

The study of mountain conservation and utilization

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Boeun-gun is hard to develop, because of large numbers of mountains and vast distribution of limited development districts. However it is easy to access from the entire country, and there are large conservation area such as national park and dams. Short-term plans such as attraction of tourists can be established using these advantages. Long-term plans can be planed with stable establishment of continuous considerations and supports. These supports will be rewarded while it demands some time and costs. Private owned mountains can be converted from negligence upkeep of property to utilization of mountains with basic consideration of mountain conservation. This may contribute the essential function of mountain.

Key words : Mountain conservation, Forest utilization, Farmhouse, Forest ecosystem park

1. Introduction

Forest, ecologically very important, has been studied variously¹⁾. Forest is 65% of total land area and is important national asset in Korea²⁾. In Korea, forest is recognized as ecologically important factor. However Korea is very sensitive in international timber distribution, that is insufficient to consume³⁾. Therefore it is inevitable to find plan for timber supply in Korea, with conservation of forest ecosystem. The objective of this study is to investigate the utilization of forest like timber supply while strengthen conservation and the function of local forest.

This research was performed at Boeun-gun, Chungbuk. Forest area of Boeun-gun are about 70% of land area. Sokri mountain, National park located at Boeun-gun, is 11,204 ha which occupied about 19% of land area. Also restricted development region such as Daecheong dam basin, that is waters-source. Boeun-gun is suitable for this study, because of it's large numbers of mountain and wide restricted development region.

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2. Present condition of research area

2.1 Social condition of agricultural and mountain village

Present condition and change of this area is shown on Table 1. Farming fields and forest have been decreased and factory sites have been increased last 15 years. There was no full time forestry. Number of farm house was 49.53%, and that of farmer was 45.11%. Population of farmer was decreased annually as 4.63% from 1970 to 2000. It was higher than decrease of farmer population of nation wide and Chungbuk area, 4.16% and 4.26%, respectively. Decrease of farm house, 2.11%, was also higher than those of nation wide and Chungbuk area, 1.93% and 2.09%, respectively. Average cultivated acreage was 1.47 ha. Number of people older than 60 was 31.47%. Full time farm house, were 5,636, seventy six percents of total 7,408 farm houses.

2.2 Present condition of forest

Forest was 67.72%, lower than nation wide and Chungbuk, 70.37% and 69.05%, respectively. However private owned forest was 76.41%, that was much higher than national average. Portion of forest for public good was high. Therefore it is difficult to manage forestry.

Seventy three point two percent of privates owned less than 5ha. Average accumulation of wood was 55.00 m³/ha.

Mountain village total development was performed at 1 village, 30 houses which were improvement or newly established of swage and wast water treatment plant, water supply system, houses, and cultivation facilities. Forest bath place as well as forest park is established near Samnien-sansung.

3. Results and discussion

3.1 Change of condition and prospect

Highway, connecting Cheongju and Sangju, is constructing and will be finished in 2006. Also four lane road from Boeun to Cheongju will be completed in 2004. Then it will be much easy to access from entire country. More than 70% were forest among it's land. They are mostly on the basins of Han river and

Table 1. Trend of change for each kind of land in Boeun-gun

Division	1985	1990	1995	1996	1997	1998	1999	Specific gravity	85-99
Farm	60.2	57.0	54.8	54.8	54.5	54.2	53.9	9.1	-0.78
Rice field	62.6	63.8	64.1	63.9	63.7	63.5	63.5	10.8	0.09
Orchard	0.9	0.9	1.07	1.1	1.2	1.2	1.2	0.2	2.05
Stock farm	0.0	1.05	1.10	1.2	1.3	1.3	1.4	0.2	2.90
Wood land	420.7	404.2	404.7	404.7	404.7	404.4	404.2	68.5	-0.28
Site	7.0	7.1	7.3	7.4	7.5	7.6	7.7	1.3	0.69
Factory site	0.0	0.1	4.4	4.6	4.9	6.0	6.2	1.0	60.02
Load	8.2	9.0	10.2	10.3	10.5	10.6	10.7	1.8	1.98
Waterways	14.1	13.3	12.7	12.7	12.7	12.6	12.6	2.1	-0.81
Dike	1.0	1.3	1.4	1.4	1.4	1.4	1.4	0.2	2.65
Ditch	9.7	10.1	10.5	10.6	10.6	10.8	10.9	1.8	0.81
Old site	12.9	13.0	12.9	12.9	13.0	13.0	13.0	2.2	0.06
Water route land	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	4.69
Seeding land	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	2.66
Grave land	1.6	1.5	1.5	1.5	1.5	1.5	1.5	0.3	-0.31
Complex land	0.2	0.3	0.6	0.6	0.6	0.7	0.7	0.1	10.35
School land	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.1	0.86
Total	599.7	583.5	588.4	588.6	588.9	589.7	589.7	100.0	-0.12

Note: 1) Weight is a figure in 1999. 2) 85-99 is yearly average increase ratio at the same period. Stock farm land and factory land are increase ratio in 90-99, and the figure in 85 and 99 for water route land is 0.01 and 0.02 respectively.

Table 2. Population, area, and income of farmhouse in Boeun-gun, Chungbuk versus those of nationwide

	Nationwide (A)	Chungbuk (B)	Boeun-gun
Number of farmhouses (%)	9.7	20.1	49.5
Population of farmhouse (%)	9.5	20.1	45.1
Number of farmhouses (1,000 houses)	1,384.1	92.1	7.4
Population of farmhouse (1,000 persons)	4,032.0	277.6	20.0
Old age ratio (60 or older)	30.5	31.8	31.5

Data: Ministry of agriculture, agricultural major statistics (2000) and Chungbuk statistical report (2000).

Table 3. Farmhouse population in Boeun-gun versus those of nationwide and Chungbuk

Division	Number of farmhouses	Population of farmhouse				Population of per house	
		Total	Man	Women	Sex ratio(%)		
Nationwide	1970	2,483,318	14,421,730	7,163,515	7,258,215	101.3	5.81
	1980	2,155,073	10,826,748	5,414,805	5,411,943	99.9	5.02
	1990	1,767,033	6,661,322	3,278,764	3,382,558	103.2	3.77
	1995	1,500,745	4,851,080	2,372,999	2,478,081	104.4	3.23
	2000	1,384,093	4,031,984	1,971,533	2,060,451	104.5	2.91
	1970-2000	-1.93	-4.16	-4.21	-4.11	-	-
Chungbuk	1970	173,452	1,023,182	514,900	508,282	98.7	5.90
	1980	146,578	744,158	379,475	364,683	96.1	5.08
	1990	115,640	433,051	215,923	217,128	100.6	3.74
	1995	99,407	326,467	162,098	164,369	101.4	3.28
	2000	92,143	277,563	137,886	139,677	101.3	3.01
	1970-2000	-2.09	-4.26	-4.30	-4.21	-	-
Boeun-gun	1970	14,066	83,307	41,849	41,458	99.1	5.92
	1980	11,464	57,521	29,477	28,044	95.1	5.02
	1990	9,131	31,053	15,257	15,796	103.5	3.40
	1995	7,929	23,464	11,429	12,035	105.3	2.96
	2000	7,408	20,076	9,767	10,309	105.5	2.71
	1970-2000	-2.11	-4.63	-4.73	-4.53	-	-

Note: 1) Sex ratio (female/male)×100. 2) 70-2000 is yearly average increase ratio.

Data: Office of statistics, agricultural total survey, each year (2000 is potential report).

Table 4. Forest situation

Division	Nationwide	Chungbuk	Boeun-gun
Land total area (ha)	9,940,789	743,272	58,454
Forest area (ha)	6,436,304	500,843	39,583
Forest ratio (%)	64.75	67.38	67.72

Data: Forest yearly statistical report No. 29.

Kum river. Therefore it is recognized as area of rich in water resources and clean.

Boeun-gun was nation widely well-known for its beautiful scenery such as Gubyung mountain as basis of Chungbuk Alps, Seowon valley, Daechung lake, etc.: Various leisure activities and highly concerns about various points have been developed due to recent improvement of people's life. And importance of nature is expended in international situation so that trade

Table 5. Situation of mountain village total development

Place	Composition period	Number of houses (beneficiary)	Major facilities
Sanuei-miyon sinjeong	1999-2001	30 houses (92 persons)	Village conference room, Housing improvement, Waste water facility, Village road, Special product sales place, Low temperature storage room, Mushroom, Codonopsis lanceolata, Wild ginseng planting facility

between nations is gradually extended for trade of environmentally friendly commodity as international authorization (wood authorization system⁵⁾) with respect to mountain and production method.

Long-term plan is established for forest land which occupies broad area in Boeun-gun in order to enhance development of public function and to expect periodic forest income by using consistent control.

3.2 Strategy for forest conservation and utilization

3.2.1. Strategy for forest conservation

Natural forest region rich in forest biodiversity and water source forest near Daecheong dam, those are important for public good function, have to be maintained and fortified and managed as sustainable yield type of forest region. Therefore quick change of forest environment should be minimized. Mosaic type of forest control could be introduced to restrict loss of forest function such as forest soil loss.

While control road are needed for manage forest. road standard should be designated as minimum loss of forest surface. Movement path-

way or guiding facilities for animal should be regarded. Therefore forest ecosystem park reflecting community identify program should be constructed for ecosystem centered sustainable forest by construction, maintain, protection, and management.

3.2.2 Strategy for forest utilization

1) Production of wood

Small private owned and public good forest should be guided as fortify of public good function and long-term forest plan using forestry associations. However it is difficult to manage forest because of lots of public good functioning forest and small forestry.

2) Use of recreation

Having devise ecosystem and natural forest resource and situated at the central land of Korean peninsular, Boeun-gun is easy to access from the entire nation so as to enable connection with tourism industry such as mountain experience, forest leisure, green tour, etc. by using this advantage actively and to make commodity advertisement of forest product expected. Especially, it is expected to promote large schedule Soknisan songi-mushroom festival

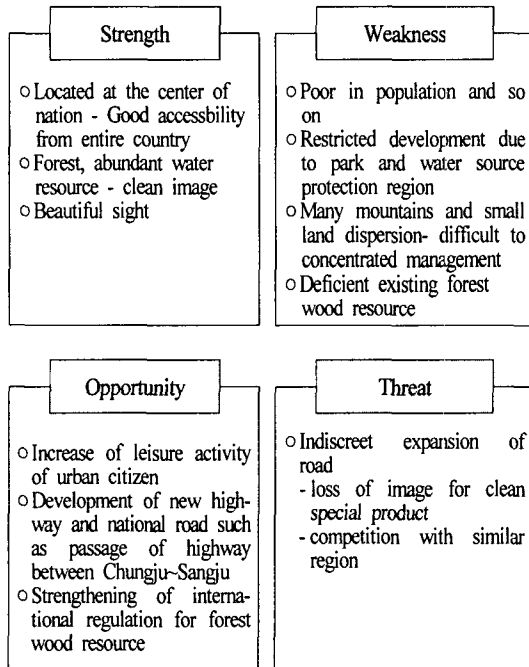


Fig. 1. Situation change and prospect (SWOT analysis).

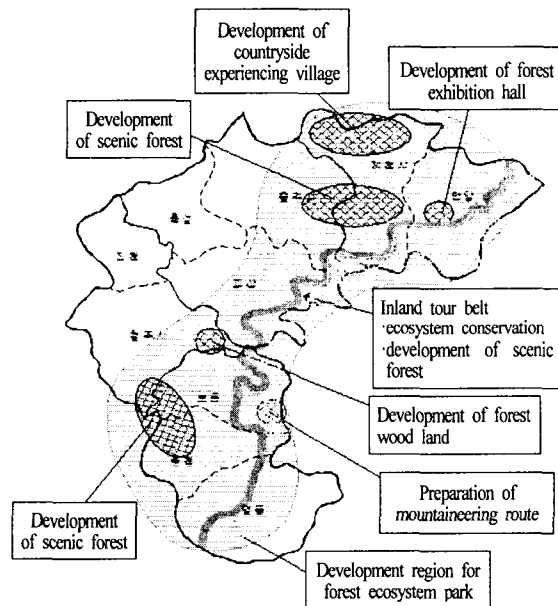


Fig. 2. Chungbuk forest ecosystem park plan concept diagram by CIP concept (Data: Study on agricultural total development plan establishment in Chungbuk area).

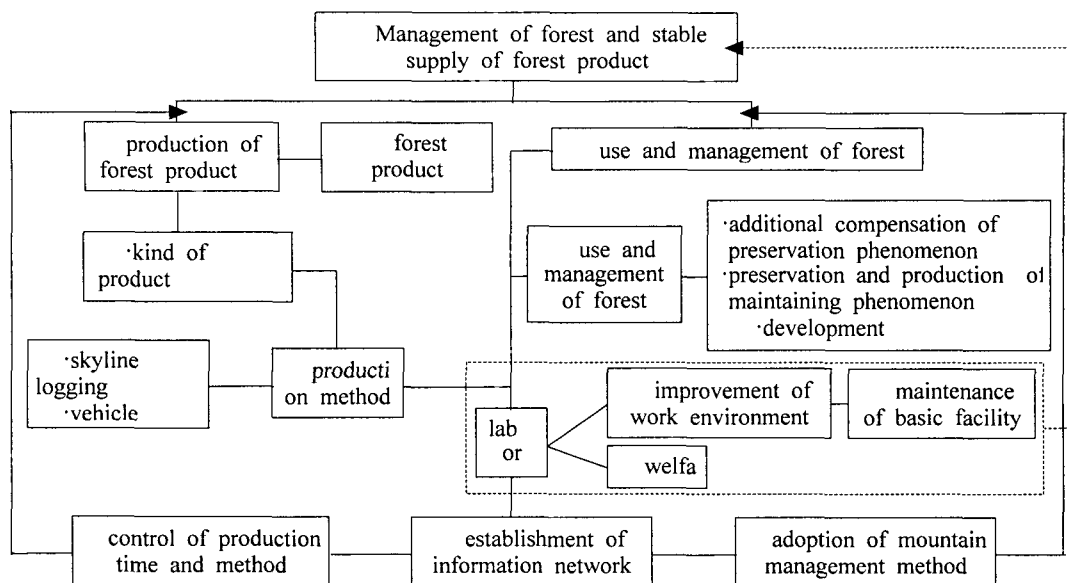


Fig. 3. Flow diagram of forest production system.

for commercializing high quality songi-mushroom which was massively produced around Soknisan national park, and to develop mountain village and increase income of resident through forest rest and tour product such as yellow earth bath using yellow earth around Chungbuk Alps, private lodging housing for mountain hikers, sales of local special forest product including edible mountain herbs and mushrooms, and package tour development connected with neighbor sightseeing place including Jungilpumsong and Bunjusa. It is supposed to combine association and so on for utilizing sufficient water resources, and to introduce valley fishing population in connection with mountain by providing discharging service of local fish.

3) Others

Mountain fruit such as mastutake mushroom, jujube, persimmon, walnut, ginkgo nut, etc. and special product such as shiitake mushroom, medicinal herbs, etc. should be supported and distribution structure should be improved. Also forest by-product can be used as bakery and natural medicine resources. It is supposed to promote differentiation and commercialization of high quality forest product and improve distribution structure of forest product by supporting mountain fruit such as songi mushroom, jujube, persimmon, walnut, ginkgo nut,

etc. and special product such as shiitake mushroom, medicinal herbs, etc. in mountain region around special region for scientific farming. And, it is supposed to process forest by-product such as jujube and so on into confectionary and component separation (used as medicine) and commercialize it as new brand for characterizing Boeun-gun.

3.3 Detailed promotion business

It is supposed to promote forest ecosystem park according to CIP concept connected with ecosystem preservation and composition of forest around local circulation tour belt at Baekdudaegan, decoration and forest composition around Daechung lake, development of Boeun Chungbuk Alps, etc.

It is supposed to establish broad forest ecosystem park composition plan of CIP concept using beautiful forest leisure and sightseeing cultural resource and various forest ecosystem resource, promote package project in each year, develop sightseeing resource and forest resource around Daechung lake at Boeun for producing specific forest sight in each season at about 297km land circulation sightseeing road from Danyang to Youngdong, compose beautiful forest such as red leaves, cherry tree, white birch, zelkova tree, etc. around valley, and open road dedicated for bicycle tour with clean

image.

With investigation of inhabiting ecosystem, introduction of animal movement passage should be regarded to forest road. It is supposed to review introduction of animal ecosystem movement passage needed gradually according to ecosystem importance by understanding habitation ecosystem, and to promote composition, maintenance, protection and control of forest resources around ecosystem by consistently promoting project of "new millenium composition of forest for descendant", "planting tree for village", etc. which is performing composition of forest resource in the south 3 counties in the future in order to meet new millenium in 21th century.

Therefore continuous support policy will be needed. Being connected with [Peoples movement Forest for Life] manpower could be mobilized and later it is led to volunteer system⁷⁾.

4. Conclusions

Negligence by absence of income from forest related to leave of forest. Therefore in spite of a forest country, there are increasing amount of wood resources. As the interest of environment increased, it is difficult to develop vast forest resources. Also in forest policy, there are some mistakes on continuous support and proper technological application to development of resources.

In this study, present social and forest condition of Boeun-gun were investigated. There are several peculiar properties such as easy

accessability from entire country, wide conserved area like national park and dam, and poor forest ownerships. Continuous regard and support should be needed. Therefore it need time and cost for a while and forest recompense after then.

Management of private owned forest is based on conservation of forest. As how it should be guided, it could be switchover to effective utilization from leave for just upkeep property. It is effective method for enhancing the own function of forest.

References

- 1) Park, Y. K., 1997, Forest environment conservation, Hyangmoonsa, 1-360pp.
- 2) Park, T. S., 1997, Forest policy, Hyangmoonsa, 1-345pp.
- 3) KFRI, 1997, Forest yearly statistical report 29, Korea Forest Research Institute, 59-106pp.
- 4) Awada, K. H., 1997, Study on the authorization system of forest and forestry, Shinshu University, 1-60pp.
- 5) Chungbuk Development Institute, 2001, The joint growth for south area (Boeun · Okchon · Youngdong), Chung-buk.
- 6) KREI, 2000, Study on agricultural total development plan establishment in Chungbuk area, Korea rural economic institute, 1-227pp.
- 7) Lee, S. G, 1999, Introduction of participation and agreement of the residents on forest management, Kon-kuk Journal of Natural science and Technology, 10(2), 323-328.