



DPRK NATIONAL AGROFORESTRY STRATEGY AND ACTION PLAN

2015 – 2024





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FOREWORD

Respected Comrade Kim Jong Un said:

“It is the unshakable determination and will of our Party to turn all the mountains into thickly-wooded ‘treasure mountains’ and ‘golden mountains’ within the coming ten years, true to the intentions of the great President and General.”

Agroforestry is being recognized and widely adopted throughout the world as a sustainable land management system and the future form of land utilization that contributes to the achievement of national development goals such as food security, sustainable economic development and environmental protection. At present, when deforestation, land degradation and increased natural disasters are prevailing as serious environmental issues that heavily affect people’s livelihoods and the economic development of the DPR Korea, it arises as a very urgent and important issue to actively adopt the agroforestry approach in accordance with the country’s specific condition.

Through its efforts to utilize mountains in an integrated and sustainable way, the DPR Korea has had great experiences with the implementation of agroforestry. In view of the worldwide tendency and based on the good experiences achieved in practice, the DPRK government has recently taken measures to extend agroforestry to a nationwide scale. Upon the authorization of the government, the Ministry of Land and Environment Protection, whose mandate includes supervision over the utilization, protection and management of all the country’s land, has developed a “National Agroforestry Strategy and Action Plan (2015–2024)” in collaboration with the relevant stakeholders.

The “National Agroforestry Strategy and Action Plan” will serve as a guideline to push agroforestry extension as a project of the whole nation with clear targets and directions. It will also contribute to the achievement of the UN Millennium Development Goals and the implementation of UN environmental conventions, including UNFCCC, UNCCD and CBD in the DPRK.

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Ministries and governmental agencies including the Praesidium of the Supreme People’s Assembly, the Cabinet, the State Planning Commission, the Ministry of Timber Industry, the Ministry of Agriculture, the Ministry of Foodstuff and Daily Goods Industry, the Ministry of Public Health and the Central Bureau of Statistics, scientific research and educational institutions including the State Science and Technology Committee, the Education Commission, the State Academy of Sciences, the Academy of Social Sciences, the Academy of Agricultural Science, the Academy of Forest Science, Kim Il Sung University and Wonsan Agricultural University, and publication and mass media including the Central Broadcasting Committee and the Industrial Publishing House have contributed to the development of the “National Agroforestry Strategy and Action Plan” through active participation in consultative meetings and workshops on several occasions and through the provision of necessary information.

CHAPTER 1 INTRODUCTION



1.1 UNDERSTANDING AGROFORESTRY

1.1.1 Origin of agroforestry

Agroforestry emerged at the end of the 1970s as a result of international research and efforts to solve the food, economic and environmental crises that the world faced from the middle of the last century. It is now being continuously developed and widely adopted throughout the world as a combined management system of agriculture and forestry.

Recognizing the threats of climate change, deforestation, land degradation, loss of biodiversity and increasing and intensifying occurrences of natural disasters, research and discussion have started focusing on prevention measures. Scientists and policy-makers are searching for rational land use methods that ensure sustainability of the production basis while meeting the demand for diversified products. Their attention shifted to land use systems integrating trees, crops and livestock in the same unit of land—systems that were traditionally in use in the various countries and nations of the world.

This led to the development in the late 1970s of agroforestry as a new branch of interdisciplinary science. Today, agroforestry is gaining recognition for its ability to contribute to food security, sustainable economic development and environmental protection. It is being widely adopted in many countries of the world.

1.1.2 Understanding agroforestry

Agroforestry exists in various forms with various purposes in various countries and regions of the world. As a result, its definition varies to some extent. There is, however, a common point: agroforestry is an integrated and sustainable land management system that combines trees, crops and other economic grass plants, and livestock, making maximum use of the land and increasing production while protecting the environment and reducing natural disaster risks.

Agroforestry does not mean converting agricultural land into forest or forest into agricultural land; rather, it means organically combining forestry and agriculture in a way that positively impacts the environment. In other words, agroforestry is an eco-friendly practice that closely combines forestry and agriculture, making maximum use of land and soil.

As a widely promoted land management system, agroforestry has the following characteristics:

- a) Intentional: it is designed, planned and managed for intended results;
- b) Intensive: all components are intensively managed;
- c) Integrated: agriculture, forestry and environmental science are integrated;
- d) Interactive: full display is given to the positive interactions between trees, agricultural crops, livestock and people.

There are various models of agroforestry such as the combination of trees with crops, trees with fodder grasses, trees with stock-breeding (silvopasture), trees with medical herbs and other forest resources etc. (DPRK regulation on agroforestry application, article 7).

1.1.3 Benefits of agroforestry

Productive activities under agroforestry systems bring a lot of socio-economic and environmental benefits.

Economic benefits: Agroforestry systems increase economic income sustainably by combining new and diversified production activities which make circulation of products and money fast.

Environmental benefits: Agroforestry practices protect soil and water and improve the environment.

Social benefits: Agroforestry brings many social benefits such as biodiversity conservation, beautiful landscapes and global climate change mitigation through increased carbon sequestration.

1.2 BACKGROUND OF AGROFORESTRY INTRODUCTION IN DPRK

1.2.1 Natural and physical features

1.2.1.1 Topographical condition

Separated from Russia and China by the Amnok and Tuman rivers, the Korean peninsula lies in the east of the Asian continent. The peninsula is roughly 1145 km long and 645 km wide, spanning an area of 223 370 km². Mountains make up about 80% of the total land area which is embroidered with rivers and streams. Its coastline is long and jagged. The Grand Paektu Mountain Range, which forms a major backbone of the country, stretches from the north to the south, running parallel to the eastern coastline, from where small and big mountain ranges sprawl to the east and the west respectively. Flat plains are stretching along the western coastline and overall elevation is high in the north and the east, gradually declining to the west and the south. Average elevation above sea level is about 590 m, which is not high for the world average, but with mountains of relatively high elevation and many ups and downs, there are many long and narrow mountain valleys, and sloping lands with steep inclination.

1.2.1.2 Climatic conditions

Located in the middle of the northern temperate zone, the DPRK has four distinct seasons. Annual average temperature is 9–10°C and annual mean precipitation is 1000–1200 mm. For its geographical location and complicated topographical condition, there is high seasonal and regional climatic variation. In winter, the weather is clear and cold due under the influence of the cold and dry wind from the Asian continent. Summers are hot and humid due to winds blowing in from the sea. July and August are marked by intensive rainfall: over 50% of annual precipitation falls in this period, causing long rainy spells in the most of the country.

In spring and autumn, the wind direction changes and the weather stays clear. In spring, in particular, dry and strong wind evaporates a lot of ground water, causing droughts almost every year. Regional climatic difference is also big: between the inland and coastal areas, between the northern highland and midland mountainous areas and between the eastern and western coastal areas.

In recent years, global climate change has caused temperatures to rise rapidly (1.9°C/100 years), and seasonal and regional disparity in precipitation is getting more serious, resulting in more frequent and more intense floods and droughts. The years of 1990, 1995 and 1996 were exceptionally rainy, whereas the years of 1997 and 2012 were severely dry. 2014 was marked by a long period of continued drought, something which had not happened for 100 years.

1.2.1.3 Biodiversity

1.2.1.3.1 Flora

In the DPRK, where forests take more than 70% of the total land area (2010), most flora grow in forests. Forest floral diversity, therefore, represents overall floral diversity of the country (2nd national report on climate change, 2012). For its geographical location, percentage of forest cover, diverse meteorological and climatic conditions, and for its being surrounded by the sea and complex hilly topography, the DPRK has a remarkably diversified forest floral resource comprising plants that belong to subarctic to subtropical forests.

The number of plant species in the DPRK recorded until the end of 2006 amounts to 10 012, of which vascular plants (207 families, 1086 kinds and 3623 species), seed plants (181 families, 1017 kinds and 3384 species) and 844 varieties. Additionally, there are 781 species of *Bryophyta*, 583 species of lichens, 2310 species of fungi and 2715 species of *Algae*. (4th National Report on Biodiversity, 2011).

1.2.1.3.2 Fauna

Of the vertebrates so far registered in the DPRK, there are 151 families, 472 kinds and 435 species. Among them, there are animals in 28 families, 69 kinds and 107 species: land animals in 20 families, 48 kinds and 79 species, *Insectivora* in 11 species, bats in 24 species, rabbits in 2 species, *Rodentia* in 18 species, *Carnivora* in 15 species and *Artiodactyla* in 7 species.

There are birds in 61 families, 190 kinds and 420 species. Among them are 64 species of all-season birds, 94 species of summer birds, 106 species of winter birds, 83 kinds of passing birds, 73 kinds of stray birds. The percentage of migratory birds is notably high. Typical migratory bird groups are duck-wild goose, crane, snipe, white heron, *Platalea minor*, stork and swallow groups. There are many endangered species in the duck-wild goose, crane, snipe groups and the total number of their species is 106.

There are 11 families, 17 kinds and 26 species of reptiles. Of the invertebrate animals registered so far, there are 9960 species, of which 7600 species of insects. (4th National Report on Biodiversity, 2011).

Of the invertebrate animals registered so far, there are 8360 species, of which 7600 species of insects. Research is continuing, so the number of invertebrate species is expected to increase by more than three times (4th National Report on Biodiversity, 2011).

1.2.2 Socio-economic situation in the DPRK

1.2.2.1 Population

The population of the DPRK was 24 052 000 in 2008, up by 13.4% from the first census in 1993. Male and female population grew by 13.5% and 13.3% respectively and the annual average growth rate was 0.86%.

The percentage of urban population was 60.6% and the rural population was 39.4%, showing little difference from that of 1993. Total number of households were 5 890 000 in 2008, which was 22.6% increase as compared with 4 802 000 in 1993.

Percentage of urban households is 60.8% and that of rural households is 39.2%, which is similar to the urban and rural population rate. (Central Bureau of Statistics, 2008).

1.2.2.2 Industry

The DPRK is a socialist industrial state, based on a self-reliant national economy. In a socialist country, popular masses are the masters of state power and production means, and it is the supreme goal of state activity to constantly improve people's livelihoods.

The DPRK's gross domestic product reached US\$ 20.9 billion in 1992, and US\$ 10.6 billion in 1996. This drop is to be blamed on the many difficulties the country faced since the mid-1990s due to external economic pressure and consecutive natural disasters which threatened food security and the economy in the country.

The GDP increased gradually from 2000, growing from US\$ 10.6 billion in 2000 to US\$ 12.9 billion in 2004. (Environment and climate change report, 2012).

Table 1-1. Economic change status (Environment and climate change report, 2012)

Year	1992	1994	1996	2000	2004	2008
GDP (million US\$)	20 875	15 421	10 588	10 608	12 859	16 360
GDP per capita (US\$)	990	722	482	464	546	683

The GDP reached US\$ 16.4 billion in 2008, an increase of 150% as compared with 1996. Sectoral increase percentages were: industrial sector (46%), agricultural sector (15%), the construction sector (6.2%) and other sectors including foreign trade, service, transport, fishery and forestry (33%).

1.2.2.3 Agriculture

Agriculture is one of the two major components of the national economy and plays a very important role in developing the national economy and improving people's livelihoods. The main crops are rice and maize. Additional crops include wheat, barley, sorghum, soy bean, and potato. The allocation of arable land between agricultural uses is given in table 1-2 (Environment and climate change report, 2010).

Table 1-2. Allocation of arable land (Environment and climate change report, 2010)

Category		1996	1998	2000	2002	2004	2008
Sown area (1 000 ha)	Rice	575	574	531	578	-	565
	Maize	584	588	492	493	-	499
	Wheat, barley	64	79	122	126	-	108
Cultivated area (1 000 ha)	Orchard	159	159	157	158	143	-
	Mulberry field	-	92	92	89	84	-

The production and use of chemical fertilizer is one of the main methods for boosting grain yields in the agricultural sector. For the promotion of organic farming, there is ongoing research on and development of micro-biological fertilizer and biological chemicals in the DPRK.

To cope with food crises and repeated natural disasters, the DPRK government is pushing forward large-scale projects of land re-alignment, tidal land reclamation, the construction of reservoirs and gravity-fed irrigation canals, among others. At the same time, the government has set forth policies of seed revolution, double-cropping, potato and soy bean farming, and is taking active measures to increase agricultural production, such as the introduction of advanced new farming technologies.

In view of its geophysical condition with limited arable land available and high natural disaster risks due to the strong seasonal and regional climatic differences, the DPRK has been promoting conservationist policy, while increasing agricultural land and yields per hectare as much as possible through irrigation and technologically advanced farming methods.

One of the principles of land development is to encroach as little as possible on agricultural land and, where reassignment is inevitable, compensating elsewhere. At the same time, arable land is constantly increased through massive efforts to reclaim tidal land and acquiring new land.

In a bid to overcome drought and flood, the government intends to establish irrigation and drainage systems in all wet and dry fields, investing lots of money into the construction of reservoirs, irrigation canals and draining trenches. Afforestation and water conservation are regarded as the mainstay for agriculture and tree planting and river improvement works are being conducted on a massive scale.

The right crops for right land and the right climate are planted in conformity with the regional conditions, and they are cultivated in a scientifically and technically advanced way, with the agricultural intensification being achieved by developing and introducing superior species and by adopting advanced farming methods.

While grains are mainly cultivated, fruit farming, stock-breeding and sericulture are also promoted at the same time by effectively using mountains and diversifying the agricultural production. As a result, the DPRK was able to be self-sufficient in food in the 1970s and rapidly increased all agricultural output including the fruit, stock-breeding and sericulture. From the mid 1990s, however, external economic pressure and sanctions, and damage from weather events caused agricultural production to drop sharply.

1.2.2.4 Forest

In the DPRK which is very mountainous and is rich in cash crops, forests play a big role for economic development, people's livelihood improvement, and conservation and improvement of the country's landscape.

Forests produce timber for many sectors of the national economy, and non-timber forest products are used as materials for light industry development. As a great natural water tower, forests play an important role in the prevention of floods and droughts, protecting agricultural land, residential areas and industrial facilities in the lower-lying areas, and supplying enough water for drinking, irrigation and industry.

Forests are treasure-houses of biodiversity and they beautify the country's landscape. Forests also serve as important energy source for people living in mountainous rural areas. Therefore, the DPRK has been investing a lot of effort into afforestation and forest conservation and management, and it has set up a policy of turning all the mountains into "gold mountains" and "treasure mountains" by creating various economic forests, e.g. for the production of timber, oil, wild fruits, medicinal herbs, fibre, paper and so on.

Since the liberation of the country until the early 1990s, afforestation and forest conservation have been promoted actively. Timber forests increased while non-timber forests decreased, and forest accumulation constantly increased, satisfying the needs for the timber and raw materials for the light industry. Non-timber forest products such as wild fruits, wild edible greens and medicinal herbs and other natural foods have become income sources for the population living in the mountainous and rural areas, contributing to the improvement of their livelihoods.

However, forests have been massively damaged and degraded due to the temporary economic difficulties and consecutive natural disasters in the mid 1990s. During this period, the country faced economic difficulties and became increasingly dependent on forest resources, which led to excessive deforestation for timber, non-timber forest resources and firewood collection. To make matters worse, repeated natural disasters attributed to global climate change resulted in increased cutting of timber required for rehabilitation works.

On the other hand, tens of thousands hectares of forest lands were illegally cleared to produce food, damaging degraded forests completely. Illegal slash-and-burn farming practices have become causes of forest fire, accelerating deforestation and forest degradation. Since the late 1990s, the number of forest fires and the damaged area increased rapidly. From 2001 to 2005 alone, hundreds of forest fires broke out burning down thousands of hectares of forests. The area damaged by forest fire from 1995 to 2014 reached tens of thousands of hectares.

Deforestation and forest degradation reduced forest health and increased pest breakouts causing damage. For example, since 2006, the pine caterpillar has severely damaged the pine forests that take up most of the forest cover in the DPRK. Especially low mountainous areas in Pyongyang, South Phyongan Province, North Phyongan Province, North Hwanghae Province, and South Hwanghae Province suffered bitterly.

1.2.2.4.1 Impact of deforestation and forest degradation

Forest depletion and degradation have significant impacts on human and ecosystem health. The loss of forest cover reduces water infiltration, increases soil erosion and land slides, and contributes to the sedimentation of rivers. Serious sedimentation also happened in lakes and reservoirs, remarkably reducing water storage capacity. Rivers and streams dried up, causing severe drought damage.

Frequent floods and droughts reduced the regeneration capacity of forests and inflicted huge damage to agricultural production, industrial facilities, people's lives, and properties. In the past, when mountains were well-forested, land erosion was not serious in the sloping fields in the lower areas—even during the rainy season. But with forest depletion and degradation, sloping fields have become under constant threat of land erosion, worsening year after year.

Deforestation and forest degradation changed and damaged habitat, reducing biodiversity and exhausting valuable economic plant resources including many endangered and rare species. With recent deforestation and excessive exploitation of forest resources, the number of endangered plant species increased, including endemic species of the DPRK such as *Taxus cupidata*, *Thymus vulgaris*, and *Stewartia koreana*. In particular, many medicinal herbs, wild edible greens and mushrooms have become under critical threat of extinction.

1.2.2.5 Land use

According to data from 2010, forest land area is 92 387 km², agricultural land 18 956 km², industrial land 1959 km², riparian land is 8042 km², and residential 1630 km². There are other types of lands (2nd National Report on Climate Change, 2012). The DPRK is highly mountainous and its landform is very rugged. Therefore, there is a lot of sloping land and few plains.

According to the “DPRK Land Law”, adopted in 1977, land use is categorized into six main types (agricultural, residential, industrial, forest and riparian, and other) and the master plan for land development governs proper use and development of the land. Agriculture and industry are intensively distributed in the densely populated plains along the western and eastern coastline. Upland agriculture and local industry based on underground and forest resources are also distributed in mountainous areas, so that balanced development of all parts of the country is promoted.

Land use in the DPRK has been constantly changing with continuous growth of population and rapid socio-economic development. The population doubled since the 1940s (annual average population growth rate 0.86%) and with industrial and infrastructure development (roads, irrigation canals and reservoirs), residential, industrial and riparian areas kept increasing while forest was cut down to compensate for lost agricultural land. At present, sloping lands of more than 10° take up 41% of the total farming land.

Land use type percentages in 2013 are: forest lands 73.4%, agricultural lands 15.4%, residential areas 1.3%, industrial lands 1.6%, and riparian lands 6.5%.

Table 1-3. Areas of various land use types in 2013

Category	Total land area	Forest land	Agricultural land	Industrial land	Riparian land	Residential land
Area (km ²)	123 138	90 387	18 956	1 959	8 042	1 630

1.2.2.6 Land ownership and managing structure

1.2.2.6.1 Ownership

Land in the DPRK is owned by the state and cooperative groups. All the land of the country is publicly owned by the people. Nobody can sell or buy land and land cannot be privately owned. State-owned land is the property of the entire people.

Land in the DPRK is governed by the state alone, and can be used in various ways by cooperative farms and other institutions, enterprises, groups and individual citizens for the people’s benefit and well-being.

1.2.2.6.2 Land managing structure

The Ministry of Land and Environment Protection (MoLEP) administrates all the land in the country. It has an administrative structure for unified supervision and control over the land use of the country. There are the general administration of forestry, the river management administration, the road construction and management administration, and other departments such as the land supervision department. There are departments of land and environment protection in each province and divisions of land and environment protection in cities and counties, forming a nationwide system of land management and environmental protection.

The general administration of forestry, under the Ministry of Land and Environment Protection, is authorized to supervise and control the country’s forest land. The Ministry of Timber Industry is in charge of the production and management of forest products in the rotational lumbering areas assigned by MoLEP. The Ministry of Agriculture directly manages agricultural land.

There is a provincial rural management committee in each province, there are cooperative farm management committees in cities and counties under which there are cooperative farms in every *ri*, so that all the agricultural lands are managed in a collective way.

Every rural household can use 20–30 *pyong* (65–97 m²) of farming land including their own home garden.

1.2.3 Government policy and efforts to introduce agroforestry

1.2.3.1 Government policy

In the last two decades, the DPRK government has been taking active measures to rehabilitate degraded and damaged forests. Tree planting months have been set in spring and autumn, while afforestation and forest conservation and management have been conducted as an all-out campaign. At the end of 2014, a nationwide forest restoration campaign has been declared and the entire country has been called to the afforestation and the conservation of forests.

Major causes of deforestation in the DPRK are the excessive cutting of timber and firewood, over-exploitation of non-timber forest resources, illegal forest clearing and natural disasters.

In order to address such root causes of deforestation, the government is taking the following measures.

1.2.3.1.1 Nation-wide maximum quantity of timber consumption is lowered, lumbering is restricted and tree stealing is strictly prohibited.

To this end, annual lumbering quota are reduced and various measures have been taken to lower dependence on, and consumption of, timber in various sectors of the national economy. A rotational lumbering area has been reset depending on the timber accumulation volume, and timber production is planned on a long-term basis.

1.2.3.1.2 Firewood production is increased, while dependence on forest is reduced.

On the basis of the rural fuel use analysis, a plan to create 800 000 ha of firewood forest has been developed. Enterprises and cooperative farms in mountainous rural areas have been assigned some forest lands for firewood production. Fast-growing tree species with high heating efficiency are planted in firewood forests and on non-arable lands for the purpose of firewood production and environmental improvement. At the same time, the use of alternative and renewable energy sources such as ultra-anthracite, bio-gas and solar energy is encouraged and an energy-saving stove was introduced to relieve pressure on forests.

1.2.3.1.3 The area of protected forests is increased and the creation of wild fruit forest, medicinal herb forest and other types of raw material-producing forests are created. Timber-based forest management is shifted to multi-purpose forest management.

1.2.3.1.4 The government is attaching importance and diverting a lot of investment to the forest pest control, prevention of forest fire and flood damage and mobilizing the whole masses.

1.2.3.1.5 Supervision on and control of illegal clearing of forest lands are strengthened and agroforestry is widely applied to the cleared forest farming lands which are currently in use.

1.2.3.2 Agroforestry practices in the DPRK

Thanks to the government’s policy of rapidly developing the national economy and people’s livelihoods in conformity with the specific conditions of the country, various types of agroforestry practices have long been adopted in the DPRK.

1.2.3.2.1 Windbreaks

Windbreak forests were created in the northern highlands for growing potato in bad weather conditions. During the arduous period of war in 1952, a strong construction team was dispatched to the northern highlands to reclaim thousands of hectares of abandoned land and create windbreak forests. Building on such experiences, a lot of plateaus were reclaimed and windbreak forests were built, increasing agricultural production.

1.2.3.2.2 Silvopasture

After the liberation, the DPRK set forth policies to promote stock-breeding by creating natural and artificial grass fields that take advantage of the mountainous landscape, and it has put a lot of effort into the development of stock-breeding. Recently, a large-scale project of constructing a huge livestock breeding base in the Sepo area is at full swing and silvopasture is widely encouraged in degraded forests.

1.2.3.2.3 Home gardens

Since long, fruit tree planting has been widely encouraged in rural households. In order to support rural households, many fruit tree seedlings were supplied to the farmers at the expense of the government.

1.2.3.2.4 Forest farming

The production of various forest resources such as medicinal herbs, wild edible greens and mushrooms is being promoted. Government policy is to increase the production of non-timber forest resources by intensively cultivating various medicinal herbs and mushrooms such as *Platycodon grandiflorum*, *Codonopsis pilosula* and *Lentinus edodes* in accordance with the forest conditions. More recently, the government has set forth the policy of preventing excessive exploitation of the natural food resources and developing various agroforestry methods that cultivate economic plants in all the mountainous rural areas.

1.2.3.2.5 Intercropping

In non-timber forests, including farming lands on steep slopes, intercropping is done to produce food and plant trees at the same time. From the late 1990s, in order to prevent wide-spreading slash-and-burn farming to produce food and the resulting deforestation, farmers have been encouraged to plant trees on their lands. Those who do so excellently are given incentives.

1.2.3.2.6 Others

Fruit culture, sericulture and bee-keeping are also being encouraged in mountainous regions. Under the policy that the mountainous regions should rely on the mountains for the improvement of people's livelihoods, many low hills have been afforested as orchards and mulberry fields. User groups have been organized to produce fruits, silk and honey.

1.2.3.3 Creating a legal, organized and scientific basis for agroforestry

Scientific and research institutions intensified research on forest-raising methods, based on agroforestry practices. At the same time, good agroforestry practices from other countries have been adopted and international cooperation in this field has also been promoted.

From the early 2000s, MoLEP, in close collaboration with The Swiss Development Cooperation (SDC), has started to implement a sloping land management project in several counties of North Hwanghae Province which demonstrated how to achieve food security and livelihood improvement for local people, while restoring forest ecosystem through the implementation of agroforestry. The project proved that agroforestry is a good land management method which is ecologically sustainable, economically profitable and socially beneficial.

In view of the worldwide tendency of agroforestry development and based on earlier successes and experiences, the DPRK government has defined it as one of the country's important economic policies to give agroforestry a legal, organized and scientific basis and to implement it on a nation-wide scale.

1.2.3.3.1 Legal framework for the application of agroforestry

A legal basis has been provided in DPRK for the application and extension of agroforestry in accordance with the specific condition of the country.

- "DPRK Land Law" (adopted by decree of the Supreme People's Assembly No. 9 on 27 April 1977, and revised on 16 June 1999, by decree of the Praesidium of the Supreme People's Assembly No. 803-1)
- "DPRK Environment Law" (adopted by decree of the Supreme People's Assembly No. 5 on 9 April 1986, and revised and supplemented on 28 August 2011, by decree of the Praesidium of the Supreme People's Assembly No. 1825)
- "DPRK Forest Law" (amended and supplemented in April 2013)
- "Rules and regulations for the execution of the DPRK Forest Law" (approved by DPRK Cabinet resolution No. 27 on 8 April 2000)
- "Agroforestry regulations" (adopted by DPRK Cabinet Resolution No. 35 on 13 May 2013)
- "Regulations on the land management and supervision" (adopted by DPRK Cabinet Resolution No. 54 on 14 September 2009)

1.2.3.3.2 Institutional structure for the application of agroforestry

In April 2013, the "DPRK Forest Law" was amended and supplemented with agroforestry and adopted as a decree of the Praesidium of the Supreme People's Assembly. In May and June, rules and enforcement regulations have been adopted and come into effect, providing a legal basis for agroforestry implementation.

In March 2013, a central non-standing agroforestry committee composed of responsible officials from relevant ministries and government agencies, was established. It started to operate under the guidance of the Cabinet. Later, provincial, city, and county non-standing agroforestry committees have also been organized in every province, city and county people's committees.

At the same time, agroforestry sections have been set up in all the ministries and government agencies which administrate state land including the Ministry of Land and Environment Protection, and qualified officials have been assigned with the position. Thus, a national system for agroforestry management has been established. In 2013, research and design units specializing in agroforestry have been set up in scientific research institutions under MoLEP and, in 2014, a specialized agroforestry research unit was established in the Academy of Agricultural Science. This provided a scientific basis for agroforestry development.

From mid-2013, agroforestry has become a compulsory subject in forestry, agriculture and land management faculties of all the country's agricultural universities, providing a foundation for technical training of experts in agroforestry. In July 2014, the Korean Agroforestry Technical Association was erected under the Korean General Federation of Science and Technology, allowing the facilitation of agroforestry extension, scientific research and technical dissemination work throughout the whole society.

A scientific documentary film on agroforestry was produced and various reference books have been published. Newspapers and radios are widely introducing knowledge, experiences and lessons from agroforestry, contributing to the promotion of public awareness on agroforestry.

In keeping with article 12 of Agroforestry Regulations, "forest land use licences" are issued to the sloping land user groups and farmers, and illegally cleared forest lands have become legal agroforestry implementation sites. By ensuring their interests as much as possible and extending material and technical support, they have changed from destroyers of forests to the creators and conservators of forests.

Still, there are several challenges for agroforestry extension on a nation-wide scale.

1.3 STAKEHOLDER ANALYSIS

Government policy requires all land using groups to be involved in the development and extension of agroforestry. Relevant stakeholders can be divided into the following three categories:

- a) Direct land users and land managers. These include the land users who have an interest in agroforestry: afforestation work-teams of the forest management boards, afforestation for erosion control and river improvement work stations, seed-gathering work stations, sloping land user groups, forestry stations, other forest production units, land managers such as land management and environmental protection units, cooperative farms, natural resources management units such as natural reserve management stations, reservoir management stations, rivers and streams management stations, and local residents who are scattered throughout the country.
- b) Users and consumers of agroforestry products. These are mostly local people who consume agroforestry products, but also procurement and food administration units, local industry factories, commercial service units, and domestic and external markets.
- c) The units that protect and manage natural resources, provide economic development guidance, or provide educational and scientific research. They include central, provincial and local government agencies of various sectors, scientific research and technical institutions, universities, mass media, the Korean Agroforestry Technical Association, the Korean Nature Conservation Union, and other social organizations.

Agroforestry development and extension is implemented by active participation and full commitment of all of these relevant stakeholders. They have various interests in the development and implementation of agroforestry and may play different roles. Therefore, it is very important to mobilize them all in a well-organized and coordinated manner on the basis of the correct stakeholder analysis.

1.4 SWOT ANALYSIS

1.4.1 Agroforestry strengths

Agroforestry is an integrated natural resources management system and its strengths include biological, economic, environmental and social benefits.

- a) Agroforestry systems increase productivity by maximizing the effective use of land, vegetative cover and other natural resources.
- b) Agroforestry provides various ecosystem products and services through various protection and conservation activities.
- c) Agroforestry increases profitability and ensures income stability by improving annual circulation of funds and by making the best use of labour and investment.
- d) Agroforestry improves biodiversity and wildlife habitats.
- e) Agroforestry can create new spiritual and cultural assets, while reflecting traditional methods of land use and land conservation.
- f) Agroforestry comprehensively addresses land use demands.
- g) Agroforestry strengthens the connection between urban and rural areas.

1.4.2 Weaknesses for agroforestry

- a) Public awareness of agroforestry is weak.
- b) Agroforestry knowledge and technology are lacking.
- c) The value of the natural resources is not measurable, and the commercialization of products is still weak.
- d) Labour and infrastructure are weak.
- e) Insufficient superior species available for agroforestry production.
- f) The development of agroforestry models is not diversified in conformity with various ecological and socio-economic conditions.

1.4.3 Opportunities of agroforestry development

- a) The government is supporting agroforestry development.
- b) Agroforestry can be part of ecosystem restoration and natural resources protection activities.
- c) Agroforestry can contribute to the mitigation of climate change by increasing carbon sequestration and to the climate change adaptation by improving ecosystem resilience.
- d) Land use planning and various protective measures taken with the implementation of agroforestry ensure a more balanced interaction between humans and nature, socio-economic development and natural resources protection.
- e) Agroforestry can promote the development of the countryside, of people's livelihoods, and it can open international markets through the production of popular products and organic foods.
- f) Agroforestry contributes to the conservation of biodiversity.
- g) Provision of technical knowledge and other material support such as seeds can encourage land users to adopt agroforestry practices.

1.4.4 Threats to agroforestry development

- a) It is susceptible to global economic instability.
- b) It is susceptible to the effects of global climate change and natural disasters.
- c) There may be no international cooperation opportunities.
- d) Establishing an integrated financing mechanism may prove trying.
- e) Pest outbreak and spread may negatively impact on the quality and supply of products.

CHAPTER 2 STRATEGY & PLAN



2.1 STRATEGY

The DPRK government has defined agroforestry as an important economic strategy to provide food and reforest the mountains, and to contribute to overall environmental protection and sustainable economic development in the long run. In this context, the Ministry of Land and Environment Protection has developed the 10-year National Agroforestry Strategy and Action Plan (2015–2024) in collaboration with other relevant domestic stakeholders.

2.1.1 General goal

The general goal of the agroforestry strategy is to contribute to the construction of a prosperous socialist state by improving food security and people's livelihoods, while restoring the country's landscape and environment through the active implementation of agroforestry in all provinces, cities and counties. In other words, the implementation of the 10-year National Agroforestry Strategy and Action Plan will:

- a) Achieve food security and restore damaged and degraded forests for the present; and
- b) Create a reliable production basis for sustainable economic development through environmental protection, natural disaster mitigation and prevention, rational land use and plant resource creation.

2.1.2 Specific goals

- a) Adopt agroforestry in non-forested and low productive forest lands, to achieve food security and create a reliable base for the production of various raw materials while accelerating forest ecosystem restoration.
- b) Implement agroforestry on sloping agricultural lands, improve forest cover and create a sustainable and productive environment while maintaining food security.
- c) Reduce disaster risk as much as possible, protect overall environment, ensure a healthy environment for agricultural production and reduce dependence on forests, by planting lots of trees in disaster-prone areas such as sloping arable lands and riparian lands.
- d) Raise public agroforestry awareness and capacity, making agroforestry extension the work of everyone and the entire society.
- e) Constantly improve economic profitability and the effectiveness of agroforestry in environmental protection, and strengthen the scientific basis by doing more research into agroforestry.
- f) Strengthen institutional capacity and provide a legal and administrative basis for the development of agroforestry, by strengthening coordination and collaboration between relevant stakeholders and improving relevant laws and regulations.

2.2 ACTION PLAN (2015–2024)

- a) Adopt agroforestry in non-forested and low productive forest lands, to achieve food security and create a reliable base for the production of various raw materials while accelerating forest ecosystem restoration.
 - Intercrop trees and crops on 300 000 ha of forest land cleared for farming, contributing to food production and reforestation of the country.
 - Create 30 000 ha of organic food production, providing a reliable basis to produce raw materials for sustainable economic development.
 - Develop agroforestry models for an integrated food and energy system.
 - Develop an agroforestry model that protects biodiversity, focusing on endangered species.
 - Develop a landscape eco-plan for sustainable regional development.

- b) Implement agroforestry on sloping agricultural lands, improve forest cover and create a sustainable and productive environment while maintaining food security.
 - Apply agroforestry on sloping agricultural land, stabilizing agricultural production and generate additional income to improve rural people's livelihood.
 - Build windbreak forest belts on plateaus and along the eastern and western coastlines, ensuring safe agricultural production.
 - Create an agricultural environment for increased food production in the highlands.
 - Turn rural residential areas and urban cities into forests, gardens and orchards, increasing people's income.
- c) Reduce disaster risk as much as possible, protect overall environment, ensure a healthy environment for agricultural production and reduce dependence on forests, by planting lots of trees in disaster-prone areas such as sloping arable lands and riparian lands.
 - Create riparian forest belts between tens of thousands of kilometres of riparian land and neighbouring farming lands in accordance with an integrated watershed management plan, so as to prevent river pollution and reduce land loss due to river inundation.
 - Plant fast-growing trees with high heating efficiency on non-arable lands for use as rural firewood, covering more than 30% of rural firewood needs and reducing dependence on forests for firewood collection.
 - Promote fish farming combined with agroforestry to improve people's livelihoods.
 - Create 10 000 ha of windbreak forest for the operation of a stock-breeding base in the Sepho area, contributing to the people's livelihoods and improving their nutrition.
- d) Raise public agroforestry awareness and capacity, making agroforestry extension the work of everyone and the entire society.
 - Actively reach out to the public about agroforestry, so that all sectors, units and masses can contribute with a correct understanding of agroforestry.
 - Strengthen technical dissemination work, so as to upgrade technical knowledge and capacity of the popular masses on agroforestry.
 - Publicize successes, experiences, mistakes and lessons from the implementation of agroforestry, so as to continue success and prevent mistakes.
 - Strengthen general and professional education to improve the social capacity to implement agroforestry.
- e) Constantly improve economic profitability and the effectiveness of agroforestry in environmental protection, and strengthen the scientific basis by doing more research into agroforestry.
 - Scientifically clarify the various agroforestry practices and experiences from the different regions of the DPRK.
 - Develop various agroforestry models that suit the socio-economic condition and ecological characteristics of each region through active research on agroforestry technologies and methods that suit the practical condition and requirements of the DPRK.
 - Evaluate the climate change mitigation and adaptation value of agroforestry.
 - Evaluate integrated pest control and agroforestry ecosystem health.
- Develop an agroforestry database and service network.
- Post qualified experts in agroforestry-specialized research institutes to strengthen technical and material capacity.
- Strengthen cooperation and joint research between relevant scientific research institutions and share experiences and knowledge through regular national science and technology events and scientific and technological paper readings to upgrade the quality of scientific research and accelerate the speed of information sharing.
- Promote joint research, study tours and seminars with overseas research institutes in order to adopt and adapt good agroforestry practices.
- f) Strengthen institutional capacity and provide a legal and administrative basis for the development of agroforestry, by constantly improving relevant laws and regulations.
- g) Strengthen collaboration between relevant ministries, government agencies, research institutes, implementing units and field practitioners, and constantly improve and complete administrative mechanisms.
- h) Strengthen the function and role of non-standing agroforestry committees.
- i) Amend, supplement and improve relevant rules and regulations, providing a stronger legal foundation for agroforestry.
- j) Hold workshops, refresher trainings, demonstrations and study tours to constantly upgrade the qualification of officials implementing the government's agroforestry policy.
- k) Mobilize and raise innovative funds.
- l) Strengthen bilateral and multilateral cooperation and exchange with international cooperation agencies and other countries to technically and financially support the National Agroforestry Strategy and Action Plan.

Table 2-1: Agroforestry Action Plan (2015-2024)

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
<p>Goal 1: Adopt agroforestry in non-forested and low productive forest lands, to achieve food security and create a reliable base for the production of various raw materials while accelerating forest ecosystem restoration.</p> <p>Restore damaged and deforested forests and provide a foundation for food security and light industry development.</p>	<p>Activity 1.1 Intercrop trees and crops on 300 000 ha of forest land cleared for farming, contributing to food production and reforestation of the country.</p>	<p>MoLEP, MoF, Provincial, city and county people's committees</p>	~2024	<p>More than 10% of state grain consumption needs are produced in forest land.</p>
	<p>Activity 1.2 Create 30 000 ha of organic food production bases, providing a reliable basis to produce raw materials for sustainable economic development.</p>	<p>MoLEP, Provincial, city and county people's committees</p>	~2024	<p>- Sustainable production bases are established. - Creation of 30 000 ha of organic food production base and sustainable production, income increase</p>
	<p>Activity 1.3 Develop agroforestry models for an integrated food and energy system.</p>	<p>MoLEP, MoA, Provincial, city and county peoples committees</p>	~2024	<p>AF models developed for IFES</p>
	<p>Activity 1.4 Develop an agroforestry model that protects biodiversity, focusing on endangered species.</p>	<p>MoLEP, Provincial, city, and county people's committees</p>	~2024	<p>Endangered species protected by the agroforestry practices</p>
	<p>Activity 1.5 Develop a landscape eco-plan for sustainable regional development.</p>	<p>MoLEP, Provincial, city and county people's committees</p>	~2024	

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
<p>Goal 2: Implement agroforestry on sloping agricultural lands, improve forest cover and create a sustainable and productive environment while maintaining food security.</p> <p>Increase forest cover and create sustainable and productive environment while achieving food security.</p>	<p>Activity 2.1 Apply agroforestry on sloping agricultural land, stabilizing agricultural production.</p>	<p>MoLEP, MoA Provincial, city and county people's committees</p>	~2024	<p>Soil erosion is reduced by more than 50% and soil fertility is conserved and improved. Additional income is increased.</p>
	<p>Activity 2.2 Build windbreak forest belts on 40 000 ha of agricultural land on plateaus and along the eastern and western coastlines, ensuring safe agricultural production.</p>	<p>MoLEP, MoA, Provincial, city and county people's committees</p>	~2024	<p>Windbreaks are built on 40 000 ha of agricultural land on plateaus and along the eastern and western coastlines.</p>
	<p>Activity 2.3 Create an agricultural environment for increased food production in the highlands.</p>	<p>MoLEP, MoA, Provincial, city and county people's committees</p>	~2024	<p>Area of highland fields with agroforestry. Contribution rate of food security achieved in highlands by implementing agroforestry</p>
	<p>Activity 2.4 Turn rural residential areas and urban cities into forests, gardens and orchards, increasing people's income.</p>	<p>MoLEP, MoA, Provincial, city and county people's committees</p>	~2024	<p>Area/percentage forested and turned into gardens in rural residential areas and urban cities</p>

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
<p>Goal 3: Reduce disaster risk as much as possible, protect overall environment, ensure a healthy environment for agricultural production and reduce dependence on forests, by planting lots of trees in disaster-prone areas such as sloping arable lands and riparian lands.</p> <p>Improve the environment in the agricultural and riparian lands that are vulnerable to natural disasters. Reduce disaster risks and pressure on forests.</p>	<p>Activity 3.1 Create riparian forest belts between tens of thousands of kilometres of riparian land and neighbouring farming lands in accordance with an integrated watershed management plan.</p>	<p>MoLEP, MoA, Provincial, city and county people's committees</p>	~2024	<p>Land loss due to river inundation is reduced and river pollution is prevented.</p>
	<p>Activity 3.2 b. Plant fast-growing trees with high heating efficiency on non-arable lands for use as rural firewood.</p>	<p>MoLEP, MoA, Provincial, city and county people's committees</p>	~2024	<p>More than 30% of rural firewood needs are covered and dependence on forests for firewood collection is reduced.</p>
	<p>Activity 3.3 Promote fish farming combined with agroforestry to improve people's livelihoods.</p>	<p>MoLEP, MoA, Provincial, city and county people's committees</p>	~2024	<p>Rural people's income is increased and their nutrition is improved.</p>
	<p>Activity 3.4 Create 10 000 ha of windbreak forest for the operation of a stock-breeding base in the Sepo area.</p>	<p>MoLEP, MoA, Provincial, city and county people's committees</p>	~2024	<p>Forest ecosystem in the Sepo stock-breeding base is restored, production stability is ensured and people's livelihoods and nutrition are improved.</p>

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
<p>Goal 4: Raise public agroforestry awareness and capacity, making agroforestry extension the work of everyone and the entire society.</p> <p>Make the implementation of agroforestry the work of the masses and the entire society.</p>	<p>Activity 4.1 Actively reach out to the public about agroforestry.</p>	<p>MoLEP, Mass media, Provincial, city and county people's committees</p>	~2024	<p>All the sectors, units and masses turn out to the work for the implementation of the AF NAP with correct understanding about agroforestry.</p>
	<p>Activity 4.2 Strengthen technical dissemination work.</p>	<p>MoLEP, National Science and Technology Committee, General Federation of Science and Technology, Mass media, Provincial, city and county people's committees</p>	~2024	<p>Technical capacity of the officials and popular masses who are involved in agroforestry is upgraded radically.</p>
	<p>Activity 4.3 Publicize successes, experiences, mistakes and lessons from the implementation of agroforestry.</p>	<p>MoLEP, National Science and Technology Committee, General Federation of Science and Technology, Mass media, Provincial, city and county people's committees</p>	~2024	<p>Continue success and prevent mistakes.</p>
	<p>Activity 4.4. Strengthen general and professional education to improve the social capacity to implement agroforestry.</p>	<p>MoE, Educational institutions</p>	~2024	<p>Social capacity for agroforestry is enhanced.</p>

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
Goal 5: Constantly improve economic profitability and the effectiveness of agroforestry in environmental protection, and strengthen the scientific basis by doing more research into agroforestry. Agroforestry is put on a higher scientific basis.	Activity 5.1 Scientifically clarify the various agroforestry practices and experiences from the different regions of the DPRK.	MoLEP, Science and Technology Committee	~2017	Agroforestry database is built.
	Activity 5.2 Develop various agroforestry models active research on agroforestry technologies and methods that suit the practical condition and requirements of the DPRK.	MoLEP, National Science and Technology Committee, Scientific research institutions	~2017	1~2 demonstration sites are created in each province, city and county. Various AF models which suit socio-economic condition and eco-regional characteristics of each region are developed.
	Activity 5.3 Evaluate the climate change mitigation and adaptation value of agroforestry.	MoLEP, National Science and Technology Committee, Provincial, city and county people's committees	~2017	Climate change mitigation and adaptation value of agroforestry is evaluated.
	Activity 5.4 Evaluate integrated pest control and agroforestry ecosystem health.	MoLEP, National Science and Technology Committee, General Federation of Science and Technology, Mass media, Provincial, city and county people's committees	~2024	Integrated pest control and agroforestry ecosystem health is evaluated.

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
	Activity 5.5 Develop an agroforestry database and service network.	MoLEP, National Science and Technology Committee, General Federation of Science and Technology, Mass media,	~2024	AF database is in service through network.
	Activity 5.6 Post qualified experts in agroforestry-specialized research institutes to strengthen technical and material capacity.	MoLEP, National Science and Technology Committee, Ministry of Labour, Provincial, city and county people's committees	~2017	AF-specialized research units are set up in the Academy of Forestry Science, Academy of Agricultural Science and Central Forest Design and Technical Institution, where qualified personnels are posted and technical and material foundation is provided.
	Activity 5.7 Strengthen cooperation and joint research between relevant scientific research institutions and share experiences and knowledge.	MoLEP, National Science and Technology Committee, General Federation of Science and Technology, Provincial, city and county people's committees	~2024	Scientific research on agroforestry is conducted in line with the "National 5-year Plan for Science and Technology Development". Success and experiences are shared through annual events such as science and technology events and scientific and technological paper readings, accelerating the speed and upgrading the quality of information sharing.
	Activity 5.8 Promote joint research, study tours and seminars with overseas research institutes in order to adopt and adapt good agroforestry practices.	MoLEP, MoFA, National Science and Technology Committee, General Federation of Science and Technology	~2024	Good agroforestry practices from other countries are widely adopted in accordance with the condition of the DPRK.

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
<p>Goal 6: Strengthen institutional capacity and provide a legal and administrative basis for the development of agroforestry, by strengthening coordination and collaboration between relevant stakeholders and improving relevant laws and regulations.</p> <p>Establish coordination over and cooperation between AF-relevant stakeholders and lay a strong legal, administrative and institutional foundation.</p>	<p>Activity 6.1. Strengthen collaboration between relevant ministries, government agencies, research institutes, implementing units and field practitioners, and constantly improve and complete administrative mechanisms.</p>	<p>Cabinet, MoLEP, MoA, MoTI, MoPH, MoFDGI, National Science and Technology Committee, Provincial, city and county people's committees</p>	~2017	<p>Administrative mechanism for AF implementation is completed and close working relation between relevant sectors and relevant stakeholders is established.</p>
	<p>Activity 6.2 Strengthen the function and role of non-standing agroforestry committees.</p>	<p>Non-standing agroforestry committee, Praesidium of the Supreme People's Assembly, Cabinet, MoLEP and other relevant ministries and government agencies</p>	~2024	<p>Legal framework for agroforestry is further strengthened.</p>
	<p>Activity 6.3 Amend, supplement and improve relevant rules and regulations, providing a stronger legal foundation for agroforestry.</p>	<p>Non-standing AF committee, Cabinet, Ministry of Foreign Affairs, MoLEP, National Science and Technology Committee, General Federation of Science and Technology</p>	~2024	

Goal/Specific goals	Activities	Responsible agencies/ Relevant stakeholders	Period	Indicators
<p>Activity 6.4 Take integrated financing measures.</p> <p>Activity 6.5 Hold workshops, refresher trainings, demonstrations and study tours to constantly upgrade the qualification of officials implementing the government's agroforestry policy.</p> <p>Activity 6.6 Mobilize and raise innovative funds.</p> <p>Activity 6.7 Strengthen bilateral and multilateral cooperation and exchange with international cooperation agencies and other countries to technically and financially support the National Agroforestry Strategy and Action Plan.</p>		<p>Non-standing AF Committee, Ministry of Foreign Affairs, Ministry of External Economy, MoLEP</p>	~2024	
		<p>Non-standing AF committee, Cabinet, Ministry of Foreign Affairs, MoLEP, Science and educational institutions</p>		<p>Trainings for AF-related officials are regularly organized. Demonstration shows and study tours are organized 2 or 3 times a year.</p>
		<p>Non-standing AF committee, Ministry of Foreign Affairs, Ministry of External Economy, MoLEP</p>		<p>Technical and financial environment favourable for the implementation of AF strategy is created.</p>
		<p>Non-standing AF committee, Ministry of Foreign Affairs, Ministry of External Economy, MoLEP</p>		<p>Technical and financial environment favourable for the implementation of AF strategy is created.</p>

CHAPTER 3 IMPLEMENTATION



The National Agroforestry Strategy and Action Plan (NASAP) is a governmental guideline for developing and extending agroforestry with correct targets and direction in the DPRK. The NASAP will be implemented in close relation with the implementation of the national forestry and agricultural development strategies. It also conforms with and will contribute to the national implementation of the UN New Millennium Development Goals, UNFCCC, UNCCD and UNCBD.

AF NAP will be implemented by the actively participating with and cooperating between the relevant stakeholders such as MoLEP and other ministries and governmental agencies, local governments and practical end users as well as the scientific research institutions under the guidance of the Cabinet.

All central and local governments will develop their own phasal and annual plans and implement them in the context of the national economic plan. Priority projects will be developed and serve as demonstrations. Land users in the field such as enterprises, cooperative entities and local people will make an annual land use plan to plant trees and protect forest as required by the national afforestation plan as well as to produce food and generate income.

Every year, the implementation of the NASAP will be evaluated from the field level up to the central level, through which proper measures are taken to share good experiences and learn from lessons and mistakes.

3.1 CENTRAL NON-STANDING AF COMMITTEE

At present, a central non-standing AF committee is in operation under the guidance of the Cabinet, whose purpose is to promote the implementation of agroforestry nation-wide. It acts as the coordinator that promotes the successful implementation of the NASAP. The Central non-standing AF committee reviews and evaluates the implementation of the NASAP once or three times a year, discusses on various issues and makes suggestions to the Cabinet for the measures to be taken on the national level.

3.2 MINISTRY OF LAND AND ENVIRONMENT PROTECTION

MoLEP acts as the secretariat of the central non-standing AF committee in implementing the NASAP. MoLEP, whose mandate is the administration over the country's land and environmental protection, has an institutional structure that can supervise and control the land use in a unified way such as the General Forestry Administration, River Management Administration, Land Use Planning Department, Department for the Supervision on the Land Use, Environment Protection Department, Department for the Supervision on Border, Coast and Territorial Waters, General Mobilization Department, among others. It also has provincial, city and county land management and environment protection departments under its administration. MoLEP also has the Academy of Forest Science, Central Forest Design and Technical Institute and Environment Development Centre as well as provincial land use planning and design institutes, provincial forest design institutes and provincial forest science sub-institutes in all provinces.

According to its mandate, MoLEP is responsible for the control and administrative management of all agroforestry-applicable sites, as well as for the supervision, control and guidance over the agroforestry practices. MoLEP regularly checks and evaluates the overall implementation of the NASAP and reports it to the annual national conference for the evaluation of general mobilization for land management.

MoLEP also prepares the development of and facilitates the implementation of the priority projects.

3.3 OTHER RELEVANT MINISTRIES AND GOVERNMENTAL AGENCIES

3.3.1 State Planning Commission

The State Planning Commission collects all implementation plans (phasal and annual) from the relevant ministries for the implementation of the NASAP, integrates them with the national development plan and sectoral plans and makes a planning of required material and technical provision.

3.3.2 Ministry of Agriculture

MoA, who administrates the agricultural production of the country, plans and controls the implementation of the NASAP on agricultural and forest lands managed by cooperative farms.

3.3.3 Ministries and governmental agencies administrating forest lands

Include MoF and MoFDGI. These plan and implement the NASAP in their own forest lands, producing food for their own consumption and restoring damaged forests for the production of various forest resources required in their own sector.

3.3.4 National Science and Technology Committee

National Science and Technology Committee plans national scientific research on agroforestry in relation with the national science and technology development plan and organizes and gives guidance on the scientific research, technical development and implementation.

3.4 SCIENTIFIC RESEARCH AND EDUCATIONAL INSTITUTIONS

These institutions contribute to promote the implementation of the NASAP through the training of qualified technical experts and scientific research to maximize economic profitability and to ensure social benefit and environmental sustainability. Research institutes develop AF models which suit the geophysical and socio-economic condition of the DPRK and the specific features of different regions. They also solve scientific and technical problems in close cooperation with the practical land users in the field and disseminate technical knowledge among them.

Educational institutions train AF experts and technical personnel, improving the implementation of the NASAP. On the other hand, social organizations such as the Korean Agroforestry Technical Association, the Korean Forestry Association and the Korean Nature Conservation Union below the Korean General Federation of Science and Technology contribute to the successful implementation of the NASAP through scientific and technical development, dissemination, and propaganda on agroforestry throughout the whole society.

3.5 PROVINCIAL, CITY AND COUNTY PEOPLE'S COMMITTEES

Provincial, city and county people's committees play major roles in the implementation of the NASAP by mobilizing the potential of enterprises, cooperative entities and local people to the full, and by creating demonstrations and multiplying those to wider scale.

Being responsible for people's livelihood and economy of the region, they have the institutional structure to directly guide the implementation of agroforestry in the field. Forestry departments and rural management committees control licensing and supervise land use in the field through forest rangers and agricultural land supervisors respectively.

3.6 END LAND USERS IN THE FIELD

Enterprises, cooperative entities and local residents are end-users of the land who undertake the implementation of the NASAP and directly benefit from it. Therefore, the NASAP can be implemented successfully only when they are involved actively with correct understanding of and interest in it. Under the guidance of central and local government agencies, and receiving technical assistance from research institutes and active public outreach dissemination and propaganda by mass media, they participate in the implementation of the NASAP. Through this process, they not only enjoy the actual benefit of providing their own food and generating additional income, but also contribute to the environmental improvement and the country's economic development.

3.7 INTERNATIONAL ORGANIZATIONS

So far, financial and technical assistance from international organizations and other countries, such as SDC, EUPS, FAO, UNDP, IFRC and the World Agroforestry Centre (ICRAF) played an important role in the development of agroforestry and AF showcases in the DPRK. SDC has given financial support to the development of the NASAP in the DPRK and is expanding support to the sloping land management project. ICRAF's East and Central Asia Office has given technical assistance. Further cooperation and support from international organizations is also expected in the implementation of the NASAP. In particular, financial and technical support to implement priority projects is expected from various international organizations.

CHAPTER 4 ANNEXES

ANNEX I ABBREVIATIONS AND ACRONYMS

AAS:	Academy of Agricultural Science
AF:	Agroforestry
AF NS & AP:	Agroforestry National Strategy and Action Plan
CBS:	Central Bureau of Statistics
ICRAF:	World Agroforestry Centre (formerly International Centre for Research on Agroforestry)
MoA:	Ministry of Agriculture
MoCI:	Ministry of Chemical Industry
MoFCSI:	Ministry of Food and Consumer Stuff Industry
MoLEP:	Ministry of Land and Environment Protection
MoPH:	Ministry of Public Health
MoF:	Ministry of Forestry
NWG:	National Working Group (for the preparation of the AF NS & AP)
PMCS:	Project Management and Consulting Service, MoLEP
SAS:	State Academy of Sciences
SDC:	Swiss Agency for Development and Cooperation
SLM:	Sloping Land Management
SWOT:	Strengths, Weaknesses, Opportunities and Threats



ANNEX II NATIONAL PROGRAMME FOR THE PROMOTION OF PUBLIC AWARENESS ON AGROFORESTRY

Overall objective: to contribute to the successful implementation of AF NAP, through enhanced knowledge and awareness level of the relevant officials and popular masses about agro-forestry approach.

Objectives and outputs	Activities	Verification	Domestic stakeholders/ responsibility
Objective 1: To train qualified agro-forestry technicians and improve field workers' level through enhanced education on agroforestry.			
Output 1.1 Agroforestry is included in the curriculum of agricultural universities, in the field of natural resources management, agricultural and rural development, to meet the training needs for AF policy implementation.	<p>Activity 1.1.1 To include agro-forestry in the curriculum of agricultural universities and colleges regarding the faculty characteristics and train AF specialists and field technical workers.</p> <p>Activity 1.1.2 To build AF research forests (students practice forests) in the agricultural universities according to the local conditions for improving the quality of education.</p> <p>Activity 1.1.3 To improve post-graduate doctoral courses for upgrading the qualification of AF specialists.</p> <p>Activity 1.1.4 To improve the conditions of on-line education and correspondence education and give full display to the advantage of study-while-working system.</p>	<ul style="list-style-type: none"> New curriculums developed, revised or supplemented Number of specialists and technical workers trained Research forests (students practice base) established in each province Topics and subjects of AF research Number of technical workers trained Number of post-graduate doctoral courses finished Number of graduates Number of entrants and graduates of on-line education and correspondence education 	<p>Ministry of Higher Education, Universities related with land management, Agricultural universities</p> <p>Ministry of Higher Education, Agricultural universities</p> <p>Ministry of Higher Education, Relevant universities</p> <p>Ministry of Higher Education</p>

Objectives and outputs	Activities	Verification	Domestic stakeholders/ responsibility
Output 1.2 A national system of training on-the-job AF officials is established to meet the qualitative and quantitative needs of qualified AF specialists.	<p>Activity 1.2.1 To set up a national training centre (public awareness centre) which will be responsible for the upgrading the AF education in the country in keeping with the international standard.</p> <p>Activity 1.2.2 To open AF knowledge dissemination centres (for training the on-the-job officials) in provincial agricultural universities to meet the provincial-level training needs.</p> <p>Activity 1.2.3 To take appropriate measures for the training of on-the-job officials in the agricultural and forestry colleges in the cities and counties.</p>	<ul style="list-style-type: none"> Establishment of the national training centre and operation (report) Number of the trainees from the national training centre Establishment and operation of the AF knowledge dissemination centre Number of on-the-job officials trained On-the-job official training system established in cities, and counties Number of trainees 	<p>Ministry of Land and Environment Protection, Korean Agroforestry Technical Association (KATA)</p> <p>Agricultural universities of each province</p> <p>City and county-level agricultural/forestry colleges</p>
Objective 2: To enhance effectiveness of AF application practices, through various public awareness raising activities such as field training.			
Output 2.1 Agro-forestry inclusion is encouraged in the planning and implementation of projects in which activities for raising public awareness are given priority.	<p>Activity 2.1.1 To develop training materials and means for land management officials and land users in the field and actively use them for raising public awareness.</p> <p>Activity 2.1.2 To set up AF knowledge and technology dissemination centres in regional demonstration sites (4 demo sites) where trainings of trainers (field technical workers) are conducted.</p> <p>Activity 2.1.3 To upgrade the operation of technical knowledge dissemination centres in country forest management boards for the training of the officials and land users in the field.</p>	<ul style="list-style-type: none"> Kinds and number of training materials developed Training means used Number of dissemination centres established and operated Reports on the operations of the centre Number of trainees County-level technical knowledge dissemination centres upgraded Operation reports 	<p>MoLEP, Science and technology dissemination groups</p> <p>MoLEP (relevant provinces and land management agencies)</p> <p>Forest management boards</p>

Objectives and outputs	Activities	Verification	Domestic stakeholders/ responsibility
Output 2.2 Various forms of public awareness raising activities and technical exchange are actively conducted.	Activity 2.2.1 To organize national workshops on agroforestry at least every two years and good experience and lessons achieved in the activities for the implementation of AF NAP are shared. Activity 2.2.2 To organize various forms of workshops and seminars in scientific research institutions and universities, which will serve as good opportunities for knowledge sharing and dissemination. Activity 2.2.3 To promote participation in the international seminars and workshops on agro- forestry in close cooperation with ICRAF and other international organizations and organize study tours to learn from excellent examples of other countries	<ul style="list-style-type: none"> Number of participants in the national workshops Workshop proceeding reports Number of various seminars and participants Reports Number of international seminars and workshops participated and study tours organized Number of participants 	KATA, MoLEP Relevant scientific research institutions, universities, scientific knowledge dissemination agencies
Output 2.3. Role and functioning of Korean Agro- forestry Technical Association is enhanced for the promotion of public awareness on agroforestry.	Activity 2.3.1 To organize a group specializing in public awareness promotion in the KATA. Activity 2.3.2 To promote participation in the national science and technology festival and organize seminars on AF science and technology annually. Activity 2.3.3 To issue a KATA journal "AF technology" and constantly improve its quality.	<ul style="list-style-type: none"> Group organized and its function and role Group activity report Organization of the festival and seminars and number of participants Reports Number of copies of "Agroforestry Technology" issued Number of external exchange cases 	KATA KATA KATA

Objectives and outputs	Activities	Verification	Domestic stakeholders/ responsibility
Objective 3: To raise public awareness on agroforestry and widely disseminate scientific knowledge through improved publication and mass media. Output 3.1 Propagation through newspapers and radio is intensified to rapidly disseminate and propagate government's policy requirements and good experiences achieved in the field. Output 3.2 Various books, magazines, training materials and other publications on agro- forestry are published on a wider scale. Output 3.3 Scientific films, animations, and CD materials are developed and used for agroforestry application.	Activity 3.1.1: To intensify propaganda through newspapers and radio to deliver government's policy and experiences in a timely manner. Activity 3.2.1 To actively conduct education and propaganda through various magazines including "land management", "Juche farming method", "nature conservation", etc. Activity 3.3.1 To make scientific films of different topics concerning agroforestry. Activity 3.3.2 To collect and edit various CD materials on different topics of agroforestry for dissemination.	<ul style="list-style-type: none"> Topics and number of articles through newspapers and radio Themes and number of articles published in various magazines Reference books and number of copies published and distributed Various publications Topics and number of cases of scientific films Topics and number of CD materials 	Domestic mass media and publication agencies Domestic mass media and publication agencies Domestic mass media and publishing agencies MoLEP, relevant agencies involved in propaganda works

ANNEX III CONTRIBUTORS TO THE STRATEGY AND ACTION PLAN

1 DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

No.	Name	Position
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3	Ri Kyong Sim	Director General, external economic and cooperation department, MoLEP
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8	Ri Chun Sam	Senior officer, department of supervision on the land use, MoLEP
9	Kim Chang Gil	Director, river management department, MoLEP
10	Ho Man Sok	Director, central forest design and technical institute, MoLEP
11	Ryom Song Hwan	Section chief, central forest design and technical institute, MoLEP
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23	Ri Kum Song	Senior officer in charge of agroforestry, medicinal herbs production department, MoPH
24	Kang Sun Nam	Director, raw material supply division, MoFCSI
25	Song Hak Chol	Officer, Bureau of sericulture and silk

26	Kim Chang Bom	Senior officer, Central Bureau of Statistics
27	Ri Yong Su	Director, land use division, state planning commission
28	Hong Ki Chol	Deputy director, ministry of higher education, Education Commission
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31	Jong Yong Song	Section chief, global environmental faculty, Kim Il Sung University
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2 SDC PYONGYANG OFFICE

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2	Mr Jun He	Expert, ICRAF East and Central Asia

4 INTERNATIONAL ORGANIZATIONS

1	Farhan Sabif	Deputy representative, UNDP DPRK Office
2	Hua Yu	Project manager, UNDP DPRK Office
3	Oleg A. Koshcheev	1 st secretary, embassy of the Russian Federation to the DPRK
4	Xuerong Liu	Head of programme, WFP DPRK Office



Ministry of Land
and Environment
Protection



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Cooperation Office DPR Korea



World
Agroforestry
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