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The Present States and Tasks of Non–National Forest Craft Workers in Korea – Focused on Chonbuk Province –

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The major purpose of magnification of non–national forest craft workers in Korea, which were organized fundamentally in 1990, is to manage efficiently the forest that were not conserved by resident forest owners and absent ones because of lack of manpower and economically small–scale of forest.

However, in spite of the expansion and support toward non–national forest craft workers, it is very hard situation to secure full–time workers for forest owing to irregular earnings of craft workers and the deficiency of the social security system. Therefore, the investigation and study were performed to comprehend the present condition of 5 private forest craft workers at Wanju and Imshil counties that were situated in suburbs of city, and 4 private forest craft workers at Chinan and Changsu counties that were situated in rural mountain areas.

As results, Wanju and Imshil counties, we should bring up the thirties and forties as the main group of full–time forestry manpower who earn a small income because of weak agricultural management basis. And in case of rural mountain sites, Chinan and Changsu counties, we should bring up the forestry manpower as a side job because there are surplus labor force from agriculture, which can be used in forest project. And here, regional differences, such as the labor force, the production structure of individual agriculture and forestry business have been worked as great factors.

INTRODUCTION

The private forests which account for 70% of all Korean forests size 6,500,000 ha, and they were required investment of funds and input of labor force because about 90% of those forests consist of young trees under 30 years (Forestry Administration, 1999). But the labor forces of rural mountain village are under procedure of the aging and absolute shortage simultaneously, and most of resident forest owners are destitute economically. And the continuous increase of absentee forest owners who possess forest for the purpose of establishment of grave and the rise of land prices rather than forest management result in difficulty of forest management. Thus it is strongly demanded the necessity of consignment management.

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The government is accelerating the organization of private forest craft workers for the purpose of reinforcement of these forests. But it is a very hard situation to secure full-time forestry labor force owing to the lack of forest project quantities, the difficulty in securing fixed level of income and the deficiency of social security system, such as retirement allowance and joining to medical insurance and bonus etc (Kang, 1995; Yoo, 1990). However, in plantation forest, which account for about 30% of entire Korean forest size, the management of silviculture, such as thinning and pruning is the most important problem. Thus, it is demanded the extension and stabilization of forestry labor organization (Kim and Choi, 1997; Forestry Administration, 1995).

On the other hand, the development condition of labor market and the production structure of individual agriculture and forestry project contain regional differences, it is considered that the position and the contents of organization requested to forest craft workers should be differentiated. Therefore, the objects of this study are to take in the actual condition of operation of 4 areas and 9 forest craft workers, and clarify the problems and future assignment to forest craft workers.

MATERIALS AND METHODS

1. The selection of investigation sites

The investigation sites were Wanju and Imshil counties situated in suburbs of city, and Chinan and Changsu counties situated in rural mountain areas that were around centering provincial government of Chonju city (500,000 populations).

Wanju and Imshil counties account for 47% and 53% of agricultural populations, respectively among entire populations and the average size of cultivation per agricultural household is 1.2 ha. Both regions have convenient adjacent traffics with Chonju city, so there are many opportunities for side jobs. In rural mountain villages, agricultural populations of Chinan and Chansu counties account for 57% and 54%, respectively that are higher rates of agricultural populations than Wanju and Imshil counties. Also they are located within about 1 hours' distance by cross-country buses, so it is hard to get opportunity for the side jobs by commuter's ticket (Institute of Korea city administration, 1998).

2. Investigation methods

The investigation was performed for 3 month from June to August, 1999. Firstly, all sorts of data of National Forestry Cooperatives Federation (NFCF) and Chonbuk provincial branch office of NFCF were collected to grasp the operation situation of national and Chonbuk provincial forest craft workers. And we visited relevant forestry cooperatives and considered the opinion of a person in charge and the data of the actual condition of operation of forest craft workers of investigation areas.

In order to get the inclination of craft workers toward the operation of forest craft workers, the followings are investigated through interview with 99 craft workers possible to survey among 108 craft workers of 9 groups in 4 areas. Those were the ages, the management scales under cultivation, the general condition of family incomes, joining ground to forest craft workers, the working periods, the working days of forest projects, the wages level of forest craft workers, support details necessary to the activity of forest craft

workers, the retirement plan of forest craft workers. The investigation materials were analyzed by the regions, the management scales under cultivation and the ages.

RESULTS AND DISCUSSION

1. The present condition of private forest craft workers in Korea

1) The Organization and the major actual results of forest projects

Forest craft workers began to be organized from 1990 fundamentally, and this magnified the 263 forest craft workers and 3,216 members nationally at present, 1999. In nationwide 143 forestry cooperatives were organized and 1.9 forest craft workers exist per cooperatives on average. 1 forest craft workers is composed of 12.2 members on average, but it is expected that the demand for forestry labor force will be more on increase because most of plantation is on the level of thinning.

Therefore, the government is proceeding the plan to magnify forestry technician amount to 763 forest craft workers and 9,150 members till 2010. Observing the acceleration direction of the government about securing forestry labor resources, it has 2 ways of scheme for upbringing. Firstly, to bring up special labor force–necessary labor force for forest craft workers of forestry labor resources being secured at mountain areas. Secondly, to bring up labor force with the side jobs–members of forest craft workers who will be engaged in forest project at the agricultural off–season being secured at rural areas. The government is also proceeding the policy to systemize the organization that divides 1 or 2 grades forest craft workers as a criterion of national technician qualifications, and at the same time classify important forestry technician–participating more than 240 days a year, and general forestry technician–participating under 240 days a year (Forestry Administration, 1995; National Forestry Cooperations Federation, 1997) (Table 1).

Table 1. Status of units of forest craft workers in Korea

	Total	1990yr	91yr	92yr	93yr	95yr	96yr	97yr	98yr
Forest craft Workers (No)	263	20	40	40	41	31	31	30	30
Members (persons)	3,216	300	480	480	492	372	372	360	360

On the other hand, looking at the major actual results of forest projects which forest craft workers has operated for 8 years from 1990 to 1997, forest craft workers performed 2% of 613,000 ha in 1990, 18% of 478,000 ha in 1996 through the nationwide forest projects. By the kinds of projects, reforestation increased greatly from 1% in 1990 to 16% in 1997, silviculture from 2% to 25%, tree seedling·ornamental tree plantation and other forest production works from 1,000 ha to 22,000 ha (Forestry Administration, 1998; National Forestry Cooperation Federation, 1999). However, the forest project quantities which forest craft workers has performed for 8 years from 1990 to 1997 were low level 10% of entire project quantities. It is also considered as the reason that the enough utilization of forest craft workers was not carried out owing to the absolute lack of existing forest craft workers and irrelevant project periods (Kang, 1995) (Table 2).

Table 2. Accomplishment of forest works of forest craft workers (unit: 10,000 ha)

		Total (10000 ha)	Reforestation	Tending	Prevention by forest peat insect and disease	Others
1990~	National scale	428.5	21.4	200.7	206.4	
97yr	(forest craft worker)	(43.3)	(1.8)	(27.0)	(14.5)	(6.2)
	forest craft worker/ National scale(%)	10.1	8.4	13.5	7.0	
1990yr	National scale	61.3	3.5	34.3	23.5	
	(forest craft worker)	(0.9)	(0.0)	(0.6)	(0.3)	(0.1)
93yr	National scale	52.1	2.8	23.3	26.0	
	(forest craft worker)	(4.8)	(0.1)	(3.2)	(1.5)	(0.6)
96yr	National scale	47.8	2.0	20.4	25.4	
	(forest craft worker)	(8.8)	(0.6)	(5.0)	(3.2)	(1.4)
97yr	National scale	53.6	1.9	23.6	28.1	
	(forest craft worker)	(9.7)	(0.3)	(5.8)	(3.6)	(2.2)

Sources : 1) Forestry Administration. 1998. Statistical yearbook of foresty. 154–205.
2) National Forestry Cooperations Federation. 1999. A report of forest technical leading works. 100–101.

Note : 1) Reforestation accomplishment of national scales are non–national forest one, the others are national scale accomplishment.
2) Tending is weeding, vine cutting, natural forest tending, young tree tending and thinning
3) Other works of forest craft worker are operration of tree seeding, planting of roadside tree, transplation and establishment of recreational forest.
4) Other works are not included in total.

2) The days of forest projects and the social security system

The annual average days of the project per one craft workers in 1998 are 168 days, but the annual average days of per one craft workers for 9 years from 1990 to 1998 were 184 days. And the annual average income of forest craft workers increased three times, $ 3,180 in 1990 to $ 9,090 in 1998 (Forestry Administration, 1995; Forestry Administration, 1997; National Forestry Cooperations Federation, 1999). For reference, the average income per agricultural household of the country was $ 21,475 (National Statistical Office Republic of Korea, 1998) (Table 3).

But the forest projects were not performed equally through the year, and the earning was irregular because the project was concentrated at the specific periods. Also the policies such as flat sum system, monthly play system and bonus necessary to stable maintenance of household economy are not settled down yet.

In the mean time, as the counterplan for accidents and injuries which are happened during forest project process, forest craft workers were joining the workmen accident compensation insurance by the unit of forest craft workers or forest projects. And craft workers were raising welfare funds by each forest craft workers for the sake of mutual aid. In 1997, 42 forest craft workers amount to 18% among entire 233 forest craft workers had raised $ 143,400 for the funds, but forestry cooperatives and forest craft workers bore the expenses 40% and 60%, respectively (Chonbuk province, each year).

But in case of workmen accident compensation insurance, they joined more by the unit of forest works rather than by the forest craft workers for cost–cutting, also the

Table 3. Status of forest working days and income of non-national forest craft workers in Korea

	Forest craft workers		Working days			Income		
	Number	Persons	Total (days)	Forest craft worker annual mean	Persons annual mean	Total (10000 won)	Forest craft worker annual	Persons annual mean
1990yr	20	300	60,600	3,030	202	104,400	5,220	348
93yr	141	1,752	301,344	2,137	172	1,055,405	7,485	602
95yr	172	2,124	407,808	2,371	192	1,865,722	10,847	878
98yr	263	3,216	540,288	2,054	168	3,197,990	12,160	994

Sources : 1) Forestry Administration. 1995. Plan of middle and long terms tranning for forest workers. 16–18.
2) Forestry Administration. 1997. A book of reformation of forest policy. 58–59.

social security system, such as retirement allowance and pension was not nearly realized.

2. The present condition of non-national forest craft workers in Chonbuk province

1) The Organization and major actual results of forest projects

The forest land sizes of Chonbuk province account for 7% and 450,000 ha among entire Korea forest land sizes, and average forest scale and a growing stock per ha of cities and counties within province are 32,000 ha and 54 m^3, respectively. In 1999, forest craft workers magnified to 22 forest craft workers and 264 members. This was organized firstly in 1990 as 2 forest craft workers and 30 members. The forestry cooperatives has 1.7 forest craft workers on average, and 1 forest craft workers is composed of 12 members on average (Table 4).

Table 4. Status of units of forest craft workers in Korea

	Total	1990yr	91yr	92yr	93yr	95yr	96yr	97yr	98yr
Forest craft Workers (No)	19	2	3	4	3	4	1	1	1
(persons)	234	30	36	48	36	48	12	12	12

Looking at the major actual results of forest project which forest craft workers performed, they carried out 39% among entire Chonbuk province forest project, 8,822 ha in 1994, also had a high operation rate in 1996, 45% of 10,020 ha. By the kinds of projects, silviculture was decreased from 50% in 1994 to 26% in 1998 (Chonbuk province, each year), the prevention of forest pest insect and disease, tree seeling, ornamental tree plant, the establishment of recreational forest and other projects were increased greatly. The forest projects which forest craft workers had performed for 5 years from 1994 to

1998, were amount to 32% among all forest project quantities, and operation rate was higher than 10% of nationwide forest craft workers' actual results (Table 5).

Table 5. Accomplishment of forest works by forest craft workers in Chonbuk province

		Total (ha)	Reforestation	Tending	Prevention by forest peat insect and disease	Others
1994~	Chonbuk	68,367	7,987	60,380		
98yr	(forest craft workers)	(21,640)	(786)	(20,854)	(3,519)	(4,463)
	forest craft workers /Chonbuk(%)	31.6	9.8	34.5		
1994yr	Chonbuk	8,822	2,122	6,700		
	(forest craft workers)	(3,463)	(99)	(3,364)	(280)	(406)
96yr	Chonbuk	10,020	1,660	8,360		
	(forest craft workers)	(4,512)	(180)	(4,332)	(926)	(794)
98yr	Chonbuk	17,855	1,175	16,680		
	(forest craft workers)	(4,408)	(161)	(4,247)	(1,387)	(1,422)

Sources : Chonbuk province. each year. Forest policy.
Note : prevention by forest peat insect and disease and others are exclued in total.

2) The days of forest project and the benefit society of forest craft workers

The annual average days of project for 3 years from 1996 to 1998 were 183 days that are almost same level with nationwide 184 days. The annual average income of 1 forest craft workers' member for 3 years was $ 8,360 that is $ 1,560 larger than that of country, $ 6,800. The income of forest craft workers was $ 8,220 in 1996, and it changed to $ 8,530 in 1998. However, the member's income from forest craft workers was irregular because of the difference of project days according to the years and regions (Table 6).

Table 6. Status of forest working days and income of non–national forest craft workers Chonbuk province

	Forest craft workers	Person	Annual mean working days of person	Annual mean income of person
1996yr	17	204	183	899
97yr	18	216	174	910
98yr	22	264	204	933

On the other hand, the forest craft workers within province were joining to workmen accident compensation insurance as groups and operating the benefit society of forest craft workers to appropriate the expenses for injury and the retirement pay for the elevation of welfare of members. The fund of benefit society was raised by sharing 15% each of forest craft workers, and forestry cooperatives needed to the pay of members and advancement of projects. But the problem was happened that some of forestry cooperatives within province would not pay allotted charges, so it came to be managed under the

responsibility of each forestry cooperatives from 1999. Total sum of fund was $ 112,000 and on average per 1 member was $ 420, which is very small scale level. And $ 59,440 was raised as the welfare fund to 16 forest craft workers in 1997, and forest craft workers and forestry cooperatives each bore apart of the expenses.

3. The present condition of non-national forest craft workers at investigation regions

1) The organization and major actual results of forest projects

The suburbs of city, Wanju county, is securing 36 members of 3 forest craft workers and Imshil county 24 members of 2 forest craft workers. The rural mountain areas, Chinan county, is securing 24 members of 2 forest craft workers and Changsu county 24 members of 2 forest craft workers (Table 7).

Table 7. Status of units of forest craft workers in survey areas

		Forest			Forest craft workers	
		Area (10,000 ha)	Stocking (10,000 m³)	Stocking/ ha (m³)	Forest craft workers(No)	Person
Total		20.3	919.2	45.3	9	108
Suburbs of City	Sub-total	10.1	411.7	40.8	5	60
	Wanju	5.9	229.6	38.9	3	36
	Imsil	4.2	182.1	43.4	2	24
Rural mountain areas	Sub-total	10.2	507.5	49.8	4	48
	Chinan	6.1	272.2	44.6	2	24
	Changsu	4.1	235.3	57.4	2	24

The actual results of forest projects, forest craft workers of Wanju county performed 43% and 674 ha among entire results of 1,569 ha in 1996. Imshil county performed 43% and 384 ha among entire results of 889 ha in 1996. The operation rate was decreased to 37% and 15% each in 1998, but total project quantities was increased a little due to the rise of prevention of forest pest insect and disease, and other project quantities. Chinan county performed 30% and 404 ha among entire records of 1,356 ha. And Changsu county performed 3% and 30 ha among 963 ha. The operation rates were low level of 11% and 3% respectively, but total project quantities were also increased a little due to the rise of prevention of forest pest insect and disease and other project quantities (Chonbuk province, each year) (Table 8).

2) The days of forest project and a benefit society of forest craft workers.

The days of forest project of forest craft workers were 204 days same to Wanju and Imshil county in 1998, and 192 and 180 days to Chinan and Changsu counties, respectively. The annual average project days per 1 member for 3 years from 1996 to 1998 are 206 days to Wanju county, 216 to Imshil, 160 to Chinan and 152 to Changsu.

The annual average income per 1 member for 3 years from 1996 to 1998 was $ 12,550 to Wanju county, $ 8,020 to Imshil, $ 5,580 to Chinan and $ 6,800 to Chansu. The average income per 1 member of 4 areas was $ 8,720, but the average income per 1

Table 8. Accomplishment of forest works by forest craft workers

			Total (ha)	Reforestation	Tending	Prevention by forest peat insect and disease	Othes
1996yr	Surburbs of city	Wanju (forest craft wokers)	1,569 (674)	209 (55)	1,360 (619)	(40)	(570)
		Imshil (forest caft wokers)	889 (384)	185 (34)	704 (350)	(50)	
	Rural mountain areas	Chinan (forest caft wokers)	1,356 (404)	136 (9)	1,220 (395)	(530)	
		Changsu (forest craft wokers)	963 (30)	233	730 (30)	(30)	
97yr	Surburbs of city	Wanju (forest craft wokers)	2,907 (745)	110 (39)	2,797 (706)	(16)	(386)
		Imshil (forest craft wokers)	2,210 (438)	170 (12)	2,040 (426)	(100)	
	Rural mountain areas	Chinan (forest craft wokers)	2,487 (327)	108 (4)	2,379 (323)		
		Changsu (forest craft wokers)	2,404 (15)	186 (15)	2,218	(30)	(30)
98yr	Surburbs of city	Wanju (forest craft wokers)	2,406 (895)	106 (26)	2,300 (869)	(90)	(590)
		Imshil (forest craft wokers)	2,051 (315)	171 (12)	1,880 (303)	(250)	
	Rural mountain areas	chinan (forest craft wokers)	1,972 (216)	142 (16)	1,830 (200)		(560)
		Changsu (forest craft wokera)	2,455 (81)	205 (31)	2,250 (50)	(200)	

Sources : Chonbuk provine. each year. forest policy
Note : prevention by forest peat insect and disease and others are excluded in total

Table 9. Status of forest working days and income of non-national forest craft workers

		1996yr				97yr				98yr			
		Forest Craft Workers (No)	Per -son	Mean of day	Mean of personal income	Forest Craft Workers (No)	Per -son	Mean of day	Mean of personal income	Forest Craft Workers (No)	Per -son	Mean of day	Mean of personal income
Total		6	72	183	855	7	84	173	934	9	108	195	914
Sur-b urbs of city	total	3	36	228	1,273	4	48	201	1,076	5	60	204	1,027
	Wanju	2	24	240	1,669	3	36	174	1,241	3	36	204	1,210
	Imshil	1	12	216	876	1	12	228	912	2	24	204	844
Rural moun-tain Areas	total	3	36	138	437	3	36	144	792	4	48	186	802
	chinan	2	24	192	515	2	24	96	432	2	24	192	883
	Chang-su	1	12	84	359	1	12	192	1,152	2	24	180	720

workers of entire Chonbuk province was $ 8,360 in 1998. The project days and income of Wanju and Imshil counties were comparatively stable by the years, but these were irregular to Chinan and Changsu counties (Table 9).

In the mean time, 9 forest craft workers were joining to workmen accident compensation insurance by the unit of groups, and they were raising the fund through the benefit society. The fund was $ 32,530 to Wanju county, $ 10,720 to Imshil, $ 5,740 to Chinan and $ 24,100 to Changsu, and the average sum per 1 member was $ 393.

4. The thought of members about operation of non–national forest craft workers

1) The general condition of income of forest craft workers

The average age of 60 persons of Wanju and Imshil counties was 55 years and classified by age, people over fifties and sixties account for 28% and 42%, respectively. Therefore, high and old age classes take the leading roles. The average management scale under cultivation of the members was 0.3 ha and 0.6 ha to Wanju and Imshil counties, respectively. But in case of Wanju county, all of the members possessed under 1.0 ha, and 6 persons among 24 members of Imshil county did not cultivate at all.

The average age of 39 persons of Chinan and Changsu counties was 45 years, and the thirties and forties account for 31% and 39%, respectively. The younger class was centering around. The management land scale under cultivation was 0.8 ha and 1.1 ha to Chinan and Changsu counties, respectively. The management land scale under cultivation per 1 member of 4 areas was small level compared with that of the average acreage under cultivation of country and Chonbuk province of 1.4 ha and 1.6 ha, respectively.

The income from forest craft workers of 65 person, who acted in 1998 among 99 members of 4 investigation areas, in Wanju and Imshil counties, the income from forest craft workers accounted for 62% among entire family income and that was the highest amount. By the ages, income from forest craft workers of age classes over from the forties to sixties accounted for 60%, but the thirties income from forest craft workers and from continual forest labor accounted for 44% and 29%, respectively. The income from forest craft workers of members who did not possess land was amount to 79% among entire family income. Border the management scale under cultivation had higher rate of agricultural income, but income from forest craft workers was the greatest among the whole classes.

The agricultural income of Chinan and Changsu counties was amount to 57%, which was much more than 34% of income from forest craft workers. The age class which earned the highest income was the forties as 35%. Border the management land scale under cultivation had lower the rate of income from forest craft workers, but agricultural income was much more than that from forest craft workers all through the age classes. The whole family income per household of members was $ 13,200 to Wanju and Imshil counties and $ 13,170 to Chinan and Changsu counties that were the smallest level compared with nationwide income of agricultural household that was $ 21,475 (National Statistical Office Republic of Korea, 1998) (Table 10).

2) Joining reason to the non–national forest craft workers and Working period

The reason of joining to forest craft workers was make a living, and side incomes were amount to 60% and 23% of Wanju and Imshil counties, respectively, but 71% of the fifties answered for making a living. In class which posses the management land under cultiva-

Table 10. Status of forest craft workers family income

			Forest craft workers	Perso -nal mean	Total (10000 won)	Agri-c ulture	Stock breeding	Forest craft workers	Continuous forest works	Tempora ry forest works
Surbu-rbs of city	Wanju ● Imsil	Total	41	1,442	59,116 (100.0)	5,620 (9.5)	4,500 (7.6)	36,496 (61.7)	8,800 (14.9)	3,700 (6.3)
		30~39	1	2,050	2,050 (100.0)	200 (9.8)	350 (17.1)	900 (43.9)	600 (29.3)	
		40~49	9	1,714	15,430 (100.0)	1,910 (12.4)	720 (4.7)	9,400 (60.9)	2,300 (14.9)	1,100 (7.1)
		50~59	12	1,421	17,055 (100.0)	1,480 (8.7)	1,200 (7.0)	11,025 (64.6)	2,750 (16.1)	600 (3.5)
		Above 60years	19	1,294	24,581 (100.0)	2,030 (8.3)	2,230 (9.1)	15,171 (61.7)	3,150 (12.8)	2,000 (8.1)
Rural moun-tain Area	Chinan ● changsu	Total	24	1,441	34,580 (100.0)	19,540 (56.5)	3,195 (9.2)	11,705 (33.8)		140 (0.4)
		30~39	6	1,560	9,360 (100.0)	5,740 (61.3)	600 (6.4)	3,020 (32.3)		
		40~49	10	1,457	14,570 (100.0)	7,450 (51.1)	1,850 (12.7)	5,130 (35.2)		140 (1.0)
		50~59	7	1,296	9,070 (100.0)	5,250 (57.9)	745 (8.2)	3,075 (33.9)		
		Above 60 years	1	1,580	1,580 (100.0)	1,100 (69.6)		480 (30.4)		

Note : 1) The members, who entered into forest craft workers in 1999 are excluded among 99 members.
2) Numerical values in parentheses are percent of composition (%).

tion 0.5 ha, making a living accounted for the greatest part, but in the classes under 1.0~1.5 ha possession, side income at slack seasons on the farm and the persuasion were amount to 50% each other.

Also the making a living and side incomes were amount to 74% and 18% at Chinan and Changsu counties, respectively, but as higher the ages, it is higher the rate of making a living, and the making a living accounted for about 80% in all classes except the class which had management scale under cultivation over 2.0 ha

The activity periods of members, accounted for 37% as 7 years, 32% as under 1 year, and 20% as over 10 years. As higher the age, the long-term activities of 7 years and over 10 years were higher. Especially, 7 years and over 10 years accounted for 44% and 28%, respectively among classes over the sixties. The average working periods of both areas were 5.8 years. As bigger the management land scale under cultivation, higher rate of members who acted over 7 years. The classes that possessed 0.5~1.0 ha and 1.0~1.5 ha continued the activity of forest craft workers as rates of 71% and 63%, respectively.

In Chinan and Changsu counties, over 10 years and under 1 year were amount to 46% and 33%, respectively. But as higher the age, the rate of the long-term activity of over 7 years was higher. Especially, the age classes over the fifties and sixties accounted for over 10 years in both areas. The average working periods of both areas were 7.8 years. As border the management land scale under cultivation, higher the rate of long-term

activity over 7 years was higher. In classes of 1.5~2.0 ha possession, 5 persons among 6 members performed forest craft workers' activity over 7 years. But the existence of member under 1 year activity resulted from that new forest craft workers were organized each in Imshil and Changsu counties in 1999 (Table 11).

Table 11. The working periods of forest craft workers

			Tatal (person)	Below 1 year	2	3	4	5	6	7	8	Above 10 years
Surburbs of city	Wanju ● Imsil	Total	60 (100.0)	19 (31.7)	1 (1.7)	5 (8.3)			1 (1.7)	22 (36.7)		12 (20.0)
		Non-land	10 (100.0)	6 (60.0)						4 (40.0)		
		Below 0.5 ha	25 (100.0)	8 (32.0)		4 (16.0)				5 (20.0)		8 (32.0)
		0.5~1.0	17 (100.0)	3 (17.6)		1 (5.9)			1 (5.9)	8 (47.1)		4 (23.5)
		1.0~1.5	8 (100.0)	2 (25.0)	1 (12.5)					5 (62.5)		
Rural mountain Area	Chinan ● changsu	Total	39 (100.0)	13 (33.3)			2 (5.1)	2 (5.1)		2 (5.1)	2 (5.1)	18 (46.2)
		No-land	3 (100.0)	3 (100.0)								
		Below 0.5 ha	12 (100.0)	6 (50.0)			2 (16.7)				1 (8.3)	3 (25.0)
		0.5~1.0	9 (100.0)	1 (11.1)				1 (11.1)		1 (11.1)	1 (11.1)	5 (55.6)
		1.0~1.5	7 (100.0)	1 (14.3)				1 (14.3)				5 (71.4)
		1.5~2.0	6 (100.0)	1 (16.7)						1 (16.7)		4 (66.7)
		Above 2.0 ha	2 (100.0)	1 (50.0)								1 (50.0)

3) The days of forest project

The days of forest project of 65 persons who acted forest craft workers in 1998 among 99 members, over 200 days were the greatest as 59% among 41 persons, and 67% of the forties and fifties engaged over 200 days each. But the age class over the sixties who worked over 200 days has low rate as 53% compared with the forties and fifties. As smaller the management land scale under cultivation, people worked more over 200 working days. Hence, the class under 0.5 ha possession accounted for 88% and the class of 0.5~1.0 ha accounted for 57% for over 200 days. The average project days per one member were 167 days, but they showed mostly as agriculture and housework about the reason of rise and fall of project days more in bigger management land scale under cultivation

Chinan and Changsu counties accounted for 71% under 100~150 working days as the greatest part. Dividing by the ages and management land scale under cultivation, each age and possession class were also amount the most part as about 70% of 100~150

days. The average project days per 1 member were 117 days, but they answered mostly as agriculture and housework about the reason of rise and fall of project days all through the classes. (Table 12)

Table 12. Forest working days of members of forest craft workers

			Tatal (person)	Below 50~100	100~150	150~200	Above 200 days
Surburbs of city	Wanju ● Imsil	Total	41 (100.0)	5 (12.2)	6 (14.6)	6 (14.6)	24 (58.5)
		30~39	1 (100.0)			1 (100.0)	
		40~49	9 (100.0)		2 (22.2)	1 (11.1)	6 (66.7)
		50~59	12 (100.0)	1 (8.3)	1 (8.3)	2 (16.7)	8 (66.7)
		Above 60 years	19 (100.0)	4 (21.1)	3 (15.8)	2 (10.5)	10 (52.6)
Rural mountain Area	Chinan ● changsu	Total	24 (100.0)	4 (16.7)	17 (70.8)	2 (8.3)	1 (4.2)
		30~39	6 (100.0)	1 (16.7)	4 (66.7)	1 (16.7)	
		40~49	10 (100.0)	1 (10.0)	7 (70.0)	1 (10.0)	1 (10.0)
		50~59	7 (100.0)	2 (28.6)	5 (71.4)		
		Above 60 years	1 (100.0)		1 (100.0)		

Note : 1) Average working days of members are 151 days. (Wanju 202.3, Imsil 130.8, Chinan 99.2, and Changsu 134.6 days).
2) Numerical values in parentheses are percent of composition (%).

On the other hand, the difference of average project days among 4 areas result from the fact that management land scales under cultivation, In Wanju and Imshil counties, these were small, so they lay priority in activity of forest craft workers. In Chinan and Changsu counties, it is considered that they could not perform all project quantities because the forest project overlapped with the farming season despite of the enough security of project quantities.

4) The pay level and general condition of support

About the pay level of forest craft workers compared with general construction forestry labor, 88% of the members in Wanju and Imshil counties answered it as the level of 70~80% of construction forestry labor mostly, and they answered the pay level of forest craft workers was low more in younger class.

In Chinan and Imshil counties, as younger the age and smaller the management land scale under cultivation, they answered mostly the pay level of forest craft worker was low. But seeing the fact that no answer accounted for 64%, it is considered that they are

satisfied with continuous job opportunities by forest craft workers as a whole in the situation with rare, and fixed job opportunities using slack season on the farm.

There were various and active opinions about required supporting, such as the rise of pay, the security of fixed income, project equipment, safety devices, the joining to medical insurance and pension, and the increase of project quantities in Wanju and Imshil counties. Specially in case of joining to pension, it is considered that the members hope the counter measure after retirement caused of disorder by injury and weakening of labor force (Table 13).

Table 13. Income level of forest craft workers

			Tatal (person)	50%	60%	70%	80%	90%	Non responds
Surburbs of city	Wanju ● Imsil	Total	60 (100.0)		5 (8.3)	29 (48.3)	24 (40.0)		2 (3.3)
		No-land	10 (100.0)		1 (10.0)	7 (70.0)	2 (20.0)		
		Below 0.5 ha	25 (100.0)		1 (4.0)	10 (40.0)	13 (52.0)		1 (4.0)
		0.5~1.0	17 (100.0)		1 (5.9)	7 (41.2)	9 (52.9)		
		1.0~1.5	8 (100.0)		2 (25.0)	5 (62.5)			1 (12.5)
Rural mountain Area	Chinan ● changsu	Total	39 (100.0)	4 (10.3)	3 (7.7)	3 (7.7)	2 (5.1)	2 (5.1)	25 (64.1)
		No-land	3 (100.0)				1 (33.3)		2 (66.7)
		Below 0.5 ha	12 (100.0)	1 (8.3)	2 (16.7)	2 (16.7)	1 (8.3)	1 (8.3)	5 (41.7)
		0.5~1.0	9 (100.0)			1 (11.1)		1 (11.1)	7 (77.8)
		1.0~1.5	7 (100.0)	1 (14.3)	1 (14.3)				5 (71.4)
		1.5~2.0	6 (100.0)	2 (33.3)					4 (66.7)
		Above 2.0 ha	2 (100.0)						2 (100.0)

Note : Numerical values in parentheses are percent of composition (%).

In Chinan and Changsu counties, half of the answers were no response. However, it is considered as the reason that though they hope all kinds of supports, there is low possibility to come true them, and despite the poor working conditions, the activity of forest craft workers contribute to household economy. On the other hand, project equipments were working tools, components. Concerned safety devices, the smooth supply, suchas working uniform, shoes, gloves, medical supplies were centering around.

5) The retirement plan of forest craft workers

In Wanju and Imshil counties, 50% and 42% of members, respectively answered they

would want to continue the activity of forest craft workers till the seventies and sixties, and over 90% of age class above the forties hoped the activity of forest craft workers till more than the sixties. However, most of the twenties and thirties was planning the activity of that till the fifties. Many of answers were that they would want to perform till the seventies, and it is more in smaller management land scale under cultivation. The average age expected to retire of 60 members was 66 years, and most of them wanted to continue the activity of forest craft workers till their health and stamina permits.

In Chinan and Changsu counties, 56% and 26% of members answered, respectively, they would want to continue the activity of forest craft workers till sixties and fifties.

The 67% of the forties hoped work till sixties, and 44% and 33% of the fifties till the sixties and seventies, respectively. It showed high rates of the members hoped continuous activity as older. The members bigger the management land scales under cultivation, lower the expected age to retire, but the expected average age to retire was 60 years (Table 14).

Table 14. Expected retirement ages of forest craft workers

			Tatal (person)	40~ 49 years	50~ 59	60~ 69	70~ 79 years	Re-employment	Non responds
Surburbs of city	Wanju ● Imsil	Total	60 (100.0)	1 (1.7)	4 (6.7)	25 (41.7)	30 (50.0)		
		20~ 29 years	1 (100.0)	1 (100.0)					
		30~ 39	3 (100.0)		2 (66.7)		1 (33.3)		
		40~ 49	14 (100.0)		1 (7.1)	10 (71.4)	3 (21.4)		
		50~ 59	17 (100.0)		1 (5.9)	8 (47.1)	8 (47.1)		
		Above 60 years	25 (100.0)			7 (28.0)	18 (72.0)		
Rural mountain Area	Chinan ● changsu	Total	39 (100.0)		10 (25.6)	22 (56.4)	3 (7.7)	2 (5.1)	2 (5.1)
		20~ 29 years	2 (100.0)			2 (100.0)			
		30~ 39	12 (100.0)		5 (41.7)	5 (41.7)		1 (8.3)	1 (8.3)
		40~ 49	15 (100.0)		4 (26.7)	10 (66.7)		1 (6.7)	
		50~ 59	9 (100.0)		1 (11.1)	4 (44.4)	3 (33.3)		1 (11.1)
		Above 60 years	1 (100.0)			1 (100.0)			

Note : 1) Expected retirement average ages are 64.3 years (Wanju 67.9, Imsil 63.2, Chinan 60.9, and Changsu 58.8 years).
2) Numerical values in parentheses are percent of composition (%).

CONCLUSIONS

We can obtain the following results to investigate and analyze the actual condition of operation of forest craft workers of Wanju and Imshil counties which are situated in suburbs of city, and Chinan and Changsu counties which are situated in rural mountain areas.

In Wanju·Imshil counties, the activity to forest craft workers had a key role to maintain household economy in the conditions of rare opportunities for fixed jobs because of small agricultural basis. The classes of the fifties·sixties tried to increase the low income by positive participation to the forest craft workers, but these classes have a high possibility to withdraw from it because of the weakening of labor force in the near future.

The classes of the thirties and forties also have a high possibility to withdraw from it when earning is little from forest craft workers' activities, and they have small management scale under cultivation. In addition, they have a high possibility to change jobs to another fields because they think they earn little money from the activities of the forest craft workers. Therefore, it is necessary to bring up the thirties and forties with a small income and weak agricultural basis as the main body of full-time forestry manpower.

In forest craft workers at Chinan and Changsu counties the members recognize the activity to forest craft workers as an important income resources in household economy based on agriculture with a rare job opportunities. The average age of members is 45 years, the young classes of the thirties·forties are centering of craft workers, the average management scale under cultivation of members is small as 1.0 ha, and they seems to have a low possibility to withdraw from the forest craft workers owing to lack of side job opportunities. However, it also contains possibility that members' surplus labor force from agriculture is transferred to another place if the situation with little income is proceeding continuously not securing the enough forest project quantities in the slack season on the farm. So it is considered that surplus labor force from agriculture should be raised as forestry labor force with a side job that is able to be utilized positively in forestry project by improving all kinds of labor conditions, such as pay and social security system and the security of forest project quantities.

The points revealed through above consideration about the assignments of forest craft workers are followings:

1. The government is accelerating two ways as the stable security plans of forestry manpower. Firstly, to bring up labor resources in mountain areas as full-time forestry labor force. Secondly, to make labor resources of rural areas engage in forest project at the slack seasons on the farm. But as a result of this study, it is considered to need an examination toward above mentioned facts when one take into consideration of expansion of forest craft workers because regional differences, such as labor market of rural villages, the production structure of individual agriculture and forestry project are working in above two forms of upbringing and organization of forest craft workers.
2. The raising of forestry labor force with a side job has a positive phases, which is providing the opportunities for employment, income increase of mountain areas residents, the development of complex management of agriculture and forest, security of potential forestry labor force, but now most of forest craft workers belonging to forest cooperatives are not realized the full employment of members because of the unstable

income and the deficiency of social security system. Therefore, we can not exclude the possibility that quantitative expansion result in unstable operation, squandering of budget, drop off in specialization and efficiency and after hinder the appropriate project. Consequently, it is considered that gradual expansion of forest craft workers is needed through improvement of matters and system of in operation.

3. The forest craft workers are becoming the main body of forestry labor force owing to small management land scale of agriculture and forest, the aging and decrease of labor force, the progress of side job, the low timber price, the increase of non-resident forest owners and other many factors. More than anything else, for the sake of stable maintenance and operation of forest craft workers, it seems to be possible the stable security of forestry labor force when self-confidence and phase of members are raised after the firm establishment of all social security system to make workers concentrate on activity of forest craft workers let alone, and the appropriate level of pay and security of project quantities are assured.

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