20**⟩ Situation of Landuse in the Civilian Control Zone (1983)

	Total	Farm area	Unused area	Forest area	Others
Area (ha)	147,991	18,111	5,729	107,707	16,444
Proportion (%)	100.0	12.2	3.9	72.8	11.1

Source: Ministry of Home Affairs, Republic of Korea, *Comprehensive Development Plan of the Civilian Control Zone*, 1983.

irrigation is 64%, lower than the national average of 86%.

It was from 1968 that the government began the active development projects on the civilian control zone. The first one was the reconstruction project of 10 villages from 1968 to 1973, the second one was the construction project of two unification villages in 1973, the third one was the development project of 100 enemy-visible villages from 1977 to 1978, and the fourth one was the comprehensive development project of 66 villages from 1978 to 1981 〈Table 21〉.

〈**Table 21.**〉 Development Projects of the Civilian Control Zone (1968~1981)

	1968~73	1973	1977~78	1978~81	Total (68~81)
Title of projects	Reconstruction village development	Unification village development	Enemy-visible village development	Comprehensive development	4
No. of villages	10	2	100	66	178
Amount of investment (in thousand dollars)	1,375	1,872	4,739	4,988	12,974
Contents of projects					
• Construction of houses	446	140			586
• Extension of farm area(ha)	1,192	211			1,403
• Houses of electrification		80			80
• Road construction(km)		2.5			2.5
• Houses of improvement			824	1,785	2,609
• Land consolidation(ha)			452	161	613
• Houses of water supply			392	1,704	2,096

Source: Ministry of Home Affairs, Republic of Korea, *Comprehensive Development Plan of the Civilian Control Zone*, 1983.

The amount of 12,974,000 dollars was invested to those projects. The contents of the projects were construction of 586 houses, improvement of 2,609 houses, farm field extension of 1,403ha, land consolidation of 613ha, road construction of 2.5km, elctrification of 80 houses and construction of simple water supply facility for 2,096 houses.

IV. Constraints and Problems of Margional Area Development

A. Constraints of Marginal Area Development

Through the review and analysis on situations and transformation of marginal areas in Korea, we found that there are various constraints in developing the areas. Among them, the followings are more important and sincere.

The first one is the unfavourable conditions of natural environment. Natural conditions are unfitted to development, and so economies of investment are relatively very low in many marginal areas. Highlands and coastal region are mostly those cases.

The second constraint is an artificial regulation of development. Some areas are restricted in development and uses for the purpose of public interests by the governments. Greenbelts, parks, recreation areas and military reserve have those characteristics.

The third one is a low utility value of development. Such area is hard in living and activity, although it is developed. The area is generally located far from cities. Highlands, deep valleys and isolated islands are in this category.

B. Problems of Marginal Area Development

Through the development process of marginal areas some problems were identified regardless positive benefits. One of those problems is a weakness of comprehensive approach to development. While some planning and studies have been partially conducted by central and local governments, comprehensive studies and total planning were not fully accomplished on research, analysis and planning of marginal areas.

Second problem is an unconsistency of development system. The development system of marginal areas was not continuous, but broken time-series. It was dispersed to various institutions in administrative functions.

Third ons is an ignorance from development policy. National development policy has taken an unbalanced strategy with focus on large cities and industrial estates, because of limited resources and financial ability. Therefore, marginal areas were treated lightly in the principal policies of the governments.

Fourth problem is a low development of technology for marginal areas. It is unfavourable in many cases that the technology being applied to principal areas is transferred to marginal areas. Traditional technnology was followed in marginal areas development. Therefore, it was hard for marginal areas to get rid of its marginality.

Fifth one is a shortage of investment resources. Governments as well as private enterprises hesitate to invest their finances into marginal areas, because the areas have low economies and productivity.

Sixth and last problem is a weak will of residents in marginal areas for their development. Persons in marginal areas do not have any strong intention to develop their country, but rather have a tendency to remove to other places.

V. Policy and Strategy of Marginal Area Development

A. Desirable Directions of Marginal Area Development Policy

The first step of marginal area development should be a concrete survey and research on marginal areas. Purpose of this step is to find actual situations, to identify real be built characteristics and to analyse constraints and possibilities of development. Such inventory survey should be conducted periodically in order to keep a time-series.

On the base of those survey and analysis, a long-term and comprehensive plan should for marginal area development. This general plan should be followed by an action program including strategies, methods and tools of development.

The first emphasis for marginal area development must be put on an increasing of productivity for continuous development and investments. One of factors to raise productivity is a development of technology. A suitable technology for marginal area development should be developed and transformed rather than transferred.

The second emphasis should be given to a linkage between marginal areas and principal areas, that is, near cities. Since cities are marketing palces consuming products of marginal areas, supplying sources of necessities to marginal areas and absorptive centers from marginal areas, benefits and advantages of cities should be diffused to surrounding marginal areas through interactions with cities and marginal areas.

The other one of emphasized factors is a strengthening of human settlement base. It is reguired that the persons who are living in and around marginal areas have a strong will to settle down at and to develop their areas. For this, employment opportunity, labour productivity, income sources, transportation and communication facility, living utility and social welfare facility should be improved and well conditioned.

B. Strategies and Methods of Marginal Area Development

In order to accomplish successfully the desirable policy of marginal area development, the following strategies and methods are required under considerations of the given natural and artificial constraints.

Mountainous and forest areas should carry out both of development and conservation side by side by afforestation and erosion control works. Marginal farm areas need land consolidation, irrigation, river repair and dam construction to increase agricultural productivity, and marginal non-farm areas require a transformation to another utility.

Coastal areas should be developed to havours, fishing ports or tourist resorts in some areas, and should be extended to ocean by land reclamation in some parts under natural conditions. In islands, number of inhabited islands must be reduced. Inhabited islands need more positive projects to strengthen living and productions, and uninhabited islands require natural conservation.

In artificial control areas, it is desirable that green-belt areas extend a span of utilization under a principle of control, parks and recreation places strengthen their accessibility and facility, and the military reserve areas between the truce line and civilian control line role functions of agricultural and forest industries, and tourist and recreation places with limited permission of manufacturing industry being oriented to primary industrial products.

Bibliography

1. Agricultural Promotion Corporation, Republic of Korea, *Survey Report of the Cultivated Land Development by South and West Coastal Reclamation* (in Korean), 1980.
2. Ahn, Choong-Yong, "Prospects and Strategies of Resource Management: Case of Korea," Paper presented at Korea Future Studies Society (in Korean), July 1978.
3. Chung-Ang University and United Nations University, *Proceedings of the International Seminar on Resource Systems Theory and Methodology* (in English), Seoul, 1979.
4. East-West Center, Papers for the International Seminar on Marginal Resources (in English), Honolulu, 1977.
5. Economic Planning Board, Republic of Korea, "Counter-measures on Resource Crisis of Important Countries," *Economic Research* (in Korean), Vol. 19, No. 1 (March 1974).
6. Economic Planning Board, Republic of Korea, *Korea Statistical Yearbook* (in Korean and English), 1971, 1976 and 1981.
7. Herfindahl, Orris C. and Allen V. Kneese, *Economic Theory of Natural Resources* (in English), Columbus: Charles E. Merrill Publishing Co., 1974.
8. Ito, Zensho, *Economics of National Land Development* (in Japanese), 3rd ed., Tokyo: Syunjusha, 1969.
9. Kim, An-Jae, "A Study on Marginal Resource Development for Increasing of National Income," *Journal of Korea Planners Association* (in Korean), Vol. 13, No. 1 (September 1978).
10. Kim, An-Jae, *The Environment and Land of National Spaces* (in Korean), Seoul:

Bakyŏngsa, 1982.

11. Kim, Eui-Won, *A Study on National Land Development History of Korea* (in Korean), Seoul: Daehakdosŏ, 1982.
12. Ministry of Construction, Republic of Korea, *Handbook of Construction Statistics* (in Korean), 1980.
13. Ministry of Construction, Republic of Korea, *Survey for Reclamation Resource Uses* (in Korean), 1979.
14. Ministry of Home Affairs, Republic of Korea, *Comprehensive Development Plan of the Civilian Control Zone* (in Korean), 1983.
15. Ministry of Home Affairs, Republic of Korea, *General Situations of the Civilian Control Zone* (in Korean), 1982.
16. Ministry of Home Affairs, Republic of Korea, *Situations of Islands* (in Korean), 1981.
17. Park, U-Hee, "Effective Utilization Alternatives of Scarce Resources," *Abroad Economic Information* (in Korean), Vol. 1, No. 2 (September 1973).
18. Richardson, Harry W., *Regional Growth Theory* (in English), London: The Macmillan Press, 1974.
19. Song, Byung-Nak, *Korean Economy* (in Korean), Seoul: Bakyŏngsa, 1982.
20. The Government of the Republic of Korea, *The Fifth Economic and Social Development Plan: 1982~1986* (in Korean), 1982.
21. The Government of the Republic of Korea, *The Second National Land Comprehensive Development Plan: 1982~1991* (in Korean), 1982.
22. Whitby, M.C. and K.G. Willis, *Rural Resource Development: An Economic Approach* (in English), London: Methuen and Co., 1978.