

Roles of Saemaul Undong in Reforestation and NGO Activities for Sustainable Forest Management in Korea*

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Abstract

The forests in Korea cover 6.4 million ha, which is about 65 percent of the total land area. However, forest resources were severely exploited during the Japanese occupation in World War II and the Korean War due to illegal cutting and shifting cultivation. A substantial amount of fuelwood was required for heating and cooking in the 1950s and 1960s. Due to the great demand for fuel energy, the Korea Government established 643,000ha with fast-growing trees such as *Pinus rigida*, *Robinia pseudo-acacia*, *Alnus* species, and *Quercus acutissima*. Also, the Government initiated the first 10-year Forest Development Plan for Rehabilitation and Restoration in 1973. As a result, the growing stock is 60.3m³/ha as of 2000. Successful reforestation of degraded forest areas not only resulted in the massive implementation of forest plans but also led to the new community movement called "Saemaul Undong (SU)". SU that begun in 1970 and can be defined as a systematic movement that promotes the following factors: (1) the educational factor, to expand latent human ability, (2) the environmental factor, to change the environment to improve one's living conditions, (3) the social factor, to provide more opportunities for becoming financially self-sufficient, and (4) the creative powers of human beings. During the period of lack of financial support from IMF, the great unemployed was produced in Korea. As a way of reducing unemployment, forest tending programs have been applied through Forest for Life (FFL) since 1998. Up to 2001, the programs provided US\$ 400 million to tend 383,000 ha of forest area as well as to provide new jobs, which in turn contributes to sustainable forest management.

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INTRODUCTION

The world is facing rapid expansion of population and increasing demands for forest products and services. Sustainable forest management has been emphasized since the Rio de Janeiro Summit held in 1992. It entails the balancing of the economic, environmental and social functions, and values of forests for the benefit of present and future generations (FAO, 2000).

Forest sustainability is needed especially in the developing countries since they make up 80% of the world's population and their tropical forests have been degraded by about 1 mill. ha/yr. Only 2% of global expenditure on scientific research and an even smaller share of research output is made in these areas (Szaro *et al.*, 2000).

According to many experts, forestry research in the developing regions of the world is facing many dilemmas such as lack of political commitment to forestry research, lack of expert scientists, low quality research, poor transfer of research results, lack of strategic planning, inadequate funding, duplication of research efforts due to poor information sharing among institutions and scientists, and research strategies that are oftentimes donor driven and do not reflect regional or country level priorities (Szaro *et al.*, 2000). If developing countries cannot overcome these problems, restoration of degraded forests as well as the goal of sustainability in forest management cannot be achieved. It is necessary to concentrate the development of human resources upon the conduct of research programs.

In Korea, "Saemaul Undong (SU)" contributed greatly to the successful reforestation of degraded forest. Sustainable forest management also resulted in the development of human resources through improved human abilities. NGO activities through Forest for Life (FFL) which started in 1998 not only brought employment to many people but also encouraged the participation of various stakeholders. This has brought meaningful influences to Korean society and contributed to sustainable forest management.

This paper presents the initial status of reforestation of degraded forest areas, flow of forest policies in Korea, roles of SU in reforestation, and NGO activities for sustainable forest management.

REVIEW OF REFORESTATION IN KOREA

Fuelwood Plantation in Korea

The country's forests cover 6.4 million ha, which is about 65 % of the total land area. However, forests were severely degraded during the period of Japanese colonization from 1910 to 1945 and the Korean War from 1950 to 1953. Until 1960, forests suffered from World War II, the Korean War, illegal cutting, and shifting cultivation. The timber stock volume sharply dropped to around 10 m³/ha. After successful reforestation, the stock grew up to 60 m³/ha as of 2000 and annual growth reached 2 m³/ha. Table 1 shows the increased growing stock by year.

Table I. Forestland area and growing stock by year (Korea Forest Service, 2001)

Year	Area (10 ³ ha)	Growing stock (10 ³ m ³)	Growing stock (m ³ /ha)
1960	6,700	63,995	9.55
1970	6,611	68,772	10.40
1980	6,567	145,694	22.18
1990	6,476	248,426	38.36
2000	6,430	387,758	60.30

The predominant causes of forest losses are large-scale clearing of forests and exploitation of forest resources for food and fuel. Also, a substantial amount of fuelwood has been required for house heating especially in winter. In response to critical demand of wood for fuel energy in local communities, the Korea Government implemented a massive plantation plan using certain fast-growing trees during 1960s and 1970s. Of the total forestland areas, 30 % are man-made plantations (Lee, 2000). This has greatly contributed to the fuelwood supply and to the expansion of forests.

In the past, fuelwood supply for cooking and heating rural households was a very important function of the forests. The Government initiated national fuelwood plantation in 1945 with the end of Japanese colonization but broke off when the Korean War occurred in 1950. Large-scale plantation was actually implemented in 1959 with a focus on fuelwood production. The target area was 1.2 million ha of the country, which was to afford 0.5 ha of planted area per household for 2.4 million households in rural areas. Of this target area, over 780,000 ha of degraded areas were planned to be planted and 420,000 ha were already planted before 1959 that were specifically used as fuelwood forests. Several fast-growing trees such as *Pinus rigida* and *Populus* spp. were used for reforestation. For 6 years of implementation from 1959, the plantation achieved 420,000 ha of 780,000 ha. The accomplishment was far less than the target. Thus, from 1965 to 1967 the Government modified the remaining plantation target to 364,000 ha, about one-third of the original target area. From 1968 to 1972, 150,000 ha of unsuccessful areas were selected for replantation. According to the inspection conducted in 1972, 56 % (436,000ha) of the total plantation (780,000ha) survived. (Lee *et al.*, 1999).

In 1973, the First 10-year Forest Development Plan for rehabilitation and restoration was established. With this Plan, 207,000 ha of plantation was additionally created and reached the total of 643,000 ha in 1977 (Table 2). The extent of plantation was continuously expanded year by year. During 1976 to 1977, 127,000 ha of plantation (20 % of total plantation area) was made through an IBRD loan of US\$ 4.4 million (Korea Rural Economics Institute, 1978). Fast-growing trees such as *Pinus rigida*, *Robinia pseudo-acacia*, *Alnus* species, and *Quercus acutissima* were planted mostly from 1962 to 1972 (Table 3).

Table 2. Area of fuelwood plantation (Song, 1982)

Year	Area (ha)	
	Planned	Established
1959-1966	800,000	-
1967-1972	514,000	436,000
1973-1977	207,000	207,000
Total	1,521,000	643,000

Table 3. Plantation of major tree species for timber and/or fuelwood production (1962-1992)

(Lee, 1994)

Species	1962 – 1972		1973 – 1992	
	Planted trees (10 ³)	Area (ha)	Planted trees (10 ³)	Area (ha)
<i>Quercus acutissima</i>	78,232	26,077	18,819	6,273
<i>Pinus rigida</i>	1,252,387	417,462	634,483	211,494
<i>Robinia pseudo-acacia</i>	1,244,070	414,690	333,250	111,083
<i>Alnus</i> spp.	372,081	124,027	482,564	160,521
Total	2,946,770	982,256	1,468,116	489,371

Forest Development Plans in Korea

The First 10-year Forest Development Plan

The initiation of this Plan in 1973, which focused on the reforestation of denuded forest lands became a turning point in Korean forestry. During this period, the national tree planting movement was implemented and one million hectares were reforested with the participation of all people in various reforestation projects. New economic forest zones for land conservation and income enlargement were developed and rapid reforestation on denuded forest lands with the use of fast-growing tree species was attained (Korea Forest Service, 1997). The Korea Forest Service (KFS) declared March 21 to April 20 as the 'National Tree Planting Period' which is the best time for planting in Korea. Various groups such as local communities, families, and schools were encouraged to participate in the reforestation program. In addition, the whole month of November was declared 'Tree Tending Period' to promote various tree tending activities like thinning, pruning, fertilizing, weeding, and preventing insects and diseases. An efficient maintenance system was adopted in reforested areas to implement these tending activities. The KFS consolidated its efforts in the protection and minimization of man-made damage to forests by restricting access to the mountains and developing fuelwood forests for rural people.

The Second 10-year Forest Development Plan

To build large-scale commercial forest zones was the primary objective of this plan to develop long-term timber resources. The KFS through its policies strengthened the national reforestation plan, intensified the forest protection activities, enlarged the development funds for private forest management, expanded the national forests, and conducted forest conservation projects to improve public benefits (Korea Forest Service, 1997). During this period, the KFS achieved 1,064,000 ha of reforestation and was able to establish 80 large-scale commercial forest zones (375,000 ha were reforested in these zones). Major tree species used for reforestation were Italian hybrid poplar (25%), larch (18%), Korean pine (12%), hybrid aspen (8%), chestnut (7%), and hybrid pine (1%) from 1973 to 1987. Continuous tending activities in natural and watershed forests as well as erosion control works on denuded forest areas were also conducted (Korea Forest Service, 1997). The KFS also endeavored to conduct forest protection activities like suppressing forest fires by using helicopters and eradicating forest insects and diseases by using biological control methods. However, the perfect prevention method against pine gall midge, a destructive insect in pine forests has not yet been developed. To raise the level of mechanization in forest activities and to train forest technicians in 1974, the Forest Works Training Center was established in 1982 with assistance from the German Government.

The Third 10-Year Forest Development Plan

This Plan was implemented from 1988 to 1997 with the objective of sustaining the efficient use of forest resources through increased economic value and improved public benefits from the forests. Rational use of forest land, creation of superior timber resources, establishment of forest management infrastructure, maintenance of distribution channels for forest products, and improvement of living environments for the people became the focus of the Plan (Korea Forest Service, 1997). During this period, KFS was able to establish commercial forest zones of 320,000 ha, conduct tending activities in 3,037,000 ha, and train forest technicians. Forest recreation culture was created by establishing natural forest resorts, increasing water supply, and creating a pleasant environment of forests with wildlife. 'Taxol', an anticancer medicine from yew trees, and biodegradable wood plastics were developed through the application of modern technologies. The Mountain Village Development Plan was initiated in 1995 to improve the standards of living of the people. Overseas plantation projects were initiated in 1993 to secure a stable supply of timber in the future.

The Fourth 10-Year Forest Development Plan

This Plan covers the period from 1998 to 2007 with the objective of completing the Government-led reforestation program through sustained forest management. The KFS will develop valuable forest resources, encourage competitive forest industry, and promote a healthy and pleasant forest environment. In achieving these, the national forest land management system will be improved through environmentally sound utilization and forest management. Hence, by-proxy a management system and multiple management system will be introduced and foresters will be trained intensively (Korea Forest Service, 1997). Furthermore, in line with the attainment of sustainable management

of forest resources, the Mountain Village Development Program will be expanded, international cooperation on forestry-related issues will be promoted, plantations abroad will be continued, and the unification of Korea will be prepared. With these Plans in the 21st century, Korea will enjoy the status of being the most successfully reforested country in the world through maintaining the thick forest reserve (162m³ per ha by year 2050). Our country will be in the center of leading international communities under our objective “people and forest prosperity in harmony with the nation”.

ROLES OF SAEMAUL UNDONG (SU) IN REFORESTATION

Introduction of Saemaul Undong

Since SU began in 1970, it has developed strongly throughout the country. The course of its development can be divided into three stages.

The Korean Ministry of Home Affairs considered the period from 1971 to 1973 as the initial start up period; 1974 to 1976 as the self-help era; and 1977 to 1981 as the period of independent competition. However, the content and organization of the three stages of SU changed. First, the period of 1970 to 1972 is called the initial start-up period because the objective of the movement at that time was the improvement of farm life exclusively. Second, the period of 1973 to 1980 is called the period of gradual expansion because the goals of the movement were substantially broadened and the administrative structure of the organization was greatly increased. Finally, the period from 1981 up to 1986 is called the period of firm establishment because after many years of trial and error, the clear direction of the movement was finally fixed and the governmental backing of the movement was changed to complete civilian control (Chun, 1986).

Therefore, the development of the movement can be structurally studied by considering its regional objectives, program contents, and organizational chart. The programs can be further divided into three: environmental, income increasing, and spiritual improvement projects.

Ideology of Saemaul Undong

The Saemaul Spirit of Diligence

There seems to have been no period in Korean history in which the people in the rural communities were motivated to work voluntarily, diligently, cooperatively and in harmony as in the SU. It was in SU that these enormous potentials and capabilities of the people found a way of expressing themselves. It was always through the self-confidence of the people that a nation, from a long period of stagnation could make great steps in its development. In Korea, strong motivation of the people led to the accomplishment of social and economic prosperity (Institute of Saemaul Studies, 1981). As a result, today in many parts of the world, it can be seen how diligent, sincere, and assiduous the Koreans are.

The Will of Self-Help

Koreans consolidated the immense growth and expansion of national strength and development in various fields of diplomacy, national defense, economy, society, and culture particularly in the 1970s. These were attributed to the mobilization of a strong spirit of self-help seeking for a better way of living. The people realized that it was necessary for them to prevent, by themselves, another war on the Korean peninsula to ease any political and social tension as well as anxiety or confusion. The SU taught us the importance of self-reliance, which forms the basic foundation of our spiritual life. Thus, the hard effort of the people brought glory and stability to the country.

The Virtue of Cooperation

Our ancestors tried to establish exemplary villages by setting the principles of self-government and by striving hard for its development. Our farms for rice production suffered from flood and drought. The farmers devised a way of taming water and eliminating damage done by natural calamities through construction of a water reservoir or a dyke across the river and water channels along rice paddies. The cooperation of all the family members and villagers were able to solve the problems of the community. Therefore, SU was not accidentally conceived and developed in the rural community settings. It was traditionally nurtured and maintained for a long period of time through the spirit of cooperation. It was instilled in our minds and bodies as an essential element, which the Korean farmers have gained (Institute of Saemaul Studies, 1981). Now, SU has spread into every sector of the society. The campaign had been elevated from local activities of rural communities to the movement of the whole nation. The valuable experiences that have been gained in the 1970s have laid a solid foundation for the development of the highly industrialized society of Korea. This in turn will leave radiant traces of glory in our history.

Factors Promoted by the Development of the Saemaul Undong

The Educational Factor

The effect of education can be found in the renewal process and in the satisfaction of our desires and needs. Through education, a man can strengthen his willpower and develop his abilities to change nature. The development of one's ability is a kind of human education which SU sustains (Institute of Saemaul Studies, 1981).

The Environmental Factor

The environment serves as a catalyst for changing attitudes and for providing sustenance for human beings. Attitudes and living conditions have been developed interdependently by SU toward a new environment. The attitude of the people was changed to fit the new environment and a new type of self-management system was established with a better and higher level of adjustability. When 'managing-power' is sustained by 'own-power' added to 'trained-power', independent development can be guaranteed. 'Own-power' is the ability gained through regular education while 'trained-power' is the ability gained through social education like training programs. Life-long education has been emphasized in order to keep pace with the ever-changing social circumstances, but the true meaning lies in stable

management. Knowledge gained through education should be applied to the environment to solve future management problems. The environment will keep on creating new problems thereby maintaining the need for continued education (Institute of Saemaul Studies, 1981). In SU, environmental improvement means the development of human function toward nature transformation.

The Social Factor

The main reason SU channels most of its effort into promoting productivity and in emphasizing increased income is to create a stronger basis for stability. Better living was aimed not only at the present generation but also for the future. The people realized that past mistakes should not be repeated, instead they should rise above the poverty that threatens their daily life. All resources should be fully exploited and systems should be organized to make use of these available resources. Therefore, income for the people was developed through the SU (Institute of Saemaul Studies, 1981).

The Creative Power of Human Beings

To build a more dynamic society, self-renewal was developed as a transformational factor. SU transformed society into a more modernized, progressive, and commercially sophisticated system. Rural communities were awakened from a long sleep and struggled to improve their living. A new concept that a man has the right to live became part of their philosophy. Thus, many cultural channels in the cities were opened to become more modernized and sophisticated. The villagers prepared themselves to absorb and accommodate more advanced increasing cultural elements. With the determination of “let us get rid of the five-thousand year old moss”, the main idea of SU was interpreted as an attempt to transform the negative-society, which keeps everything suppressed and hidden, into a new form of positive-society keeping everything open and active. Examples of transformation that occurred were the change of thatched roofs into permanent roof tiles, expansion of roads leading to villages and farms, restructuring of the shape of the rice paddies, transfer of entire villages to new sites, and cultivation of mountain slopes into a new source of food production (Institute of Saemaul Studies, 1981). The modernization of society was considered a revolutionary transformation of man taking responsibility over the changes in the environment. SU performed such specific operational functions that transformed a static society into a dynamic one, and thereby created a significant meaning in the renewal of the society.

Roles of Saemaul Undong in Reforestation

Saemaul Undong which was supported by the Korea Government spread out as a whole nation movement. In the 1970s, the Korea Government concentrated on reforestation with efficient execution of the plan and was related into SU. The Korea Forest Service was moved into the Korea Ministry of Home Affairs from the Korea Ministry of Agriculture and Forestry in 1973.

Village residents planted and tended trees in the mountains near the village with the ideologies of SU. *Forest kyes*

(mutual aid associations) were organized to reinforce reforestation activities. Leaders were trained to conduct reforestation activities through SU education programs. For positive involvement in reforestation activities, the Government paid fees to the people conducting village nursery, planting, and afforestation to control erosion.

Upon launching of the First 10-year Forest Development Plan for Rehabilitation and Restoration in 1973 by the Korea Ministry of Home Affairs, “Green Revolution” became the target through reforestation of the whole country. A slogan used was ‘planting is loving the nation’. The main policies of reforestation concentrated on nature and forest conservation, wildlife protection and management, soil fertility improvement, fuelwood supply stabilization, afforestation and obligatory planting by the people, new improved varieties of fast-growing trees, and strengthening education and public relations associated with reforestation policies (Korea Forest Service, 1997).

Major Results during the First 10-year Forest Development Plan for Rehabilitation

Reforestation: The reforestation of the country’s denuded mountains during the First 10-Year Development Plan marked the beginning of success in Korean forestry. Through the implementation of a national tree planting movement, development of new economic forest zones, and reforestation of denuded forest lands, the country was not only able to bring back the beauty of the mountains but was also able to provide employment for a large number of people. The Korea Forest Service contributed to the success of reforestation in the country through encouraging various local and civic groups to participate in tree planting and tending programs.

Stable Supply of Fuel in Rural Area: The Government created fuelwood plantations to solve fuel problems in rural areas. The positive effects of fuelwood plantations were: 1) restoration of degraded forest, 2) protection of forest resources by stable supply of fuelwood, 3) conversion of fuelwood plantation into timber forest by successful management, 4) contribution to rural development, and 5) valuing forest through planting activities.

NGO ACTIVITIES FOR SUSTAINABLE FOREST MANAGEMENT

Forest for Life

Korea has been supported financially by the IMF since the end of 1997. After that, great unemployment was produced in Korea (Figure 1). Forest tending programs were suggested by NGOs and regional governments, which the Government accepted in 1998. Forest for Life (FFL) was organized as an implementing agency. The forest-tending program was evaluated as the most efficient program, which increased the productivity and public welfare of Korea.

From 1998 to 2001, the programs have provided US\$ 400 million to tend 383,000 ha of forest area as well as to provide new jobs, which in turn contributed to sustainable forest management such as thinning, weeding, and pruning. In 1999, during a ponderous unemployment situation, about 20,000 people per day were involved in forest tending programs and thereby 130,000 ha of forest area were tended. The total numbers involved were 4,830,000 people.

As another example, from 1998 up to the present, Geumsan County has been provided US\$ 1.06 million to hire 446,000 unemployed people through the forest tending programs of FFL. Actually the programs contributed to the promotion of employment and regional economy as well as eco-friendly forest management.

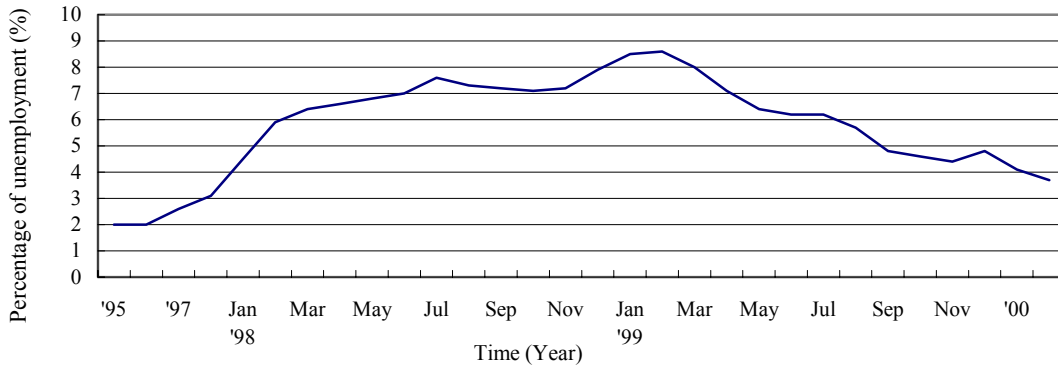


Figure I. Rate of unemployment during IMF restructuring in Korea (Korea National Statistical Office, 2001)

Selected laborers have been trained in forest tending in the Forest Works Training Center to improve the outcome of forest tending programs. Up to 2001, the number of laborers produced were 10,000 as technicians of forest tending. From 2000, FFL has supported training programs for forestry or farm work. Produced materials by forest tending were used for woodcarving and livestock mixed feed or fuelwood of which the amount was 120,000m³ per year. The forest tending program by FFL resulted in the conversion of forest policy, the solution of unemployment problems, an increase in economic and environmental benefits, creation of new partnership between Government and citizens, improvement of forest tending techniques, and increased realization of the importance of forest in Korea.

FFL also conducted education programs on forest conservation and promoted sustainable forest management by improving forestry experience on demonstration forests, a university student volunteer program for forest farms, a forest camp program, a nature classroom for Grades 4-6, and a school forest program (Lee, 1999). The Korean Government should continue to apply forest-tending programs in national and private forests to create 3,500,000 ha of economic forests by 2050.

NGO Activities for Sustainable Forest Management in Korea

Sustainable forest management entails the balance of economic, environmental and social functions as well as values the forests for the benefit of present and future generation. As mentioned, FFL activities increased the economic value of forest and environmental benefits. Social functions of forests have been improved through educational programs, and the Government's forest policies have been changed to increase the economic, environmental and social functions and values of forests.

DISCUSSION

While there has been a successful reforestation of Korea's degraded forests, roles of SU that focused on the development of human resources in reforestation and participation of NGOs in forest management were considered. In the 1950s, Korea was one of the underdeveloped countries that had successfully conducted reforestation projects.

Delayed research information (Szaro *et al.*, 2000), weak will of the Government, lack of incentives for restoration of degraded forests (Sayer *et al.*, 2001), and insufficient regional and local stakeholder participation are just some of the hindrances in the development of forest management especially in the developing countries. Korea successfully overcame the above problems of forest management and gained greenness from degraded forests.

Development of Human Resources through SU

Successful reforestation of Korea's forests resulted into linkage of SU that promoted human resources development through education and campaigns. The Korean Government concentrated on this development and related it to forestry research and education. SU introduced a completely new pattern of social education and training (Institute of Saemaul Studies, 1981). SU stimulated the people to generate motivation and to promote voluntary and positive participation in reforestation programs so Korea was able to achieve reforestation of the whole degraded forest areas in a short period of time. If the Government wants to have a successful reforestation program within a short period of time they should focus on the development of human resources. The Korea Government was able to accomplish the development of human resources through SU.

Forestry Research Strongly Supported by Government

The Korean Government strongly supported the reforestation program of degraded forests through forest policies and SU. To support reforestation, the Institute of Forest Genetics was established in 1956 and was transferred to the Korea Forest Service in 1967. This institute produced fast-growing species such as hybrid pine and hybrid aspen. Because of strong policies for protecting forests, the country's forests became verdant.

Forest Policies for Improving the Lives of Local Communities and People

Korea Government considered the local communities upon implementation of forest policies. The Government solved the fuel problem in rural areas through fuelwood plantation projects. Also, financial support was given to local communities through *forest kyes*.

Changing of Forest Policies as Adaptation to a Changing Situation

To adapt to a changing situation, the Korean Government has changed forest policies. From 1973 to 1987, the Government concentrated on reforestation of degraded forests through the First and Second 10-year Forest

Development Plans. From 1988 to 1997, through the Third Forest Development Plan, the Government focused on the implementation of efficient use of forest resources to increase the economic value of forests and to improve the public benefits from the forests. As indirect benefit from forests is being increased then, from 1998 to 2007 the Government-led reforestation program will be changed to develop sustainable forest management.

Sustainable Forest Management by NGOs

To gain more successful reforestation benefits and efficient forest management, it is necessary to incorporate regional and local stakeholders especially NGOs. In Korea, the involvement of FFL has had a positive effect on sustainable forest management. FFL conducted practical tending programs as well as education programs. The Government should conduct reforestation projects through forest policies and should recognize the important roles of NGOs in attaining sustainable forest management.

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