

Forestry Administration and Forestry Research in Korea

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ABSTRACTS

Korea is a small country with extremely high population density. Industrialization of the nation resulted GNP per capita of over 2,000\$ in 1986 with an inevitable by-product, high level of pollution in many areas. Forest land is now acknowledged as not only a wood production site but also an origin of much more important intangible values, water and clean air, soil conservation, and recreational and scenic values.

Mostly devastated forest land from Korean War has been recovered under the strong afforestation drive from the government. The first Forest Development Plan was mostly reforestation phase and the second Forest Development Plan is foundation establishment phase. The third and later Plans are to enlarge economical forest and to maintain sustained yield phase.

Forestry administration as well as forest research certainly played a great role in successful accomplishment of two Forest Development Plans. For effective planning and accomplishment of the third Forest Development Plan close cooperation among policy makers, forest managers and research workers are mostly required.

I. INTRODUCTION

Successful industrialization of Korea can be simply expressed from the GNP per capita in 1986, 2,000\$ in U.S. dollars. The figures have risen more than 10 times during last 25 years. During these periods, forest lands devastated from the Korean War have been miraculously covered with trees under the strong afforestation drive of the government. However, the industrialization of the nation have brought not only economical upheaval but also high level of pollution in many areas of the nation. We have seen many times how industrialization can overdo our environments and spoil them. We may run out of not just clean water but enough water for survival. Finally we, foresters, arrived at the scene in which forest land, 66% of the total land, can give more enriched life

style to the industrialized nation.

People are aware of the intangible values of forest, its ability to conserve nation's soil, recreational and scenic value, along with its conventional tangible value of wood production. Now the government is planning the third Forest Development Plan and the review of forestry administration, forestry policies, and research of the past and constructional suggestion for future plan will be very meaningful.

II. LAND USE IN KOREA

Korea is known to be the second in population density after Sri Lanka. Area of South Korea covers about 9.9 million hectares (Fig. 1). The country is characterized by hills and mountains which account for nearly 66% of its territory. However forest land per capita is no more than 0.

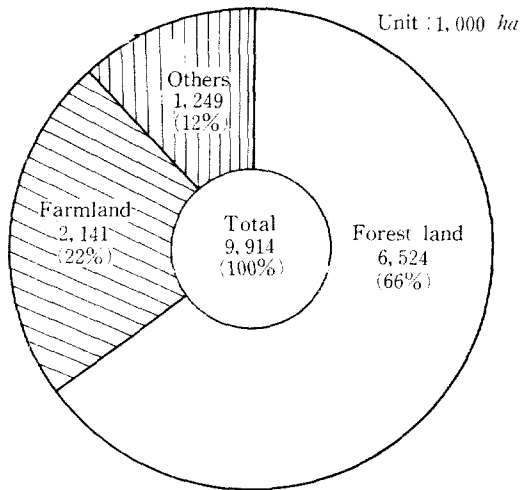


Fig. 1 Land Use in Korea

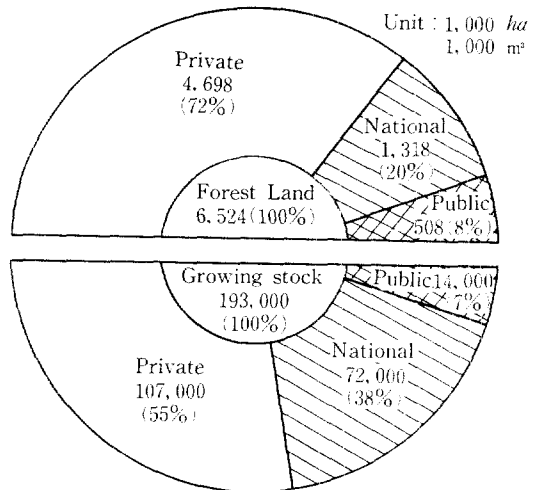


Fig. 3 Forest Land and Growing Stock by Owners

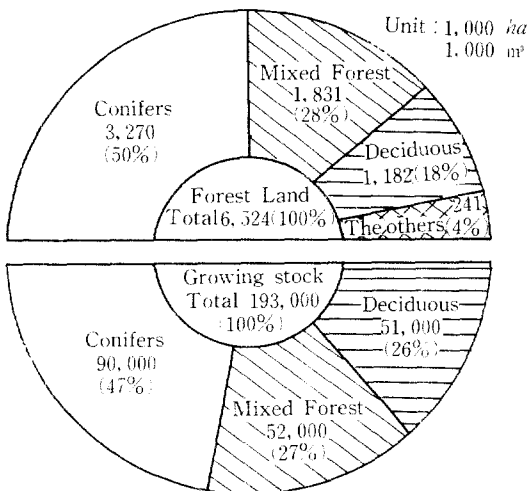


Fig. 2 Forest Land and Growing Stock by Species

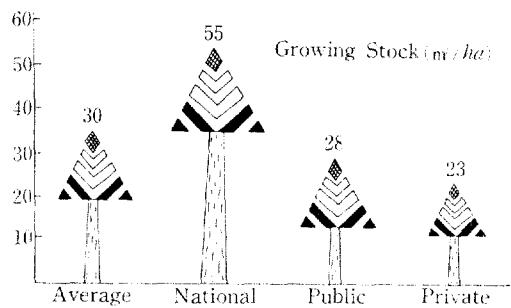


Fig. 4 Growing Stock per Hectare by Owners

2 hectare which is equivalent to one quarter of the world mean. About half of the forest lands are covered by coniferous tree species and rest of them are mixed, deciduous and the others in declining order (Fig.2). These are very young age stands with 93% of growing stocks under age class of III. Korean forest is specially characterized with many private owners of small forest land area (Fig.3). Total number of the forest land owners are more than 19 million and 60% of them own less than one hectare. Total stock volume is 193 million m³ and the average stock volume per hectare is 30 m³ at present (Fig.4).

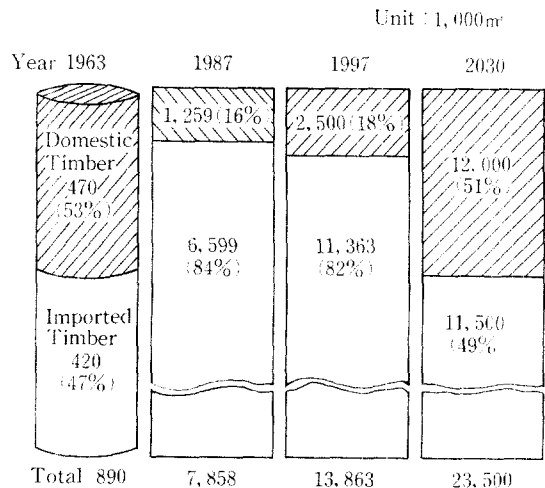


Fig. 5 Demand and Supply of Timber

In 1963, timber demand was only 890 thousand m³ and more than half of the demand was met by domestic wood supply (Fig.5). Timber demand has increased almost 8 folds during last 25 years and domestic supply of wood is now only 16% of the demand in 1987. We hope to lower the dependency of foreign wood less than 50% by 2030.

III. ORGANIZATION OF THE FORESTRY ADMINISTRATION

Forestry Administration is under the Ministry of Agriculture, Forestry and Fisheries as of January 1, 1987. The organization had been under the Ministry of Home Affairs for effective reforestation and protection during last 15 years. Under the control of the Forestry Administrator, there are four competent branches: Planning and Management Bureau, Forestry Administration Bureau, Reforestation Bureau and Forest Management Bureau (Fig.6 & 7). There are also three national forest

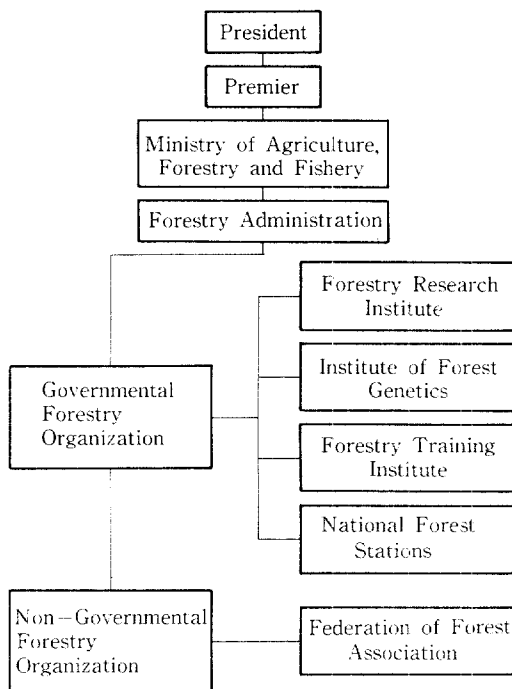


Fig. 6 Organization of Central Government

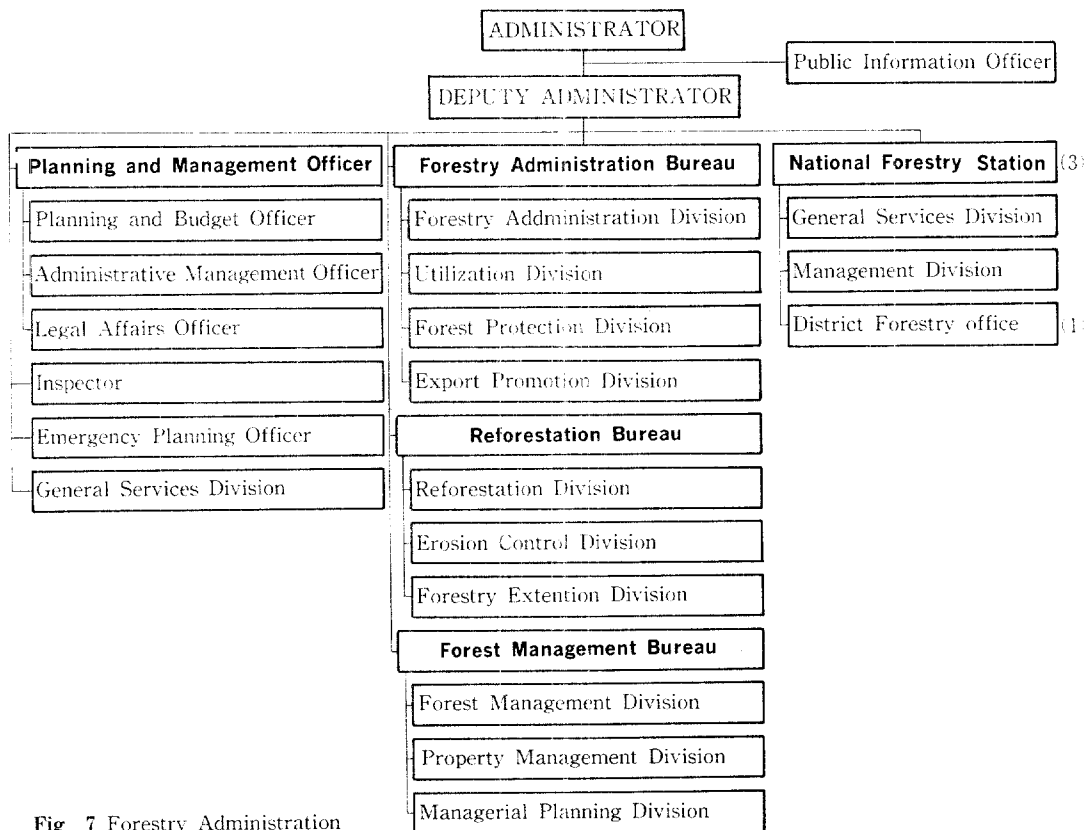


Fig. 7 Forestry Administration

offices and three separate research institutes including Forestry Research Institute, Institute of Forest Genetics, and Forestry Training Institute (Fig. 8 & 9).

Provincial forestry administration is under the

control of Agricultural and Forestry Bureau of provincial government. Local governments consist of 9 provincial governments and 5 independent civic governments.

The total number of regular staff in government

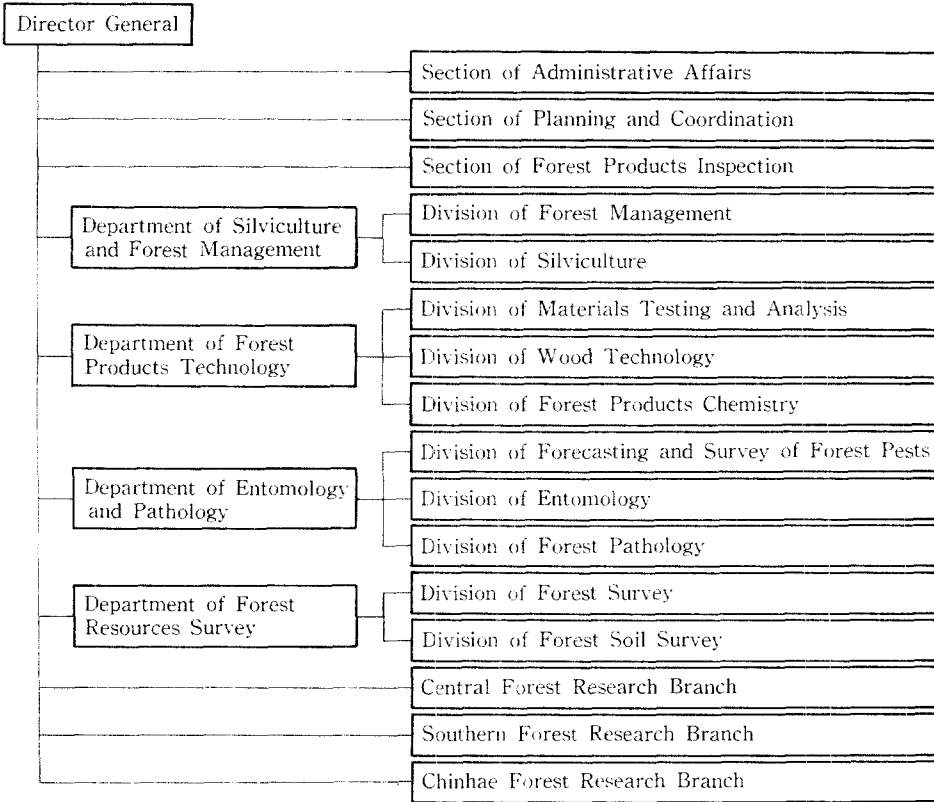


Fig. 8 Forestry Research Institute

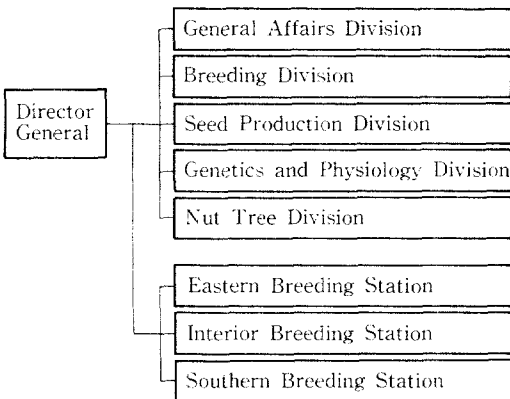


Fig. 9 Institute of Forest Genetics

organization of Forestry is 1986 and researchers occupy 12.1% of the total number (Fig. 10 & 11). Foresters and province foresters are the largest portion of all, 29.8% and 27.5% separately. As a non-government forestry organization, the Forest Association plays a very important role in administration of forestry program. The Association is a cooperative organization among forest owners and villagers based on the Forest Association Law in order to protect and manage village forests effectively.

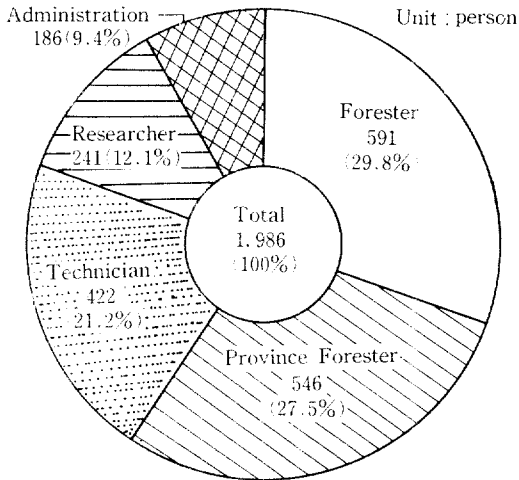


Fig. 10 Regular Staff in Forestry Administration

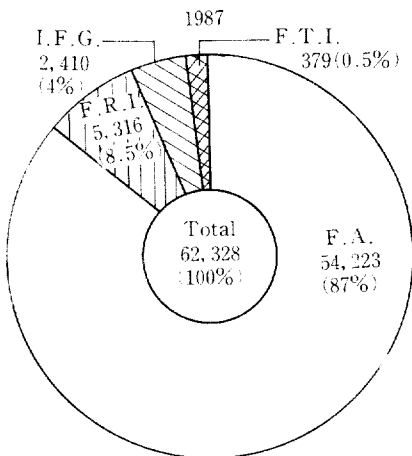
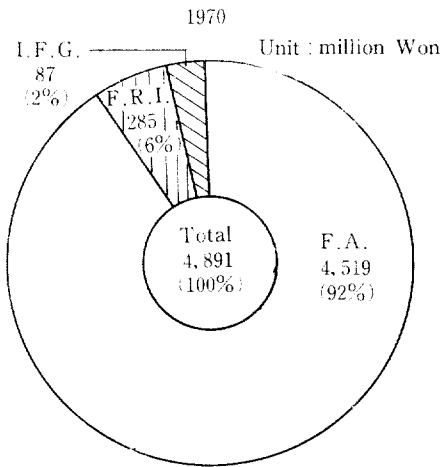


Fig. 11 Allocation of Budget in the Field of Forestry

IV. FORESTRY POLICY

Successful accomplishment of the First 10-Year Forest Development Plan and the on-going Second 10-Year Forest Development Plan can be recorded as the most important events in the history of forestry policy in Korea. The first Forest Development Plan was originally scheduled for 10 years from 1973 to 1982, but was completed in only 6 years with overwhelming enthusiasm and cooperation between government and people. The result was reforestation of over one million hectares of forest land with 42,000 hectares of erosion control. Establishment of tree tending day on the first Saturday of November along with national tree-planting period from March 21 to April 20 induced the participation of the entire nation in the reforestation project. Materials used in reforestation including seedlings, fertilizers and even man powers were subsidized by the government. Most successful and efficient results came through the nationwide movement of Saemaul Undong, that is to say "New Community Movement" and Village Association Movement.

The Second 10-Year Forest Development Plan is to lay out foundation for the maximization of forest productivity in the future. Creation of new economic region through establishment of producti-

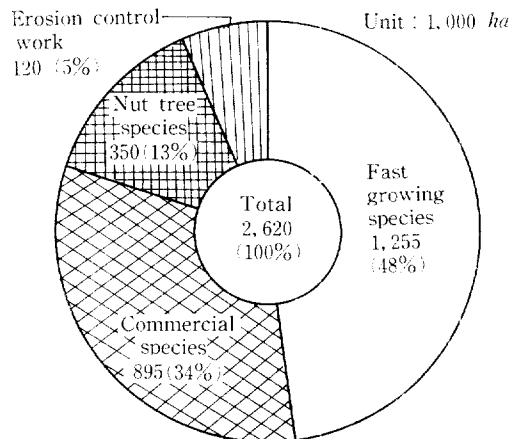


Fig. 12 Accomplishment of First and Second 10 Year Forest Development Plans

Table 1. Forestry policy and Research works—past and future

Classification	Past—Present (1948-1987)	Future (1988-)
Target of forestry policy	Reforestation of non-forested lands	Establishment of valuable forest resources—Enhancement of forestry income
Means	Pan-national movement --Saemaul Undong --Village Forest Association Movement --Govt subsidy inkind	National Forestry management · Cooperative management -- Private sector · Optimum size of management --national sector · Long term loan and subsidy
Excuting bodies	Governments -- National planning -- Provincial governments performance	Forest owners · Forestry management plan by ownership · Self-regulated management
Research works	Reforestation Erosion control Forest protection Forest product utilization Tree breeding	Timber stand improvement Forest protection Forest product utilization Tree breeding Forestry economics Forestry management Environments

ve forests includes large-scale commercial forest, elimination of erosion area, development of economic species for right site, and forest protection. The result from two consecutive Forest Development Plans are summerized in the Figure 12. Korea is at the moment of planning the third Forest Development Plan in which high priority will be put on economization of existing forest resources through establishment of economic forest sector, multiple-use of forest lands and enhancement of public benefits from forest. To do so forest road construction and investment in mechanized forestry equipment will be extended vigorously along with cooperative forest management system for effective management of small-scale private forest lands. Forestry policy and research works of the past and future is summerized in Table 1.

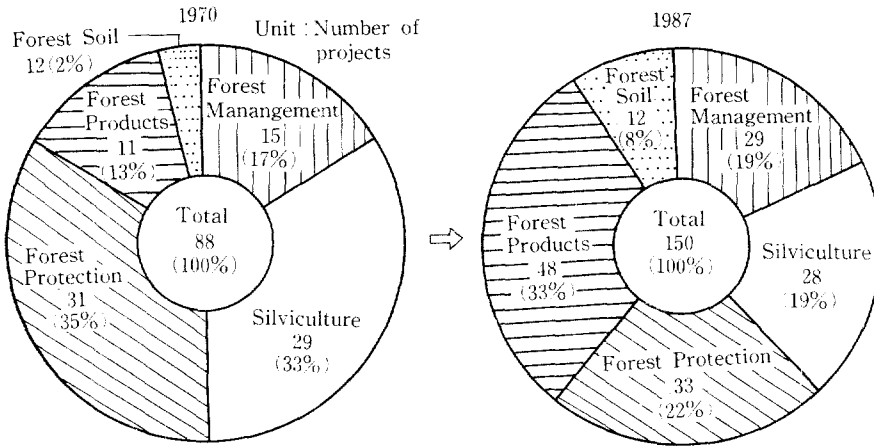
V. FORESTRY RESEARCH

Basic target in forestry policy of the past was to cover up denuded country. Forest researchers have played certainly a very important role in this process of forest developmental phase. We cannot

underestimate the eminent effect of the massive raising and release of the natural enemies of the pine gall midge which has been attacking much of forest stands of two most important native species, *Pinus densiflora* and *Pinus thunbergii*. Forest and forest soil inventory nationwide have provided the means for selection of the best tree species for successful plantation. Many newly developed and introduced superior tree varieties have been planted in almost one million hectares of forest land as a successful evidence of tree improvement work. Standardized silvicultural treatments and nursery practices, many research results from forest products laboratory have been utilized in forestry industries. All these researches were directly related to the increase of productivity of forest land in many ways.

Useful forestry technology will be developed for special circumstances of Korean forest through various research works. Active research will bring forth results directly connected to the productivity increase of forest land by supplying genetically improved materials with more sophisticated silvicultural treatment and above all with a skillful

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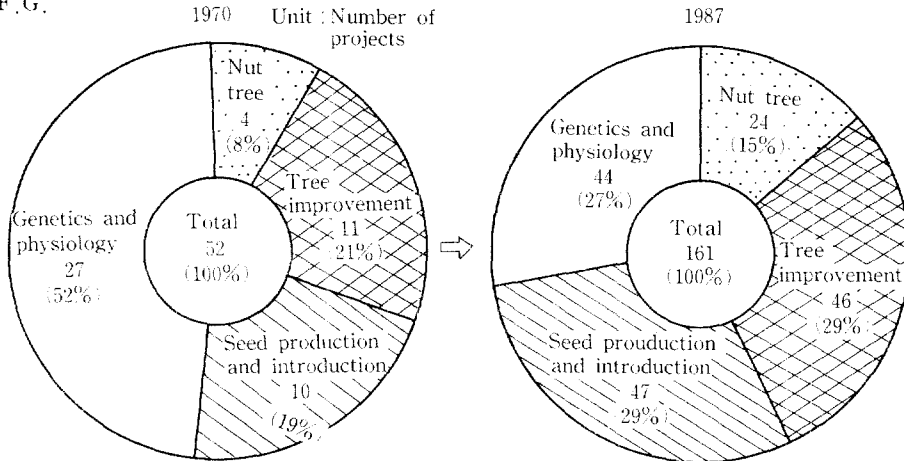


Fig. 13 Forest Research Projects

tool of forest management. More emphases are put on forest management, forest products, and nut tree projects in 1987 compared with the research projects of 1970 (Fig.13). These projects are all closely related with the enhancement of income from forest lands.

Population growth of the nation and fast development of industrialization is asking openly the forest land to be utilized more economically. The forest land will be challenged by many competing industries of agriculture such as animal farm, fruit orchard, flower farm and at the same time for the sites of factories and housing. To minimize the loss from the shifting of forest land to other usages, forest economics has to be essential part in forestry

research. Active forest economists may successfully provide forest land as a package to sell to people through items of forest products and forest by-products and of tangible and intangible values. Environmental forestry is another very important field for which forest researchers should be in mind. New project is needed to lead the direction and to set up the goals of environmental forestry of future Korea.

Forest tree is especially characterized by its big size and long rotation age. Too often, early impatient demand of the research result can weaken long term forest ecosystem through the consequence of trials and errors. Objectives of forest research are needed to be elastic enough to meet future

need. Uncertainty of future even in biological structure of forest as well as changing social demands requires more elastic goals with widening scopes. Steady endeavors of forestry researchers will be a very essential part to back up future establishment of valuable forest resources and for the sustained yield in Korea.

As a conclusion, I would like to cite one of the declarations of IUFRO World Congress recently held in Ljubljana, Yugoslavia. There should always be close cooperation among policy makers, forest managers and research workers, both nationally and internationally, to ensure the formulation of realistic and productive research programmes and the effective implementation of research results. In the face of financial stringency, government and other supporting organizations should provide reasonable funding for forest research of enable forest research

workers to make an effective contribution to human progress(Fig.14).

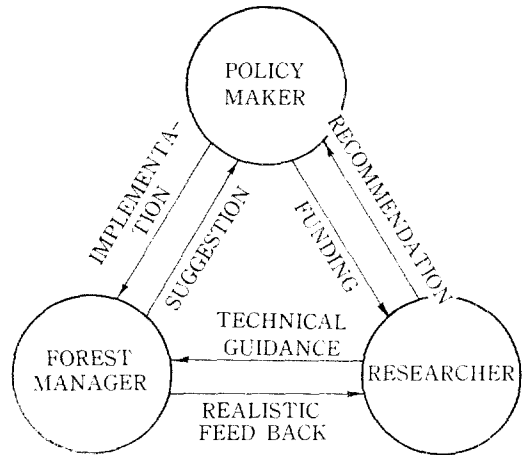


Fig. 14 Necessity of cooperation among policy maker, forest manager, and researcher.