Current Upland Farm Forestry Condition and Its Past and Present Management Policy in Korea

PAPER
to be presented
at
Common Property Conference
sponsored by
International Association for
Common Property (IASCP)

To be held at
University of Manitoba, Winnipeg, Canada
September 26-29, 1991

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* This paper is prepared as a part of project supported by International Development Research Centre.

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I. Introduction

In the late 1950s, lifting people out of the absolute poverty with political stabilization was the most serious problem in Korea. The government took four development strategies to realize the national development. These are (1) the government-guided comprehensive industrialization strategy, (2) the encouragement of unbalanced growth between industries and regions, (3) foreign market oriented growth with scarce resources, and finally (4) the development of first-growth and second-distribution strategy. Under these circumstances, the role of agricultural area was to increase the stable supply of food at low price and also increase labor supply and improve its quality for the manufacturing sector at low wage. The development and utilization of the upland was of secondary importance in agriculture. Therefore, government encouraged the terraced farm development exclusively in the upland area without consideration for its structural characteristics.

After most of the forests were devastated during the Japanese occupation(1908-1945), and the Korean War(1950-1953), the reforestation has also been given a top priority in upland management policy. The successive governments launched national reforestation programs. The recent agroforestry policy for upland has emphasized four programs: reforestation, forest (tree) tending, soil erosion control and profitable upland farming. Through these programs, the govenment aims at developing and enlarging the

productive agroforestry during the current 10 Year Plan period with the target of entering a sustained yield phase in the 21st century.

Although the upland agroforestry policy has been successful in terms of improving reforestation and food production, the govenment failed to develop an integrated upland farming and forestry system which could maintain a self-sustained growth. Neglecting the organic relationship between the two, the government pursued a separate policy for reforestation and another for upland farming. The result has been that the reforestation has been achieved in many upland areas without a solid foundation and often at the expense of upland farming.

In its drive for rapid economic growth, the government neglected the agricultural sector in general and the upland area in particular. In a long-term perspective, this has been a short-sighted policy. For, in densely populated and resource scarce Korea, the upland and mountains occupy about 70 percent of the nation's total land. As industrialization proceeds rapidly, agricultural flat land is further reduced to 12 percent of the total land. Given this situation, one of the most important issues facing Korea is how to utilize judiciously the nation's most important natural resource, namely, the vast upland for economic growth without destroying environments.

The objectives of this paper are twofold. First, by examining the past and present Korean government's policies toward agroforestry in the upland, it aims at formulating strategy to

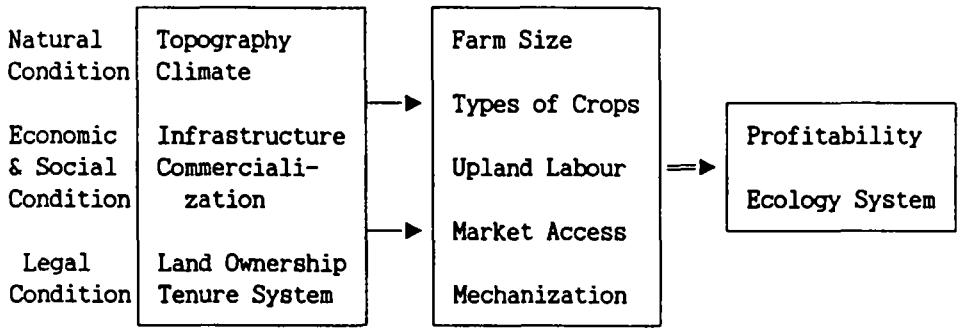
improve them. Second, by reviewing some of the successful results of Korea's agroforestry policy, this paper hopes to provide some new insights into formulating sound agroforestry policies for other Asian countries.

For this end, this paper reviews the past and present upland agroforestry practices, paying particular attention to the structural characteristics of agroforestry and its environment. Second, the past and present govenment polices for upland farming forestry development with emphasis on exploring its future direction will be examined. Finally, based on Korea's experience, we propose to explore what should be the optimum viable agroforestry system for the establishment of which the government should give a top priority.

II. Upland Farming Forestry Practices and its Structural Characteristics in Korea

The objective of this section is to describe and examine Korea's upland farm forestry practices in reference to the recognized principle factors affecting the degradation and improvement of upland agroforestry. These factors are already widely discussed in literature for other countries in Asia. They determine the success or failure of upland agroforestry system mainly by affecting the farm productivity, its profitability and environmental quality. The farmer's profitability and environmental quality are a function of its practices. That include the scale of farm, cultivating crops, market accessibility and degree of mechanization (See Figure 1).

Figure 1. Factors Affecting the Agroforestry System



For this paper, these factors are classified into three categories: the first, natural conditions such as topography and climate, the second, economic and social conditions such as socio-economic infrastructure and the extent of commercialization in the rural area, and third, the political and legal conditions, namely, land ownership and tenure system.

In the following, these major factors affecting the agroforestry and how they have influenced the farming practices in the upland, are described.

Topography: In Korea, the topography of upland is characterized frequently as that of run-in-and-out. Shapes of inclines are not regular but diverse along the narrow valleys. Such topographical factor has determined Korea's upland farming practices determining the farm size. The farm size in upland is relatively small because of its complicated structure.

Since late 1980s, the conversion of the upland into farm or grassland resulted in getting out of chronic shortage of foods. However, the small scale farming practices have several problems.

For example, the profitability of farming is low because the small scale can not introduce the newly mechanized cultivation technology, which requires large cultivating areas.

Climate: Korea is located in temperate zone of Northeast Asia. However, its climate is influenced by South Asia Monsoon. The monsoon is suitable for the rice cultivation but not for dry-field farming. Moreover, dry field farming requires relatively labour intensive cultivation because of densely growing weeds. There is a saying among farmers that their life mainly consists of "the endless war against the weeds."

The result of such condition is the preference for growing crops which require little labour. For example, the maize is the representative crops in upland farming. However, the cultivation of maize needs more fertile soil, whereas the upland mostly consists of barren soil. Nevertheless, the people in Korea are more likely to grow maize due to the farming labour shortage. In addition, the maize has a deeper root and more height which can overcome the weeds. Recently, the government adopted the policy of purchasing maize at the fixed price. Thus, the maize farming is becoming a good source of income for upland farmers.

The climate differs according to the altitude in upland in micro-perspective. The higher is the altitude, the lower is the average temperature. This changing temperature according to the land's height resulted in a new way of upland farming. While the demand for agricultural products is generally stable throughout

the year, their supply is concentrated in the harvest period. As the mass shipment during the short period brings down the prices of products, farmers are bound to obtain low profitability. The concentration of harvest period is particularly unfavorable for the perishable products. Therefore, the farmers adopted the strategy of lengthening growing-days and, thus, increasing the profitability by shipping the product in off-crop season at a higher price. The strategy is formulated to take advantage of the difference in temperature by the altitude of the upland. Diversifying the types of crops grown in the high land has become another strategy adopted to lengthen the supply period.

Commercialization: Recently, the expansion of transportation and communication network has enabled some upland farmers to introduce a more efficient production method in the areas near cities. These farmers have began to develop a large scale and mechanized farming. This brought an efficient method of utilizing the upland. These farmers mainly produce profitable crops such as watermelons, peanuts and red peppers, etc.

Land Ownership and Tenure System: The characteristic of upland ownership system in Korea is that the most of upland are owned by the absentee landowners. In Korea, there is no strict regulations on upland ownership and tenure system, in contrast to the flat agricultural land. The absentee landowners mainly own the upland for speculative purpose. However, the government regulates how the upland (farm) can be used. Facing such uncertainty, the farmer, who is looking for an area for a

farm or grassland development, prefers to make a substantial long term contract[1] with the absentee owner. Such contract within the present tenure system can provide some degree of guarantee for reasonable returns for the land owner also. Farmers, in turn, also are able to increase their income or profitability by leasing the land to a third party.

The forest land in Korea is classified into national, public and private forest by its ownership. About 20 percent of total forest land area is classified as national forest which has about 38 percent of total stock volume. This means that the national forest has a much higher stock volume per ha than public and private forests (See Table 1). The private forest covers 72 percent of total forest land area. It is owned by individuals, civil corporations and various NGO organizations such as private societies, cooperative groups, etc. The number of private forest owners is estimated at about two million persons. About 96 percent of the total owners are holding less than 10 ha of forest. This is because a large portion of these small-sized[2], scattered forest owners hold the forest lands for their family grave-yards. Note that the ancestor worship, practiced by visiting ancestor's tombs, is Korea's major religion. Those nonproductive small-scale private forests are serious obstacles to the forest development.

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1) The 'substantial' contract means that the upland tenure has not been the policy instrument in Korea. The leasing the land has been contracted informally between the owner and farmer.

2) This is a consequence of the topographical characteristics in Korea's upland.

Table 1. Forest Ownership and Growing Stock

Classification	Area (ha)	Growing Stock (m^3)	Average m^3/ha
National Forest	1,319,623 20 %	75,500,098 38 %	57
Public Forest	486,086 8 %	14,302,228 7 %	29
Private Forest	4,647,236 72 %	110,999,610 55 %	24

Upland Farming Practices: At present, most upland farmers still adopt the traditional farming method cultivating the traditional crops. Practicing the traditional cultivating method in the upland is the result of continuous adjustments to changing circumstances for a long time.

The upland farm is classified into two categories. One is paddy field farming which produces rice and barley. Most of upland people avoid cultivating barley, because it has a low yield and requires more labor. The other,namely, dry field farming, cultivates crops which require less labour. The traditional upland crops which are grown in dry fields include miscellaneous cereals, vegetables and economic crops cultivated in a rotating system.

The small upland farm generally adopts a labor-saving farming and self-sufficient method. Such farming mostly produces crops for the farmer's own consumption.

As for the livestock breeding, its important features are animal

husbandry as the secondary source of income using cheap concentrated fodder. They are mostly located in the area near cities.

For some time now, animal husbandry as well as dairy farming have been developed to increase the farmers' income. The used fodder is the agricultural by-product, wild grass or assorted fodder. The locations of dairy farming or animal husbandry are concentrated in the suburbs of cities. This is because there are some advantages being near cities. They are the closeness of markets for dairy products and the low cost of transportation of various inputs/outputs.

Recently, upland farmers are increasingly adopting a large scale and market-oriented planting system, using an advantage of its location being near urban area.

As the national income level has increased, so have the diversity in people's diet. The dairy farming has emerged as a new industry. Some firms invest in the large scale development of grassland and they have successfully developed some specialized commercial grassland.

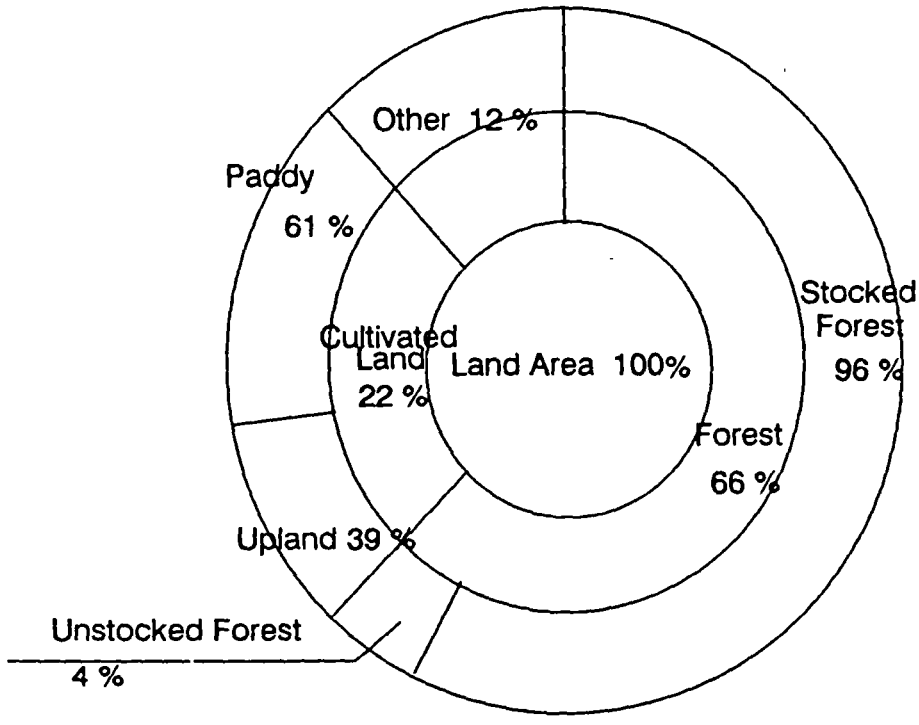
The gradual change in the upland farming from practicing the traditional labour-intensive small scale farming method to adopting the modern mechanized large scale farming has come none too soon. The upland farming forestry has for a long time played an important role as an agricultural resource as well as industrial one. Note that the upland farming forestry occupies about 40 percent of total agricultural land and the almost whole forest land (See Figure 2).

III. Upland Farm Forestry Policies and Policy Environments in Korea

1. Upland Farming Forestry Policies and Current Conditions

At the time Korea initiated its first Five-Year Economic Development Plan (1962-1966), the government enacted the Land Reclamation Promotion Law (1962). This law was enforced using an incentive system for farmers. During the first land reclamation period, the farming areas were developed in small scales nationwide. The high population density necessitated finding more arable lands.

Figure 2. Land Utilization and Forests



At the end of the First Five-Year Plan period in 1967, in order to develop the basis of agricultural production, the law governing farmland development was enacted. The new reclamation technology, namely, terraced farm was introduced and the upland farmer's income increased. According to the third Five-Year Economic Development Plan (1972-1976), the government increased investment in upgrading the agricultural sector by promoting a higher crop productivity and the improvement of livestock breedings. In pursuing this policy, the large scale government-oriented land reclamation was successfully achieved. Thereafter, food production greatly increased and the farmland was enlarged.

Table 2. Development Strategy for Grassland

period class	Natural Phase (1959-1968)	Development Phase (1969-1981)	Enlargement Phase (1982-)
Legal basis	-	Grassland Law	Revised Grassland law Promotion of livestock
Implementation methods	Farmer-oriented Subsidy	Increase the subsidy	Government-oriented Full support
Scale	Small	Large or small	Large
Characteristics	Side business	Introduce the dairy farming	Complex farming Higher utilization of upland Substitute of concentrated fodder

As the policy of developing the upland agriculture progressed, since 1970s, the government placed a high priority on the grassland development. In the "natural phase" (1959-1968), the grassland was still being developed using the traditional method as the grassland development was given a low priority. However, in 1969 when the Grassland Law was enforced, the government participated in developing the large scale grassland by increasing its subsidy. At present, the government actively supports the dairy industry and livestock breeding, resulting in a more efficient and extensive utilization of the upland (See Table 2).

However, the upland farming is a small part of upland agroforestry. The vast upland must provide a stable supply of wood for industrial use and also for household fuelwood. At the same time, the afforestation policy must continue. It is at this point that the government decided to meet industrial wood and fuelwood need with substitutes, namely, coal and oil.

This substitute fuel policy turned out to be a key factor in the success of Korea's agroforestry policy. The substitute fuel enabled the government to continue to pursue afforestation policy while satisfying the demand for fuel. The substitute fuel policy succeeded as the nation developed a large scale and an inexpensive coal heating method. This method uses coal briquette. The coal briquette continues to be the main material for rural household "ondol" heating[3].

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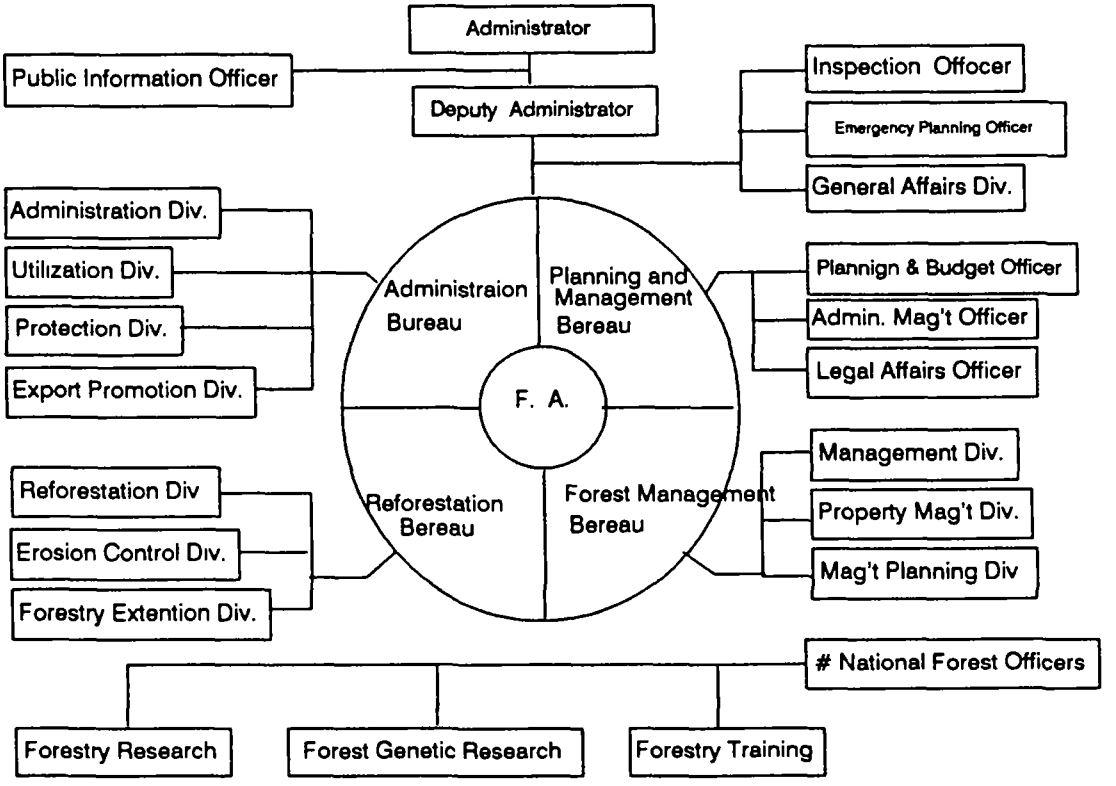
3) "Ondol" heating is Korea's traditional underground heating method.

2. Government Administrative Structure for Upland Farming Forestry Policy Formulation and its Implementation.

The National Forest Office and the City or County Forestry Department act as the main government agencies for the reforestation project (See Figure 3). They are entrusted to execute the project systematically. In order to encourage the reforestation by individual farmers, the government subsidizes planting stocks and fertilizer supply for small-scale private forest owners so that they may buy them at the price lower than the market one.

Figure 3. Organization of the Forestry Administration



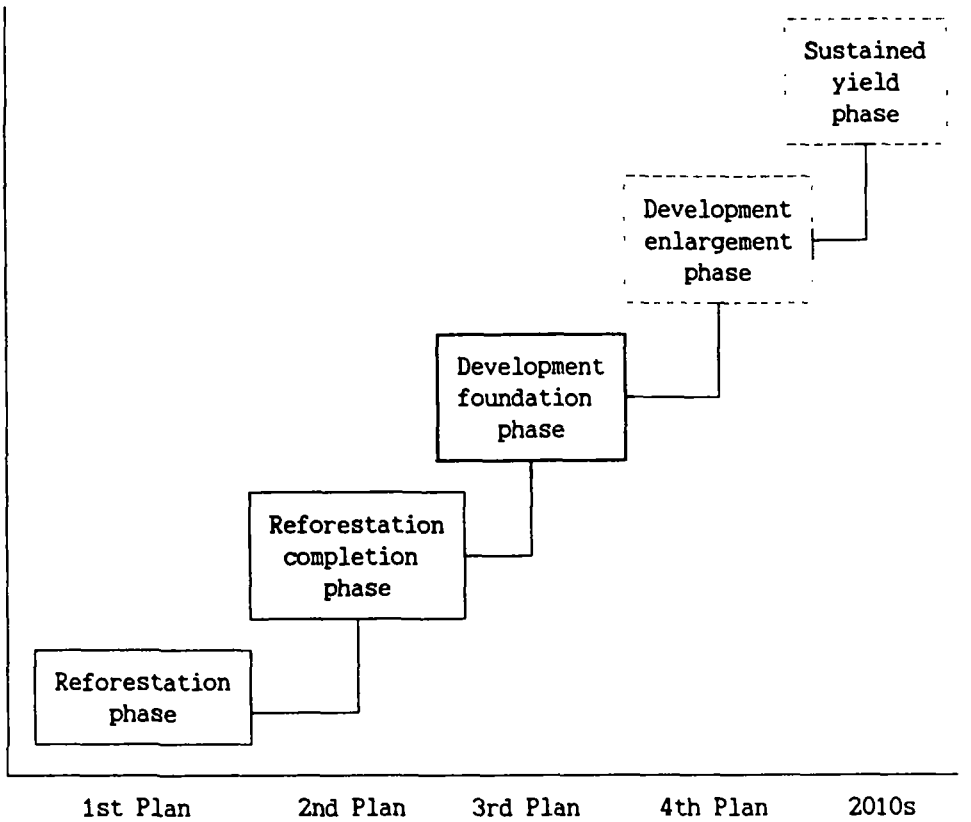
The main objective of Korean government's forest policy for the past two decades may be summarized as aiming at converting the devastated forest into a fully developed protected forest. Therefore, the backbone of its management policy has been based on protective measures. However, for the first time, the third National Forest Plan (1989-1998) explicitly includes the goal of improving the upland agroforestry. On the other hand, the target for forest development is geared to developing a foundation of sustainable forest resources, which would improve farmer's income through a reasonable utilization of forestry and the upland farming.

Up to now, the goal of the government's forest development plan was exclusively reforestation. The next phase involves developing forestry foundation and enlarging it. The final phase aims at achieving sustained yield phase (See Figure 4).

Reforestation: As mentioned before, until the 1960s, forest lands of Korea were largely destroyed. The proportion of upland and mountains covered by forests were 58 percent and the average stock volume per ha was only 9 m^3. Therefore, the revegetation of denuded forest lands took precedence over all other forestry policies.

In order to accomplish the rapid revegetation of the denuded forest land and the to develop fuelwood stands in rural areas, the government set up the First 10-Year Forest Development Plan during 1973-1978. During this period, much of denuded forest were reforested and a stable supply of fuelwood was ensured.

Figure 4. Strategy for the Implementation of Forestry Management Plans



The dramatic transformation of barren mountain into forest has materialized throughout the country in a varying degree according to the differences in locations. Some uplands or mountains have changed completely from rocky barren soil to dense forest. Some have changed less, say, from the upland with sparely planted trees to a little more densely planted place in ten to twenty years (See accompanying photos).

Of all the government policies and programs to improve the living conditions of Korean people, it is no exaggeration to state that the reforestation program was one of the most successful

policy in terms of its result.

The vast upland, which consists of 70 percent of the nation's total land, has been "saved" and become the productive resource not only for upland forest farmers but also for everyone by protecting the soil and improving environments.

Forest Tending Works: To produce high quality timbers, various post-planting activities such as weed control, fertilization, cleaning and thinning have been encouraged and implemented. The government established a "Tree Tending Day" on the first Saturday in November to emphasize the importance of post-planting care. At present, the nationwide forest tending works continue for one week after the tree tending day. This is to protect trees planted in the spring so that a large scale survival of planted trees may be ensured. In implementing these policies, the government provides financial incentives to private forest owners by providing fertilizers and herbicides for vine control to improve forest resources effectively.

Soil Erosion Control and Watershed Management: The beautiful landscape of Korea in the past was gradually destroyed by various causes: the forest exploitation by the Japanese colonial government, the devastation during the Korean War, an increasing demand for wood materials due to the rapid population growth and industrial development, etc. In the late 1950s, to rehabilitate damaged forest lands, the government initiated the first soil erosion control project on the outskirts of Seoul. Since then, soil erosion control gradually expanded to all over the country.

In late 1960s, the total area of forest lands destroyed was reduced to 120 thousand ha through the intensive soil erosion control works. To stabilize the devastated areas, stabilization works have been carried out and the soil erosion control dams are constructed to achieve the objective of complete stabilization of all upland areas.

Future Prospects for Deforestation: Originally, the main causes of deforestation were the illegal over-cutting of trees and the damage caused by diseases, pests and forest fires. Recently, new causes for deforestation have emerged. They are the upland reclamation, clearing for grassland, building golf courses, and the establishment of schools, houses, factories, military bases, tombs and mines.

The rate of deforestation has been relatively small in the last two decades, about 2.2 percent. The damage was relatively small because the large resettlement program has been implemented to counter shifting cultivation in the period during 1960-1970. This brought back about 86,000 ha to forestry.

The outbreak of fire has also decreased because the government intensified protective measures and a campaign of forest fire protection. However, the decrease in the damage caused by fire has been less than expected due to an increasing number of people visiting forests for recreation. Nevertheless, deforestation problems in Korea as a whole do not seem to become more serious in the future because forest land clearance for agricultural and livestock raising is unlikely to

increase. This is because Korea has recently increased the import of agricultural and animal husbandry products.

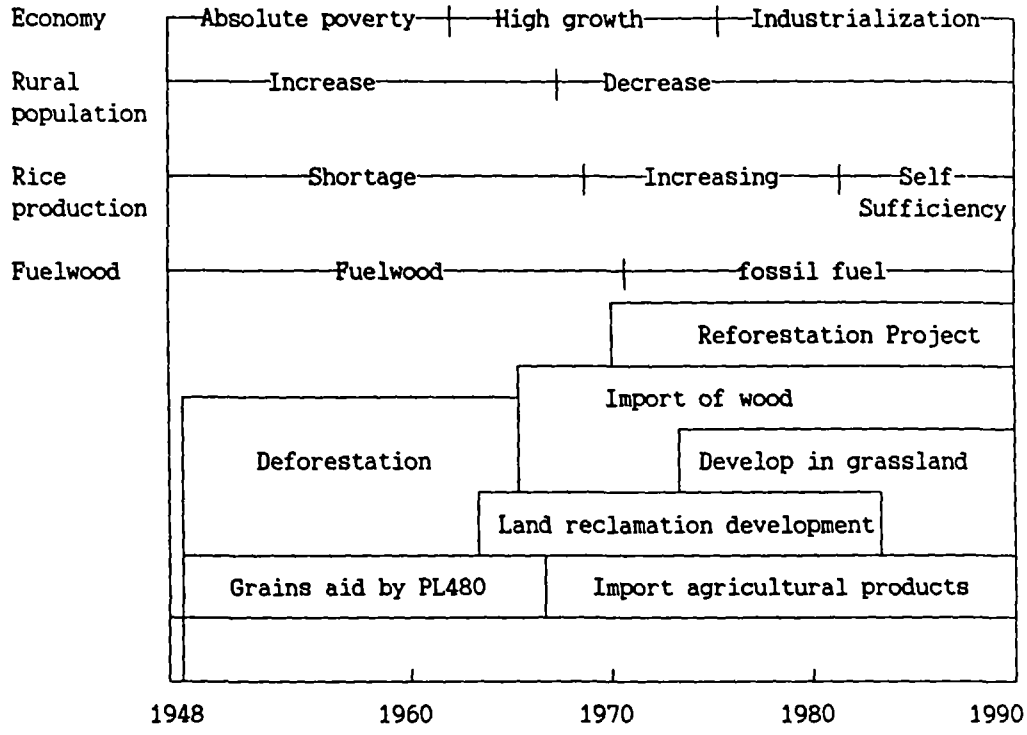
3. Upland Farming Forestry Policy Environments and its Problems in Korea

The main factors contributing to the success of the reforestation programs in the First (1973-1978) and Second (1979-1988) Forest Development Plan and that of the Green Movement Programs are the strong emphasis which the government placed on the reforestation, the enthusiasm of foresters in charge, the excellent cooperative leadership of the community leaders and the dedication of village people to Saemaul (New Village) Movement.

Such success with the mobilization of community support was realized during the period of rapid socio-economic development in Korea. In terms of economic growth, the upland farm policy began to be implemented successfully during the period of the "high growth" in 1970s (See Figure 5).

One feature of favorable environment for the upland farm forestry policy was the massive rural to urban migration during the seventies. The decrease in rural population reduced the demand for fuelwood by farmers. This facilitated the transition of the resource utilization for fuel from wood to fossil materials, namely, coal and oil.

Figure 5. Upland Farming Forestry and Economic & Social Conditions



The demand for and utilization of wood was further reduced as Korea reached the so-called the industrialization phase of economic development. With increasing export earnings, the nation was able to afford to import the wood as well as fossil fuel.

The industrialization of Korea during the late seventies and early eighties created a further favorable upland farm forestry policy environment. This is because the industrialization enabled farmers to adopt mechanized rice growing method which enabled them to increase rice production from the volume of shortage to that of surplus in a relatively short period.

In addition, the increasing export which accompanied the industrialization led the nation to a financial position to be able

to afford to import other agricultural products.

These by-products of industrialization reduced the demand for the production of stable food crops by upland farmers. This, in turn, enabled the government to implement the reforestation and grassland development policies with cooperation of upland farmers.

Faced with these changing policy environments, the government modified its upland farm forestry policy. From the original primary policy of preventing deforestation to that of reforestation and grassland development and from the policy emphasis on the stable food production to the production of diversified profitable crops, the government modified its policy to take an advantage of the favorable changing policy environment.

Although the government modified its upland farming policy, the upland farmer's welfare has been relatively neglected in comparison with the government's priority given to reforestation. This a weakness of the policy because it is the upland farmer who continues to be the forest manager and implementer of government policies.

It is possible to sustain the forestry only when a sustainable equitable organic relation between forest, upland farming and upland people are maintained. Such relation can be achieved only if the forestry people could continue to improve their living standard relying on the secondary source of income such as vegetable and fruit growing and livestock breeding. Korea's political approach to forestry failed to established such relation.

It will be hard to get the cooperation of village people in reforestation in the future if the government concentrates only on reforestation , without emphasizing profitable upland farming and giving a priority on increasing income for the village people themselves. Reforestation projects, rarely bring about a good, quick economic return to the upland people. Therefore, individual forest owners are not willing to make an investment in reforestation themselves. To continue reforestation and achieve self-sustainable forest, the subsidy programs of the government have to be sustained in an increasing scale not only for reforestation but for upland farming and village people's livelihood.

IV. Concluding Remarks

Like its economy, Korean forest has undergone a tremendous transformation. From its almost complete denuded state in 1950, Korean forest has almost completed reforestation nationwide.

It is a remarkable achievement. The urgent government program of reforestation started in 1973 with its First Five-Year Plan of Reforestation. In 1991, the reforestation phase has been almost completed and the development foundation phase started. The long-term objective of forest policy in Korea is to enter a sustained yield phase in 2030s.

The incisive government policy mobilizing farmers and foresters through Saemaul Movement during the authoritarian regimes of 1970s and early 1980s brought about this remarkable

result. Since the recent a democratization, strong-handed government policies are losing their effectiveness. In its place, Korea need a new persuasive self-reinforcing agroforestry policy.

The new policy should be based on establishing an organic relationship between the reforestation, tree tending, upland farming[4] and improving the ecosystem[5]. A viable organic relationship among the above three can be established if, only if, each of these three function is complementary to each other. That is, the reforestation and tree tending should benefit upland farming and ecosystem and vice versa.

At present, the above mutually beneficial system among the three does not exist. The challenge, therefore, is to establish a social and legal system which would lead to such ideal system through regulations and incentive systems.

First, reforestation, tree tending, upland farming and ecosystem should be viewed as three integral components of an organic system. By nature, these three components are mutually inter-dependent. The reforestation and tree tending prevents flooding and mud-sliding , thus maintaining the balance in the ecosystem and reducing or eliminating damages to the upland

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4) The agroforestry system consists of woody perennials, agricultural or pasture species and animals. Following broad categories are generally recognized.

Agrisilviculture: Trees and agricultural crops

Silvopastoral: Trees, pasture and animals

Agrosilvopastoral: Trees, crops, pasture and animals

Others (Multipurpose tree lots, apiculture with trees, aquaculture with trees,etc.).

5) The agroforestry system may have protective function for the ecosystem including soil and moisture conservation, soil improvement or shade for crops, animals and man.

farming. A successful upland farming further improves the ecosystem by terraced farming and prevent damages to trees by providing a firm soil foundation to small growing trees.

This natural organic system cannot be maintained if the man-made system does not re-inforce it. Suffice to say that in many Asian countries, the man-made destruction of this system has already occurred.

From Korean experience, we suggest an approach which would lead to a man-made system of re-inforcing the natural organic system. This approach is based on the human nature, i.e., the pursuit of one's self-interest. This means that a network of incentive-disincentive systems should be established and strictly enforced.

In establishing and enforcing such incentive-disincentive systems, there are three interest groups: the forester, upland farmer and general public, which may be represented by the government or NGO organizations.

For foresters, tree cutting should be strictly forbidden and this rule should be enforced through levying heavy fines on violators. In Korea, this positive disincentive system has worked well during the authoritarian regimes of 1970s and early 1980s. The land tenure system in Korea has also definitely played a key role in the successful implementation of the rule. As mentioned before, most uplands and mountains in Korea are privately owned. Therefore, it is for the owner's self-interest to respect the rule and conduct self-policing activities in preventing

outsiders from encroaching into their land.

There are also incentive system working for foresters. The reforestation means a long-run profit when the sustainable stage are realized. Already, foresters are making profit by operating tree nurseries. Recently, maintaining, nurturing and protecting the forestry paid-off handsomely as the price of forest land also sharply increased.

For upland farmers, the government launched soil protection and fertilizer subsidy and people to people ecological protection programs. Soil protection programmes are implemented by the subsidy for investment in soil protection and by the government's technological assistance. The people's ecological protection policy is implemented by the legal system of compensation when an upland farmer's neglect of soil protection results in any damage to the neighbor's upland farming.

The protection of ecosystem is, of course, essential for both foresters and upland farmers. Recently, as the urban environmental pollution has rapidly worsened, Korean government established various incentive and disincentive system to reduce the environmental pollution. This system is being extended to the rural area. Since it is for their self-interest, foresters and upland farmers not only refrain from damaging the ecosystem but play a policing role to prevent outsiders from damaging the ecosystem.

The recommended organic system may be illustrated by a diagram (See Figure 6). Such mutually beneficial organic relation

will have synergic effects on the agroforestry system. Certainly, a mutually beneficial and re-inforcing system such as above will bring about benefits greater than a system where each component operates separately, how efficiently if may operate.

Having recommended an ideal system for Korea and other Asian countries, the obvious reality has to be explained. Such ideal system has been known for a long time. Korea has been lucky to have the right-mix of political, social, economic and cultural components to work for the establishment of such ideal system with some degree of success.

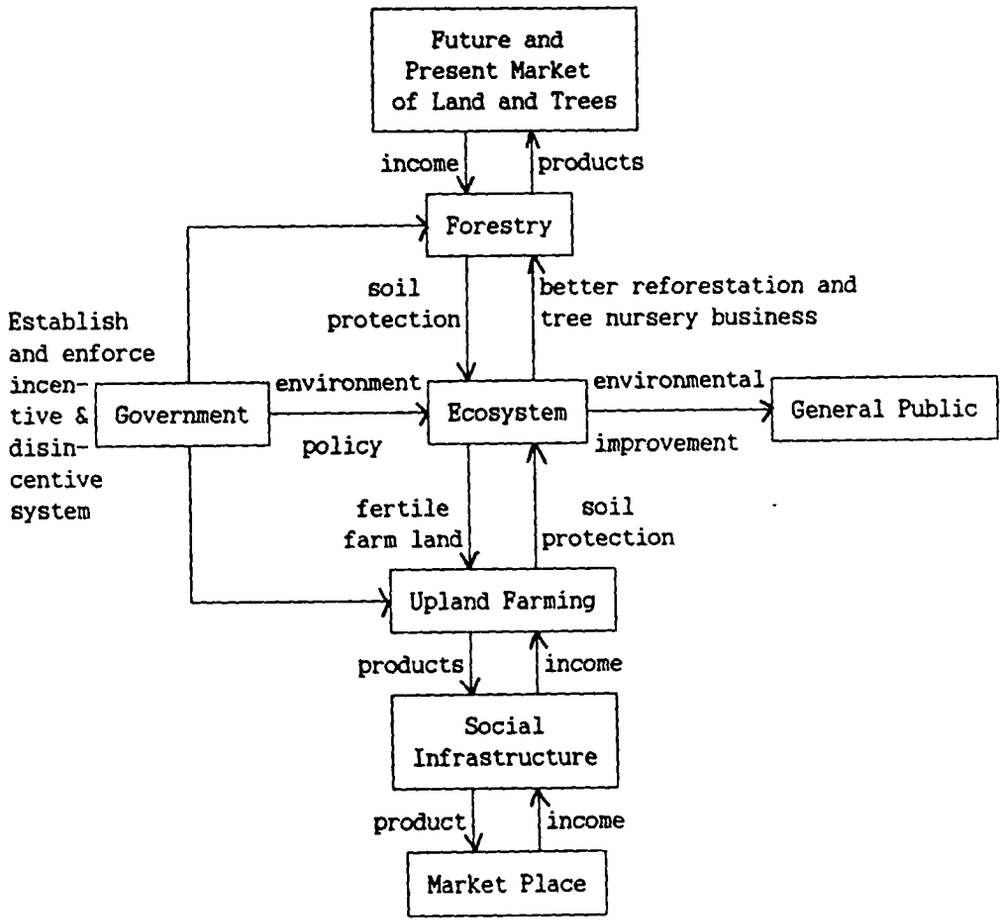
For many Asian countries, however, establishing such system may not be feasible. The existing land tenure system, political, socio-economic and cultural conditions may make it impossible for the government to adopt the above suggested incentive-disincentive system and effectively enforce it.

However, Korean example may re-orient some policy-makers in Asia about the effectiveness of incentive and dis-incentive system being adopted in an agroforestry system. The recent flooding in Thailand and Philippines have created a climate for urgency for taking some positive prompt actions against a further destruction of agroforestry.

In the 18th century, Adam Smith postulated that the pursuit of individual self-interest results in the benefit of everyone. The task before us is that the conditions necessary for the principle of Adam Smith to work have to be created. Then, without the government's direct intervention, Mr. Smith's "invisible hand" will

work in improving agroforestry in Asia according to each country's special circumstances and situations.

Figure 6. Organic Relation Between Forestry, Upland Farming and Ecosystem



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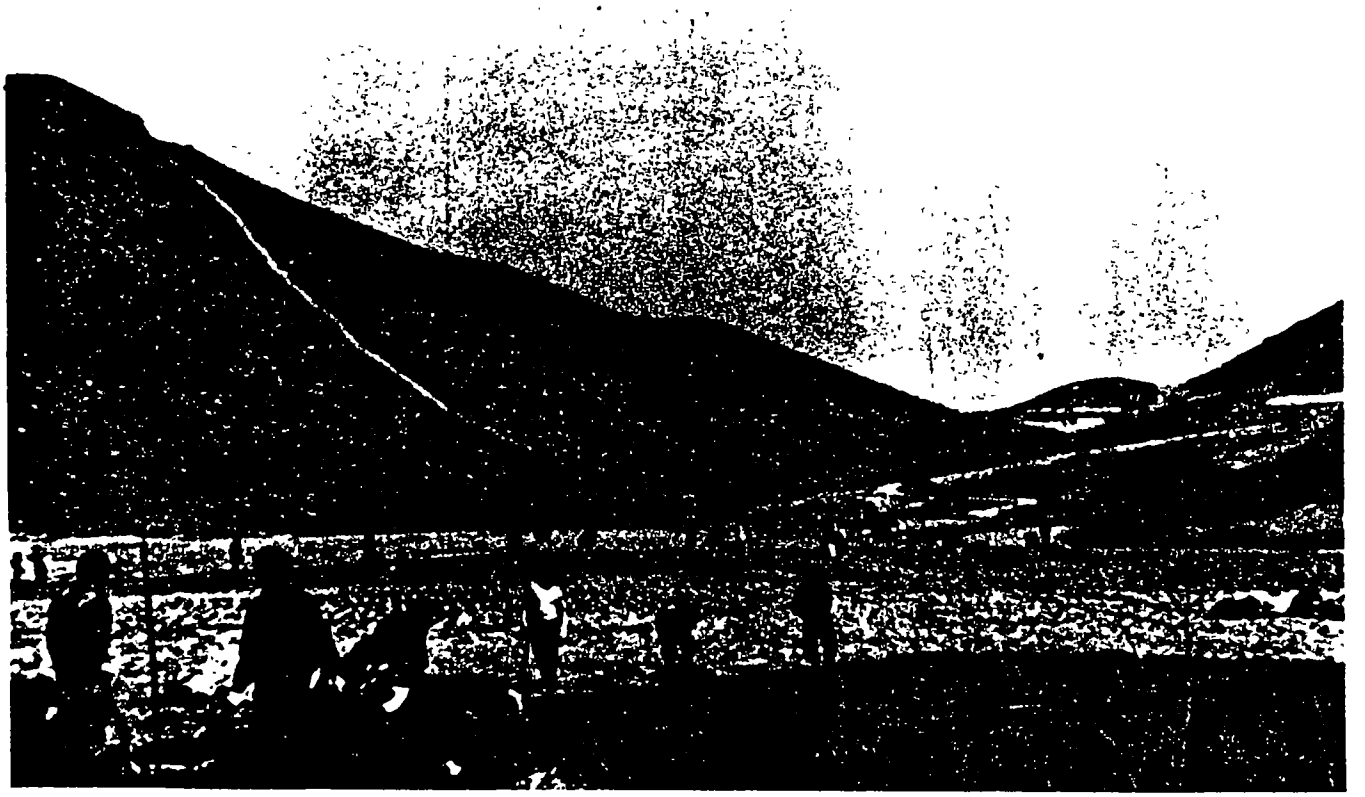
Acknowledgement

We would like to express our sincere gratitude to Dr. Cherla Sastry of the International Development Research Centre for having provided us with many valuable resource materials, advices, guidance and a constant encouragement in conducting our agroforestry research, out of which this paper is born. We would also like to thank Mr. Lee, Kwang-Won of Korea Rural Economic Institute for having offered us many resource materials, mostly his own.

Appendix

Photographs of Korea's mountains before and after reforestation programmes are implemented in Buan-Gun, Cholla Buk-Do, Korea.

Reforestation: Ginso-Myon



1966

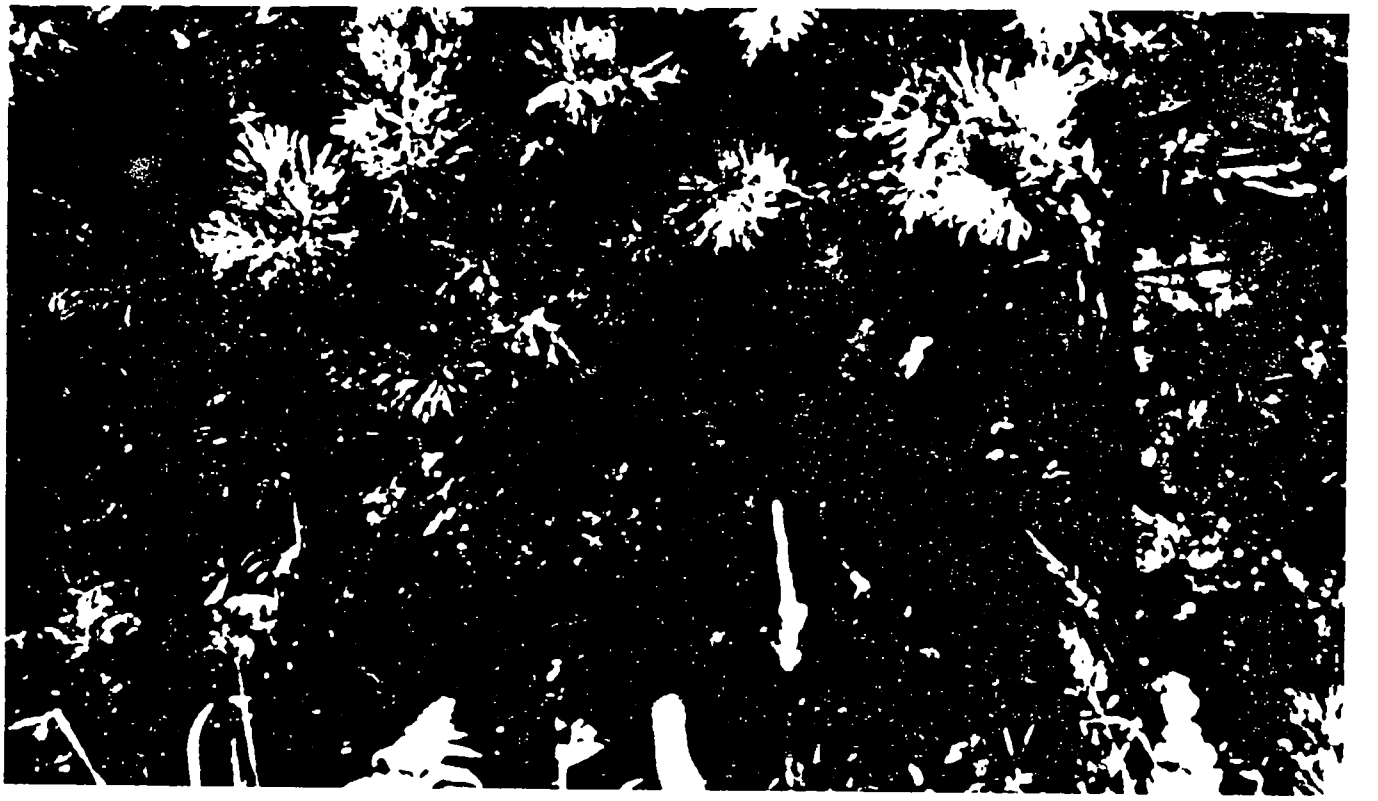
1988

Reforestation: Byonsan-Myon

1969

1988

Tree-tending: Sangso-Myon



1969

1979

CPR Processing: Pre-Screening
07/09/1993

Notes: -0-

Screenid: 32205 Doc: 2155

Country : -0-
Region : -0-
Resname1: -0-

Ro, Kong-Kyun, and Jae Keun Lee (1991) "Current Upland Farm Forestry Condition and Its Past and Present Management Policy in Korea." Paper presented at the IASCP Common Property Conference, Winnipeg, Canada, 26-29 September.*

This paper reviews the past and present upland agroforestry practices, paying particular attention to the structural characteristics of agroforestry and its environment. Second, the past and present government policies for upland farming forestry development with emphasis on exploring its future direction will be examined. Finally, based on Korea's experience, we propose to explore what should be the optimum viable agroforestry system for the establishment of which the government should give a top priority. (p.3)

LF/0/Korea