



**Sixth National Report to the
United Nations Convention on Biological Diversity:
Democratic People's Republic of Korea**



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Executive Summary

The National Committee of Science and Technology DPR Korea (SCST) organized the Working Group for the 6th National Report to the United Nation's convention on Biological Diversity, DPR Korea (herein after 6th National Report) involving the National Coordinating Committee for Environment (NCCE), DPR Korea, Education Committee(EC), Ministry of Land and Environment Protection (MoLEP), Ministry of Fishery(MoFs), Agricultural Commission(AC), Ministry of Public Health(MoPH), the State Academy of Sciences (SAoS), the State Hydro-Meteorological Administration and the Central Bureau of Statistic and took care of its preparation in accordance with Article 26 of CBD and decision XIII/27 of the COP which require national reports on biodiversity conservation periodically from party countries.

The preparation process of the 6th national report included 3 rounds of national workshops, 3 rounds of thematic consultations and 5 rounds of expert meetings at national and local levels.

Data necessary for the preparation of the report were collected and synthesized focusing on the activities for implementing the National Biodiversity Strategy and Action Plan 2012-2020 (revised NBSAP) and Aichi Biodiversity Targets (hereinafter referred to as ABTs), and the report was prepared following the guideline for preparation of the 6th report in accordance with the thirteenth meeting of the COP 13.

The 6th national report consists of executive summary and 7 sections.

Section I describes the adopted and developed biodiversity targets under the revised NBSAP and ABTs circumstances, causes for adopting and developing these targets, preparation progress of the 6th report and review and assessment results of NBSAP document.

Section II provides implementation measures that have been taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve the revised NBSAP.

Section III describes the indicators, tools, assessment approaches and dependability degrees of the assessments used in target's assessment and evidence of the assessment including the lists of targets for revised NBSAP and category of progress towards

implementation of the target and obstacle in undertaking the assessment.

Section IV provides the progress towards revised NBSAP and the national contribution to the achievement of each ABTs and UN 2030 Agenda for Sustainable Development (SDGs).

Section V describes the national contribution to the achievement of the targets of the Global Strategy for Plants Conservation (GSPC).

Section VII covers status and trends of biodiversity, impacts of the changes in biodiversity for ecosystem services, and possible future changes for biodiversity and their impacts.

Section VI needs to summarize the contribution of indigenous peoples and local communities to the achievement of ABTs, but indigenous peoples and local communities do not exist in DPR Korea at all. So this part was shortened in accordance with the Sixth National Report guidelines.

Section 1. Information on Targets at National Level

1.1 Introduction

Biodiversity refers to the variability among living organisms of all forms of life on Earth and is intimately connected with human existence. In our country, the biological resource, one of the biodiversity components, is the material basis for human survival and material foundations for economic development. It plays crucial role in ensuring our present and future life.

The DPR Korea became a party to the Convention on Biological Diversity (CBD) in order to contribute actively to the global efforts of conservation of biodiversity, genetic resources and ecosystem. The DPR Korea ratified the Convention on Biological Diversity(CBD) on June 11, 1992 and entered into force on October 26, 1994.

The Decision X/2 on Strategic Plan for Biodiversity 2012-2020 was adopted in the 10th Conference of the Parties to the CBD and the ABTs which was adopted in this conference presented clear target of biodiversity strategy.

The government of DPRK has reviewed the 2012-2020 global biodiversity strategic targets and revised NBSAP by setting the biodiversity targets and integrating the considerations for biodiversity conservation and sustainable use in line with the national situation.

The targets of revised NBSAP aim at establishing framework for radical change in biodiversity conservation and its sustainable use.

All Contracting Parties are required by Article 26 of the Convention on CBD to report on the measures taken to implement the NBSAP and the effectiveness of these measures.

DPRK prepared the 5th National Report and submitted it to CBD Secretariat in 2014.

1.2 Adoption of revised NBSAP and its review

The revised NBSAP was developed in line with ABTs in 2015. This is a key document to convert ABTs into NBSAP for combining biodiversity conservation and its sustainable use with actional, legal and institutional mechanisms of the several parts through nationally identified indicators.

The revised NBSAP aims at preparing the framework to bring the radical change in biodiversity conservation and its sustainable use.

For this,

- a) Demonstrating the models for making the people as beneficiaries from the sustainable use of biodiversity by raising public awareness on biodiversity value of mountains, rivers and seas and scientific and technical issues and administrative measures for its conservation and sustainable use, and make the people to be the master of biodiversity conservation and its sustainable use;
- b) Restoring the destructed and degraded ecosystems in a short period, and elevating the ecosystem service function from elimination of stress on biodiversity by afforesting and landscaping the whole country and solving the rural energy;
- c) Protecting the biodiversity with security of food safety, and protecting and increasing the forest resources and marine resources to establish the framework for the sustainable management of forestry and fishery;
- d) Establishing the national reserve network by gradually increasing the reserves radically, improve the reserve management and give emphasis on the conservation of the rare species;
- e) Improving the watershed management to protect damages from frequent flood, climate changes, and taking the measures to mitigate and adapt the climate changes.

The government of the DPR Korea has put forward the strategic target which promotes the economic development in a sustainable manner harmonized with the resources, environment and industry by means of giving precedence to conservation, improving overall eco-environment, concentrating on priority activities and using resources in a reasonable and sustainable way and identified the following priority actions: 1) afforestation and gardening of the whole country; 2) improvement of watershed management, sustainable management of soil and mountains; 3) solving the firewood problems in the rural areas, preventing habitats loss; 4) turn all the mountains into mountain of gold; 5) improvement of the structure for grain production and protection of agricultural biodiversity; 6) conservation of marine resources and restoration of the coastal ecosystem; 7) sustainable fishery production system; 8) prevention from pollution; 9) taking a measure of invasive alien species; 10) mitigating climate changes and enhancing ecosystem service function; 11) expansion of the reserves and improvement of their management; 12) survey of animals and plants, restoration of the natural habitats; 13) protection of threatened species; 14) protection of gene resources; 15) implementation of Nagoya Protocols; 16) enhancement of

biodiversity knowledge; 17) education of biodiversity in the primary and middle schools; 18) mainstream biodiversity conservation into national environment protection strategy; 19) knowledge management and technical development; 20) establishment of bio-industry.

1.3 Process of the 6th National Report the preparation

The National Committee of Science and Technology, in collaboration with the DPRK National Coordinating Committee for Environment, MoLEP and so on, took care of the preparation for the 6th National Report of the DPRK to CBD.

The preparation of the 6th National Report has started since 2016 and the information was collected and desk studies and review were performed.

The preparation process of the 6th National Report consists of the following stages:

1.3.1 1st Meeting of Coordinating Group for the preparation of the 6th National Report

The NCCE convened the first meeting of the stakeholders for the preparation of the 6th National Report on December 5, 2018 and established the Coordinating Group. This group consists of functionaries and specialists of the ministries and national organs in charge of biodiversity conservation.

The Coordinating Group organized Expert and Compilation Group for the preparation of the 6th National Report and approved their work plans. The work plan clarified the assignment of different ministries and stakeholder.

1.3.2 Activities of the Expert and Compilation Group

The Expert and Compilation Group consists of relevant specialists from the National Committee of Science and Technology, Education Committee, the State Academy of Sciences, Ministry of Land and Environment Protection, Agricultural Commission, Ministry of Forestry, Ministry of Fishery and Ministry of Municipal Administration.

The Group held its first meeting on December 8, 2018 to discuss the general format of the report, collection and analysis of relevant information for each article, in particular the progress, experience and lessons learned in the implementation of the revised NBSAP and relevant data and index for the 6th National Report. The group also set the timetable for preparing the draft report.

Data necessary for the preparation of the report was collected from a range of information sources such as government policies on biodiversity conservation, Environment Status Reports of DPRK, the 5th National Reports on Biological Diversity of the DPR Korea, international and

national project reports, research results and other relevant publications, in particular the progress towards the revised NBSAP and its' relationship between Aichi Targets and SDGs.

1.3.3 Drafting the 6th National Report

The 2nd Expert and Compilation Group meeting was held on April 7, 2019 to discuss the synthesis and compile the collected information. After the meeting the group collects and clarifies the materials and data as required by the preparation outline. They sorted materials and data submitted by relevant departments and developed the sections of the report.

The first draft of the 6th National Report was completed and presented to SCST, NCCE, MoLEP and other relevant agencies and research institutes.

1.3.4 2nd meeting of the Coordinating Group for review of the draft 6th National Report

The meeting was held on July 25, 2019 to seek the suggestions from different departments. During the meeting, representatives from different departments put forward suggestions for revision of the draft report. The expert group revised based on these suggestions and completed the report.

1.3.5 Submission and Approval of final 6th National Report

The final 6th National Report was submitted to NCCE on September 12, 2019 in accordance with relevant procedures for its approval.

1.3.6 Translation of the 6th National Report and its submission

The 6th National Report was translated into English.

Section II. Implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical needs to achieve national targets

This section briefly describes the relationship with ABTs and the national strategy, implementation measures taken, assessment of their effectiveness, and associated obstacles and needs to achieve national targets.

2.1 Relationship with Aichi Biodiversity Targets (ABT) and the priority of national strategy

This part emphasized the relationship between each priority of national strategy and ABTs, and the stakeholders taking part in implementation for each targets (table 1).

Table1. Relationship with Aichi strategy and the national strategy

Priority	Aichi Strategy	Implementation Agency	
		Main implementation agency	Cooperation agency
1. Covering the whole country with green wood by forest rehabilitation and construction, reduce the dependence on forest resources and promote its sustainable use	5: Losing and decreasing of the natural habitats 6: Sustainable fishery 7: Sustainable resource management 8: Antifouling measures 9: Taking a measure for invasive species 10: Protection of the vulnerable ecosystem	MoLEP, MoFs AC	National committee of Science and Technology, MoLEP, SAoS and Government and non-government organizations,
2. Increasing the areas of	11: Extension of	MoLEP	National

<p>the protected areas step by step and establish the integrated protected areas network system for improvement of BR management and improve protection of ecosystem diversity, species diversity and gene diversity.</p>	<p>protected areas 12: Protection of endangered species 13: Protection of gene resources</p>		<p>Committee of Science and Technology, Ministry of Forestry, Agricultural Commission, Ministry of Fishery, SAoS, Universities, Korean Nature Conservation Union, Government and on-government organizations,</p>
<p>3. Enhancing the public awareness on the value of biodiversity and its sustainable use and integrate biodiversity conservation and its sustainable use into the master plan for land development and implement the strategy by knowledge management and capacity building and applying positive incentive measures.</p>	<p>1: Understanding the value of biodiversity 2: Planning of biodiversity 3: Minimizing of negative effects 16: Implementation of Nagoya Protocols 19: Personnel management and technique improvement</p>	<p>Education Committee, MoLEP, National Committee of Science and Technology, SAoS, other organs of the press</p>	<p>Government and non-government organizations, University, Institutions</p>

2.2 Implementation measures

The government has taken several measures to effectively implement the revised

NBSAP. The table 2 briefly shows the implementation measures taken and their effectiveness to achieve NBSAP.

Table 2. Implementation measures taken to achieve NBSAP

Implementation measures	Status and trends	Effectiveness
1. Legal preparation	Policy/legislation/strategy/plan <ul style="list-style-type: none"> • Forest restoration campaign • National strategy for forest restoration • National strategy for environmental protection • Agriculture strategy • Fishery strategy • Agro-forestry management strategy 	Measures taken have been partially effective
2. Institutional structure	<ul style="list-style-type: none"> • NCCE • State Planning Commission • National Committee of Science and Technology • MoLEP • Ministry of forestry • Agricultural Commission • Ministry of fishery • SAoS 	Measures taken have been partially effective
3. Stakeholder's involvement	The stakeholders' cooperation is very important for biodiversity conservation, particularly of landscape, ecosystem, species conservation, but these cooperation couldn't lead to due results according to the limited access to the world trends, the latest scientific and technical data on biodiversity conservation.	Measures taken have been partially effective
4. Capacity building	<ul style="list-style-type: none"> • Institutional: The measures are in progress to strengthen stakeholder coordination and institutional 	Measures taken have been partially effective

	<p>framework and to enhance the efficiency of the affairs of state for biodiversity conservation in national.</p> <ul style="list-style-type: none"> • Scientific and technical: Scientific and technical abilities for effective implementation of NBSAP in national and regional level have been insufficient yet. 	
5. Information communication	Knowledge on the NBSAP and its implementation have been limited.	Measures taken have been partially effective
6. Monitoring and assessment	Assessment on the mid-plan of NBSAP has been progressed	Measures taken have been effective
7. International/regional cooperation	International and regional cooperation have been limited	Measures taken have been partially effective

2.3 Assessment of the effectiveness of NBSAP

Assessment results of up-to-date related on the effectiveness of NBSAP show that implementation of the strategy is well progressed. The several aspects of the legislation and management structures, situ and ex situ conservation, biodiversity survey and monitoring, biodiversity conservation and its sustainable use, control and management of invasive alien species, strict control of pollution and ecological destruction, genetic resource management, scientific research and training, participation of broad people and ecological education are succeeded through the implementation of revised NBSAP.

2.4 Obstacles during the implementation

The several obstacles which may interrupt the implementation of NBSAP have been presented in regional scale. The current obstacles to implementation of NBSAP is lack of institutional, financial and personal capacities, lack of advanced technology, public awareness and stakeholder's cooperation, unsustainable production and consumption, damage from natural disasters, climate change, and so on. See section III for details on the above obstacles.

Section III. Assessment of Progress towards Each National Target

Progress Assessment: Target 1

To increase the forest cover area by launching forest restoration campaign and rehabilitate forest ecosystem in degraded key region

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government has adopted and vigorously implemented the forest policy on increment and protection of forest resource constantly through reflecting restoration project of degraded forest within 10 years on the national strategic plane while police on productivity increment and policy on enhancement of environment protection function such as land and water protection have been implemented.

During the period 2015-2017, 607,942ha of forest cover has been increased.

Seedling production-key element in forest restoration campaign has been phenomenally grown up.

More than 180 nurseries have been newly and re-constructed at cities and counties and 3,405,281,000 seedlings and 3,100t of tree seed have been produced during the period of 2015-2017.

Forest fire watch system and forest pest and disease control system with real time warning system have been established to halt forest destruction and to manage forest sustainably. Legal instruments have been also strengthened to prevent the exceed logging and set the advanced seed collection system and hybrid system. Mass movement such as planting good tree species with high economic value, establishing firewood forest have been actively pursued.

Indicators used in this assessment

- Number of trees planted during the first stage of forest restoration campaign
- Number of new nurseries
- Newly developed Forest fire watch system and forest pest disease control system

Please describe any other tools or means used for assessing progress.

Data on new nurseries and number of planted trees during the period of the forest restoration campaign was collected and assessed from the Ministry of Land and Environment Protection(MoLEP) and the Central Bureau of Statistics. Information on newly developed forest fire watching system and forest pest-disease control system had been collected from several research institutes and universities in forest sector and forest management stations in several regions.

Level of confidence of the above assessment

- based on comprehensive evidence
 based on partial evidence
 based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Government hold the Review Meeting on Forest Restoration Campaign and the Review Meeting on General Mobilization of Land Management every year and discussed success and lessons learnt and measures for the greater success in forest restoration campaign and general mobilization of land management in the future in these meetings.

As Large-scale and modernized nurseries such as the Nursery No.122, the Nursery of Kangwon Province had been newly constructed in all over the country and the Central Nursery of MoLEP had been remodeled, opportunities are at hand for the vigorous implementation of the forest restoration campaign.

Due to the result of vigorous tree planting movement, there had been production of hundreds of millions of seedlings and collection of over 1,300t of tree seed in 2015.

In the northern uplands tens of millions of trees had been planted, this amount is 1.5 larger than the one in 2016, and thousands of forest had been established. During the Spring tree planting season of 2017, 100,000s of trees had been planted on over one hundred thousand ha.

In 2018, the preparation of tree planting for the next spring planting season had been sufficiently completed as 100,000,000s of tree seedlings had been produced and 1,000s tons of tree seed collected from nurseries in all over the country.

More than 30 kinds of machines and equipment that can contribute to the scientification, industrialization and intensification of tree seedling production such as tree seedling removing machine, assembly line of culture medium, several type of seedling pot, planting hole digging machine, slope land weeder had been developed and the modernized factory which produces various equipment and materials required to the afforestation and forest protection had been newly constructed and being operated.

As the new type of soil improvement and moisturizing material- terracottem and purine enrichment reagent had been developed, survival rate of planted trees can be reached at more than 90%.

In collaboration with excellent scientists and engineers from the State Academy of Science, **Kim Il Sung** University, the State Hydro-Meteorological Administration and the State Academy of Forest Science had developed the National Forest Fire Watching and Information Service System and it began running since March 2016.

The national forest resource management information system which can enhance the level of forest resource management at higher scientific and digitalization quality had been developed by the efforts of staffs, scientists and engineers from the Forest Bureau of MoLEP, the General Bureau of Pleasure Parks, Agricultural Commission (AC), the State Academy of Science (SAoS), **Kim Il Sung** University and so on then some practical smart phone apps on forest resource searching which contributes to afforestation and awareness raising have been developed continuously.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Now the Headquarters of Forest Restoration campaign had been organized at each province and they are commanding and controlling forest restoration.

Progress Assessment: Target 2

To reduce the flood damage by improving the watershed management and develop and disseminate the model for sustainable soil and forest management in different watersheds

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government had modified the watershed management plan of rivers, streams and creeks regarding flood plain and area with sever soil erosion as priority area and implement this plan vigorously.

From the lessons learnt from the flood in 2012, to improve the overall management of watersheds, mainly focusing on heavy rainfall area, afforestation of watershed area is carrying out during the period of the 10-year afforestation plan.

Afforestation has been closely linked with conservation and rehabilitation of river ecosystem then watershed management has been improved from upstream areas. While keeping the forest coverage of upstream at the highest ratio, advanced land management methods such as erosion control works with soil-biotechnological method and others have been applied into prevention of water and soil loss, land slide and so on. In line with this efforts, ecosystem of streams and creeks have been also rehabilitated.

In order to sustainably use the forest resources, sound forest ecosystems are established and good tree species are introduced in forest resource increment initiatives. In existing timber forest management, environmentally safe logging technology has been introduced in order to establish the secondary forest and provide sustainability to timber forest. The protection function of forest in protected area has been increased through the construction of integrated ecosystem of forest and pasture and strengthening the watershed management and improving the management of protected area.

The watershed management of mid and upstream area of river Amnok, Chongchon and Taedong which experienced flood damage in the past has been improved considerably and there have been great progress in converting degraded forest into environmentally safe pasture.

Indicators used in this assessment

- Number of planted trees at the river sides
- Area of treated rivers and streams and area of river side protection forest
- Number of scientific means of watershed management

Please describe any other tools or means used for assessing progress.

Data on the indicators used in this assessment was mainly collected from MoLEP, all Province Headquarters of Forest Restoration and organizations in charge of watershed management.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

In 2016 Staffs, scientists and engineers of Ministry of Land and Maritime Transport (MLMT), **Kim Il Sung** University, Pyongyang Information Technology Bureau had developed the Flood Monitoring System of Taedong-river basin that can transfer real-time hydrological data such as water level of barrages and dams in Taedong-river to control tower.

Government had treated 600s km of rivers and streams and planted trees to protect riversides on 200s ha during the Spring-time General Mobilization Period for Land Management alone.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Now the Headquarters of Forest Restoration have been organized in every province for the detailed survey and control of forest restoration.

Under the coordinated leadership of the Cabinet, MoLEP, Ministry of Electric Power Industry, Ministry of Land and Maritime Transport, AC, the State Hydro-Meteorological Administration and so on monitor and control the management of rivers and streams by the unit of watersheds and seasons.

Progress Assessment: Target 3

To provide rural fuel and prevent the deforestation and loss of natural habitat by establishing high productive firewood forest in various type

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Majority of local families in DPR Korea utilize biomass (firewood, agricultural by-products) for cooking and heating.

For this reason, agricultural by-products like straw can be used as resource of organic fertilizer to bring actual benefits for farmers, not to be used as fuel, and this leads to increment of soil fertility.

Government accept and implement the strategic plan to increase the cultivation area of fast-growing tree species such as *Salix*, *Acacia*, *Populus* species with high productivity.

Besides fuelwood establishment, government mobilize diverse fuel sources such as coal, fly ash, dead rock coal, ultra-anthracite, fault coal, methane gas to provide fuel for family use.

Impacts of firewood forest with various energy plant species and its sustainable use towards regional biodiversity conservation has been evaluated and firewood approaches have been introduced to rehabilitation of degraded natural habitat to contribute to the overall protection of biodiversity.

Indicators used in this assessment

- area of established firewood forest
- status of introduced S&T approaches

Please describe any other tools or means used for assessing progress.

Assessment data was collected from the organs related to energy of the country such as government organs of every province, SCST, SAoS and the General Federation of Science and Technology of Korea.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Government will standardize the technology of combustion additive for fault coal within couple of years and establish production capacity to meet the demands.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Now Headquarters of Forest Restoration in every province have been assessing and monitoring the firewood establishment.

During the period of 2015-2020, the Central Headquarter of citizen's fuel had been organized and operated.

Progress Assessment: Target 4

To disseminate the models that contribute to improvement of people's livelihood while converting all mountains into treasure one and reinforcing the biodiversity conservation.

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government had accepted mid and long term plan to convert all mountains into treasure one.

Following this plan, hundreds millions of trees had been planted on one hundred thousand ha of mountain in 2016 only. As one of the important activity of this plan, in 2017, korean evodia (*Evodia daniellii*) plantations of large area had been upgraded successfully with good variety of this tree species by grafting.

Good tree species with properties of fast-growing and high economic value have been bred, selected and distributed.

Indicators used in this assessment

- area of new commercial forest
- area of new timber forest
- area of agro-forestry management site

Please describe any other tools or means used for assessing progress.

Data on present status of commercial forests and agro-forestry management was mainly collected from afforestation strategy and agro-forestry management strategy. Special data of new commercial forest and new sites of agro-forestry management was collected from the Central Bureau of Statistics and MoLEP.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

It is based on integrated evidence because data utilized in assessment was mainly collected from the organizations deal with forest management.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

There is national monitoring system to convert all mountains into treasures one. Under the leadership of the Cabinet, MoLEP and AC is submitting annual data on this system to the Central Bureau of Statistics.

Progress Assessment: Target 5

To expand the sustainable agriculture models combined with improvement of crop production structure by diversification of crop species and conservation of agricultural biodiversity.

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government had drawn up agriculture science and technology strategy focused on food production such as potato and soy bean cultivation and rotational production system which combines crop cultivation with stock raising while hold consistently the agriculture-first policy to relieve the food shortage.

Government contributes to the SDG 2030 throughout keeping demands of Juche-type farming method (own agriculture methods) that aims stable crop production by applying scientific cultivation method suitable to the domestic climate, soil condition, properties of crop species and geographical characteristics and reinforces the material and technical support for rural area.

There has been demonstration show on sustainable organic agriculture models that combine agricultural biodiversity with agricultural production structure in several cooperative farms of the country. Consequently, organic cultivation technology such as applying fresh water snail to weeding of rice paddy field and improvement of soil fertility has been introduced into more and more farms.

Technical challenge in introduction of the new seed coating material and applying organic fertilizer like blue algae bio-active composite, are overcome.

Indicators used in this assessment

- annual agriculture production
- present organic cultivation methods

Please describe any other tools or means used for assessing progress.

AC submits annual report on agriculture production.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence

based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Data of this assessment based on collective evidence because AC presents data on annual agricultural production to the Central Bureau of Statistic.

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate.

Monitoring related to this target is partial.

No monitoring system in place

monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

The Cabinet and AC access regularly the annual agricultural production and present several organic cultivation methods.

Progress Assessment: Target 6

To survey the aquatic resources of overall water area in scientific way and formulate aquatic resource utilization plan within safe ecological limits and encourage the rehabilitation of degraded aquatic ecosystem.

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government has made certain progress in modernization of survey of aquatic resource and rehabilitation of degraded aquatic resource.

MoFs and MoLEP, under the close relationship of SAoS, survey the aquatic fauna and flora resource regularly and takes measurements to protect endangered species.

In water areas where have significance in increment of aquatic plant and animal resource, assessment standards on habitat degradation and pollution have been upgraded and number of sampling sites have been increased and planed resource assessment has been organized. Fishing zone is allowed from outside of 50 miles away from coast line and fishing gears and restrictive fishing season had been moderated by the properties of fish species.

Equipping the artificial culture area has been the main trend of fish farming and collection of natural aquatic animal and plant is strictly banned.

Government has taken measures that expand existing technology on artificial increment and fishing ground establishment and introduced the ecological methods in management of in-land water, coastal and marine water area to restore the reduced fishery resource.

In order to increase coastal and marine ecosystem conservation area up to 10% within territorial waters, necessary investigation is continuously organized.

In 2008, national survey on fish species and resource had been completed and certain range of water area are selected for the annual survey.

Survey result shows trend that resource quantity of fish in 1 ha during 2019 and 2020 had been increased annually

Indicators used in this assessment

- number of scientific research organizations in fishery.

- Number of fishery resource protection area.
- Quantity of fishery resource.

Please describe any other tools or means used for assessing progress.

Indicators of this assessment is included in the annual reports of Ministry of Fishery and Ministry of Land and Environment Protection.

Institutes and testing sites of the Academy of Fishery Science implement the survey plan and GPS technology was applied to measure protected areas.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

This assessment is based on the comprehensive evidences.

As Central Institute of Fish Farming of the Academy of Fishery Science had been reconstructed and modernized in 2018, scientific and technical base of fishery is strengthened even better.

There are 15 fishery resource protection areas (67,883ha) in the East sea of Korea and 6 (11,280ha) in the West sea of Korea.

SAoS, Academy of Fishery Science under MoFs and University of Fishery are conducting diverse research projects contribute to conservation of biodiversity such as fishery resource assessment, environmental impacts assessment, biodiversity survey of water area and so on.

Changed status of fishery resources in coastal area of East and West sea of Korea and continental shelf of East sea of Korea is as follows.

During 2015-2019 periodical changing status of shellfish resource of East and West sea of Korea shows that it decreased in 2018 and was increasing again.

Fish resource of continental shelf in East sea of Korea had been estimated as maximum increment value in 2008, since then it reduced and from 2015 it is recovering now.

Fish resource of continental shelf in West sea of Korea has been increasing since 2010.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

During Fishery Resource Preservation Season, April and July, technical trainings on various

themes have been organized at provinces, cities and counties as the unit.

Coordinated Control Towers of Fishery Resource Preservation have been organized at central and regional level and they are monitoring and reviewing overall preservation status of fishery resource quarterly and taking new measures.

They are working out countermeasures by embodying application of fine and punishment methods on illegal fishery production that drain a country's precious fishery resources.

MoLEP has been strengthening its legal monitoring under the newly modified environment protection law.

Progress Assessment: Target 7

To strengthen the capacity for productivity increment of inland water fish farming and shallow sea culture until 2015 and establish sustainable fishery production system by 2020.

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government has taken approaches to develop the fish farming in both fresh water and marine and culture in large scale

Government has definitely increased the proportion of fishery production in shallow sea culture among total fishery production by expanding marine fish farming and shallow sea culture in the favorable marine areas. Combined fish farming and solid fish farming technology have been expanded widely and feeding difficulties has been solved thus productivity of unit water area and fresh water fish production has been increased.

Since 2020 the protein feed production has dramatically increased, as the mass production of *Hermetia illucens* has been replaced the fish meal.

As fish meal supply had been stopped by Covid-19 pandemic in 2020, fish production in 2020 was 2.1 times greater than 2016 production.

Since 2016 cage fish farming is introducing widely in fresh water area and due approach was applied not to destruct environment.

Indicators used in this assessment

- Production amount of main fish species
- Status of sustainable fishery

Please describe any other tools or means used for assessing progress.

MoFs has data on fish production and sustainable fishery system.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Above assessment is based on integrated evidence. MoFs has been conducting survey on annual resource quantity of main fish species and sustainability of fishing of these species since 2015.

Some works which carried out to implement the target 7 are as follows.

Fishery section had solved scientific and technical problems arising from growing fry Pollack by our own style and basic feed of fry Pollack is produced by alternating the diatom, rotifer and young shellfish growing around seashore nursery. It was a breakthrough in mass production of Pollack by farming. Fry Pollack has been discharged in East sea of Korea several times during end of April to beginning of May 2017.

Several hundred thousands of fries have been released annually as many spawning ponds including Unha Spawning Pond has been reconstructed and modernized.

Great number of fry salmon has been discharged in the salmon and trout preservation areas of East sea of Korea in a single year during 2017 to 2020.

Pyongyang catfish farm doubled its productivity by introducing scientific and intensified production methods. As many catfish farms and fish farms had been reconstructed and a lot of new fish farms including Sunchon catfish farm and Unsan catfish farm had been newly constructed several tens of thousands of fish productivity has been increased.

Research on vegetable feed had been conducted since 2015 and introduction of this research result leads to the increment of vegetable proportion in composition feed dramatically.

Active implementation of river treatment and resource preservation projects increase the stock of aquatic species and improve water quality of rivers.

With the application of effective technology for the propagation of marine animal and plant such as installation of artificial fish bank and combined farming of aquatic plant and animal protect the water pollution of the area and enhance the productivity.

Several seashore nurseries had gained enormous achievements in sea plant and shellfish production.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Ministry of Fishery of DPR Korea has been organizing professional monitoring on activities related to target 7.

Progress Assessment: Target 8

To make impacts of pollutants not harmful to the biodiversity by reduction of pollution of water, air and soil.

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government made a certain progress towards this target but it is not sufficient.

Government gained great achievement in reduction of emission of air pollutant, purification of protein sewage and heavy metal sewage and solid waste recycling, planning the environment protection of Pyongyang and Chongjin and introduction of IT technology to environment management.

As facilities and equipment have been installed to purify the toxic gas including fluorine from factories and enterprises, density of air pollutant has been getting reduced by below the emission standard.

Although majority of water area of main rivers including Taedong River, Amnok River, Chongchon River, Songchon River attain to the national standard for environment protection, cities with high population density and water areas in which there is mine, metallurgical works and chemical factories are exceeding the water quality standard.

As the research projects on protection of river ecosystem and sustainable management have been registered as focal area of national long term plan of science and technology development since 2015, there have been partial achievement in rehabilitation of river ecosystem.

Indicators used in this assessment

- Concentration of sediment dust and SO₂ in areas of sever air pollution.
- Status of water quality of main rivers and creeks in DPR Korea
- Periodical change of national water quality indicators
- Development of equipment enabling more creditable measurement of environment situation

Please describe any other tools or means used for assessing progress.

Regular reporting system on such data is operating in MoLEP.

Level of confidence of the above assessment

- based on comprehensive evidence
 based on partial evidence
 based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Several science and research entities including SAoA and Kim Chaek University of Technology have upgrade dust collection efficiency of factories and enterprises by modernizing dust collectors in boilers and industrial furnaces. Coal depots in Taedong River basin have been reconstructed as like as standard design to stop coal erosion into Taedong River.

In 2016, Academy of Environment Science and Technology under MoLEP had improved the environment monitoring system by localizing measuring equipment enabling more scientific mensuration on environment status.

Research group of Environmental Hygiene Institute under Academy of Medicine and Kim Chaek University of Technology had developed the classifier that detect harmful aerosol like PM10 and PM2.5 in the atmosphere.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
 Monitoring related to this target is partial.
 No monitoring system in place
 monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Environment Monitoring organizations from the Central Environment Monitoring Station to regional stations in main residential areas and industrial areas have been organized and over 90 sampling plots for atmosphere quality monitoring, over 120 sampling plots for water quality monitoring including 15 sampling plots for marine water quality monitoring are running steadily.

Progress Assessment: Target 9

To identify overall invasive alien species and integrated measures are in place to manage pathways to prevent their introduction and establishment

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government gives priority to controlling measures on invasive alien species in strengthening the national quarantine system.

This is carried out by the Biosafety Committee (non-permanent organ) and the Bureau of Quality Management.

Thorough strict border quarantine and broad controlling measures are in place and early warning system is installing in order to control the pathway of invasive alien species.

MoLEP and AC and other organizations have been updating the data of the book: “Inventory and Impact Assessment of Alien Plants in DPRK” continuously and facilitate the research project on identification and impact assessment of invasive alien species.

Especially capacities of border quarantine organizations have been further strengthened and it is emphasized to eliminate the negative impact of invasive alien species on biodiversity by establishing real time monitoring and controlling on occurrence, pathway and spreading of them in threatened areas.

Indicators used in this assessment

- Number of invasive alien species in DPR Korea recently
- Number of exotic species with economic value

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Alien species in DPR Korea are mainly introduced in natural flora accidentally and naturalized. According to the data collected so far, there are 32 species in DPR Korea that belong to the weed

quarantine category. For example, oxeye daisy (*Chrysanthemum leucanthemum*) which introduced into the country at 1930s and now spread to mountain area of Unhung county Ryanggang province. Roman-wormwood (*Ambrosia artemisiifolia*) and small-flower-quick-weed (*Galinsoga parviflora*) are also invasive alien species that introduced accidentally and naturalized in the country. Some alien species with economic value such as sheep's fescue (*Festuca ovina*), Penn A-1 (*Agrostis stolonifera* cv) and weeping willow (*Salix babylonica*) and so on have been acclimatized into the climate of the country and cultivated. Biosafety mechanism has been established against Genetically Modified Organism (GMO) and capacities for risk assessment and examination have been further strengthened.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Responsible units in charge of animal and plant quarantine are the Bureau of Quality Management, the Central Hygienic Anti-Epidemic Station and the Central Veterinary Anti-Epizootic Station.

There are 26 border platforms including bridges, trade ports and freight depots where quarantine animal and plant in DPR Korea. But some data on invasive alien species such as web worm (*Hyphantria cunea*), *Dryocosmus kuriphilus*, *Thecadiplosis japonensis*, rice water weevil (*Lissorhoptrus oryzae*) that introduced from south Korea through DMZ (demilitarized Zone) and other recent animal diseases is scarce. Prevention of invasive alien species of which pathway is Amnok river and Tuman river that flow border become the hot issue. For example, alien insect pest: *Dendrolimus sibiricus* introduced from china, attacks larch forest in Ryanggang and Northern Hamgyong provinces.

Progress Assessment: Target 10

To improve service of ecosystem through minimizing the human intervention to vulnerable ecosystem based on national adaptation and mitigation tools

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

1) Temperature rising

Air temperature rising speed of DPR Korea in 20th Century is 0.19°C/10 years that was 3 times faster than global warming speed (0.06°C/10years) and it recorded the highest temperature during this period since its' observation.

Warming appears at overall country with northern inland region as its' axis and temperature of winter and spring was mainly rising till 2000 but temperature of warm seasons like autumn, spring and summer is rising during the recent 10 years.

2) Change in precipitation

Although there was clear trend of change in annual precipitation of the country during the 20th century, from the data on the annual precipitation change during 1951-2017, recent annual precipitation has tendency of decrease than 1960s

3) Sea level fluctuation and the change in sea water temperature

Although the average fluctuation speed of sea level during 1963-2000 period is 1.5mm / year, it was 3 times faster during the first decade of 21st century as 4.5mm/year.

Sea water temperature of the West and the East sea of Korea is rising rapidly.

Due to the global warming, annual average water temperature of the East sea of Korea is rising 2.0~3.0°C more than that in 1990s and it is rising continuously now.

4) Abnormal climate phenomenon

Recently hazardous climate phenomenon such as typhoon, heavy rainfall, drought and so on which cause great damages and loss to socio-economic development of the country have been more recurrent phenomenon.

Unlike past period, not only pluvial regions but also small rainfall regions including Tuman River basin receives heavy rainfall. The maximum heavy rainfall record has been updated in 33

observation sites during the last 10 years.

Before 2000s, drought had been happened once in 2 or 3 years but it had been experienced 7 times during 2000s and once in every year from 2011 till now. Recently intensity of typhoon in the country is getting stronger again and especially even stronger typhoons in 2012, 2016, 2018, 2019, 2020 attacked the country and caused great damages and losses.

Abnormal high air temperature has been constantly recorded in overall area of the country. The maximum air temperature had been updated in several regions of the East and the West sea coastal areas. Due to the warming of winter climate, it hadn't been severe cold for 15 years since latter half of 1980s but severe cold has been frequently happened since beginning of the 21st century.

Indicators used in this assessment

- Identified species and priority regions which had been received the greatest impact by climate change after the vulnerability assessment on ecosystem and biodiversity.
- Activities on mitigation and adaptation of climate change

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

As one of the approaches for reduction of greenhouse gases, utilization of natural energy has been expanded to the whole country and units meet majority of power demands by themselves through solar or wind energy, are getting increasing.

Number of research results such as the characteristics of climate change for the recent years and 5-year prediction on climate change, the changes in right place distribution and production vulnerability of forest tree species by climate change, impact assessment of global warming to water resource, climate change characteristics of Sepho plateau, change property of plant species diversity in northern part of the country and so on have been published and it contributes to recognition of negative impacts of global warming and mobilizing people to the prevention of impacts of global warming.

CDM project-10Mw Hamhung Youth Hydropower station No1, had been implemented and thousands km of waterway has been newly constructed and retreated to reduce the flood damage and increase drainage capacity.

Prediction of Hazardous Weather caused by climate change has been focused and forecast stations and forecasters arranged everywhere for the early warning of natural disaster.

Impact of climate change to the biodiversity has been surveyed every year.

Results of research projects on breeding of crop species with abnormal climate hardy property

such as drought tolerance rice species and other new varieties have been introduced to the practice.

Several science documentaries such as “Climate change: threatening human being 1, 2”, “Climate change and life” and so on have been broadcasted to raise the awareness on mitigation and adaptation of climate change.

Government has been actively participating in the international initiatives for responding climate change like international workshop, for example, one on the subject of “adaptation of food and agriculture sector responding climate change” organized on the occasion of the world’s food day.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place

Monitoring and relevant activities to achieve this target have been conducted in everywhere of DPRK. Biodiversity Institute, Institute of Global Environment Information and Academy of Forest Science prepare and submit reports on biodiversity and ecosystem.

Progress Assessment: Target 11

By 2020, at least 17 % of terrestrial and inland water area and 10 % of coastal and marine areas are expanded as protection area step by step and establish well connected systems of protected areas and improve management to conserve biodiversity and enhance ecosystem service in the overall landscapes and seascapes of the country.

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Now government had set up 12.6% of territorial area as several type of protection area.

Since 2015, to achieve the target 11 of NBSAP, government has conducted overall assessment on both land and in-land water area and set up areas with high value of protection as protection areas.

Indicators used in this assessment

- ratio of total land area (including in-land water area) protected by protection areas
- ratio of total coastal and sea area protected by coastal and marine protection areas

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Above assessment on selected target is based on partial evidence.

Now government has been progressing towards target related to area of land and in-land water based on the achievement gained so far. Based on the field survey on the Mt. Kumgang natural park since 2015, 262,589ha of this park region had been registered as World Biosphere Reserve of UNESCO in July 2018.

It is necessary to organize discussion and cooperation between several units to identify land and in-land water areas as protection one. Although there has been progress towards target 11 of NBSAP, large gap is still remaining.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.

- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Index reflected in target 11 of NBSAP had been identified by the categorizing the protection area and assessing forest coverage percentage of protection area. This data is annually updating by MoLEP and SAoS.

Progress towards target 11 is direct contribution to the international efforts to achieve Aichi target 11.

Progress Assessment: Target 12

To rehabilitate degraded natural habitat throughout regular investigation on flora and fauna species in mountain and river and their habitat

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government has regularly investigated species distribution in mountain and river basin and their habitat and taken measures to protect endangered and rare species and maintain biodiversity.

National wild animal resource investigation had been organized during 2018-2019 in accordance with government measure.

Based on survey results on major wetlands of the country in 2018, “A Wetland Inventory for DPR Korea” has been published.

Along with this, government built database on the results of regular investigation of flora and fauna and their habitat and facilitate the utilization of this database by improving the function of the Biodiversity Clearing-House.

The Biodiversity Clearing-House has built up database on in & ex situ, invasive alien species and endangered species and set up biodiversity homepage in 2019.

Government has been taking counter measures to rehabilitate degraded ecosystem in in-land water and coastal areas.

Indicators used in this assessment

- From 2015 to now, research results on investigation of animal and plant species and their habitat, protection of species including rare species and conservation of biodiversity
- Rehabilitated area of degraded natural habitat

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

There was forum on national natural protection sectors in May 2017. Number of valuable essays

from officials, scientists, technicians and engineers in forest science, botany, gardening, land management, environment protection and zoology had been presented.

In November 2017, there was a forum on national biology sponsored by the Central Committee of General Union of Korea Science and Technology in Branch Academy of Bio-engineering under SAoS. In this forum, operated several sections including biology, botany, zoology and micro-biology, achievements of research projects on regular investigation of country's animal and plant species and their habitat, protection of species including rare animal and plant species and conservation of biodiversity have been introduced.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Index reflected in target 12 of NBSAP had been identified by the categorizing and assessing forest coverage percentage of degraded habitats.

This data is annually updating by MoLEP and institutes of SAoS.

Progress towards target 12 is direct contribution to the international efforts to achieve the Aichi target 12.

Progress Assessment: Target 13

To update “Red Data Book” by 2020 and to take measure for prevention of extinction and reduction of endangered and rare species

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Although government has been progressing towards this target, but there is inadequate data that can identify completion of this target as explained bellow.

Investigation and assessment on endangered species had been carried out by SAoS.

Plant series of “Red Data Book DPR Korea” was published in 2015 and animal series in 2016.

Government has converted major habitat of endangered species including extinction species into protection areas and improve their management and built up database on results of regular investigation on habitat and reinforced ex-situ protection of endangered species in central and local zoo and botanic garden.

Natural Museum and Mt. Paektu Natural Museum had been constructed to raise the public awareness on protection of endangered species and rehabilitation of their habitat.

Wild animal protection areas have been established everywhere and increased their number with success and awareness has been increasing on protection of endangered species by producing and spreading documentaries of endangered species.

Indicators used in this assessment

- Endangered animal and plant species
- Change in the extinction status of wild species
- General trend in wild species existence

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please describe any other tools or means used for assessing progress.

Data on the endangered species is still inadequate because this assessment was based on the data

from the reports of MoLEP, MoFs and SAoS and knowledge of individual people. Based on recent research results, common index utilized in assessment are mainly about trends analysis of dominant species and biodiversity.

Level of confidence of the above assessment

- based on comprehensive evidence
 based on partial evidence
 based on limited evidence

Please provide an explanation for the level of confidence indicated above.

These indicators are based on theoretically identified methods and partial evidence.

Endangered and rare plant species identified by 2015 is 377 species including 47 Extinction (EX), 71 Endangered (EN), 94 Vulnerable (VU), 85 Near Threatened (NT) and 80 Data deficient (DD).

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
 Monitoring related to this target is partial.
 No monitoring system in place
 monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Government has been conducting regular investigation on biodiversity in important area of biodiversity such as Mt. Paektu biosphere reserve, Mt. Myohyang Biosphere Reserve, Mt. Kuwol Biosphere Reserve and so on and Migratory Bird Reserves (wetland) in Kumya, Rason and Mundok.

Progress Assessment: Target 14

To strengthen the protection of genetic resource (crop, livestock, herb, tree, micro-organism, etc.) and adopt strategy on harvesting and conservation of genetic resource and implement it

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government makes certain progress towards this target.

Strategy on harvest, conservation and sustainable use of genetic resource in agriculture, animal husbandry, medical herb cultivation, forestry and microbiology has been developing by government.

To improve the crop production structure and to overcome passivity in food production, system for harvest, conservation and sustainable utilization of genetic resource like crop, livestock etc. has been establishing.

GMO (genetically modified organism) safeguard approach including awareness raising on GMO products by opening homepage “Biosafety” has been strengthened and monitoring, assessment and management of GMO has been improved.

Indicators used in this assessment

- number of species of gene conserved and utilized now
- new crop varieties
- achievement gained in gene research sector from 2015 to now

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Now genetic resources including 42, 000s cereal varieties, 11, 000s vegetable varieties, 3, 500s economic plant varieties have been conserved and utilized. There are 900s medical herb plants in the country and 350 species among them are important one that utilized in traditional medical treatment-Koryo medicine. 40s livestock species, 60 poultry varieties, 300s silk worm species have

been registered and conserved.

There had been progress in new variety breeding and it contributed to the increment of crop production.

600s of scientific and technical achievement have been gained in this field from 2015 to 2019

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Now genetic resources conservation system for livestock and agricultural crop species has been established in Agricultural Commission and State Academy of Science has genetic resource conservation system of micro-organism.

Progress Assessment: Target 15

To implement “Nagoya Protocol on Access to Genetic Resources and Equitable Sharing of Benefits Arising from Their Utilization”

Category of progress towards the implementation of the selected target:

- On track to exceed target
 On track to achieve target
 Progress towards target but at an insufficient rate
 No significant change
 Moving away from target
 Unknown

Additional Information

Government has been taking legal and administrative measurements on access and benefit sharing and strengthening the training of young talents and academic exchange for the conservation and sustainable use of genetic resource. But the Nagoya Protocol is not implemented adequately due to the technical insufficiency.

After ratification of the Nagoya Protocol in 2019, Government had increased sufficient potential for building up national legal, institutional and personal framework.

Indicators used in this assessment

- number of gene species which conserved and utilized now
- achievement in gene research from 2015 till now

Level of confidence of the above assessment

- based on comprehensive evidence
 based on partial evidence
 based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Storage and management of genetic resource is responsible to different organs such as Academy of Agriculture, Management Bureau of Animal Husbandry and Institute of Vegetable Science under Agricultural Commission and Branch Academy of Bioengineering, Institute of Micro-Organism and National Strain Storage House under SAoS etc. State Commission of Science and Technology identifies and registers gene.

Many Universities including **Kim Il Sung** University, Kim Hyong Jik University of Education and University of Science have been training a lot of talents during the education of gene resource management technology such as genetic engineering, genome engineering, genesis engineering and so on. Branch Academy of Bio-engineering has gained great achievements as center of

bio-engineering technology.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Now government has been conducting capacity need assessment of competent organs to implement the Nagoya Protocol through relevant organ oriented assessment.

Progress Assessment: Target 16

To increase the social awareness on value of biodiversity and strengthen the capacity of leading officials at different level from central to local and the science and technical capacity on conservation and sustainable utilization of biodiversity

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government had made progress to this target.

Processes of land management and environment protection like afforestation has been the opportunity to raise the public awareness on conservation of biodiversity.

Many science documentaries and programs such as “Urban afforestation and gardening”, “Forest-preventing the damage of yellow dust” and so on had been produced.

On the occasion of the international day of biodiversity, there has been TV show on the subject of biodiversity annually.

Many books which improve public awareness like “Conservation and sustainable use of biodiversity” and publication and distribution of “Pictorial book of *charadrifonnes*” and “Pictorial book of amphibian” has been contributed to improvement of species identification among students and citizens.

Number of lectures on biology and geography have been increased in education of primary and middle school and modules on ecosystem and environment protection has been added in education of senior middle school.

According to new universal 12-year compulsory education, new Module-Nature Science was added in the junior middle school education and it makes pupils to obtain deeper and broader knowledge about properties and diversity of organism and protection of ecological environment within their lives and nature through theoretical explanation.

To expand the practical knowledge on nature and ecosystem, the more opportunities have been provided for students to visit and they have study tour on biospheres, natural parks, botanic garden and zoo.

Several kinds of homepages have been established to contribute to the public awareness raising

on conservation of biodiversity and protection of ecosystem.

Officials of ministries and central organs, field officials and experts have been improving their capacity throughout short-term training and national workshops on the subject of environment protection and biodiversity protection.

Indicators used in this assessment

- number of science documentaries on the subject of biodiversity

Science documentaries about biodiversity such as tree planting, forestation, gardening and so on had been broadcasted during 2011-2019

- Number of books on biodiversity and relevant sectors

number of magazines directly concerned to the biodiversity such as nature protection, land management and biology and so on occupies 17% of total number of magazines on nature and basic science magazines in the country

- Number of centers related to knowledge dissemination on biodiversity

The Central Zoo had been reconstructed and modernized and the Sci-Tech Complex and Natural Museum had been newly constructed as the center of public knowledge dissemination. Knowledge propagation tools have been widely introduced into the sites of culture and rest like the Rungna Dolphinarium.

Several kinds of propaganda materials which has significance in biodiversity knowledge dissemination have been prepared and expanding by the Institute of Biodiversity, SAoS.

Please describe any other tools or means used for assessing progress.

New teaching methods what allow student to get adequate knowledge on biodiversity have been regularly informed to Education Commission.

Some data used in this assessment collected from websites, publishing houses, universities and research institutes.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

As above assessment was based on individual units, not on the national report, this can't be comprehensive one.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place

monitoring is not needed.

Progress Assessment: Target 17

To strengthen the education of primary and secondary schools on biodiversity value, conservation and utilization of biodiversity

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Education concerned to biodiversity value and conservation and utilization of it in primary and middle schools has been strengthening. The heuristic method of education is developed for biodiversity education and excellent experiences created in this development process has been expanding. Multimedia and new type of teaching tools have been produced and distributed actively.

Various books related to biodiversity have been published and disseminated for the education of primary and middle school.

Indicators used in this assessment

- Occupying percentage of nature subjects among education of primary school
- Occupying percentage of biological contents among subjects of natural science in junior middle school education.
- Occupying percentage of ecosystem, protection of ecological environment and biodiversity among subject of biology in senior middle school education.

Please describe any other tools or means used for assessing progress.

Data collected from the annual reports of Education Commission and universities and publishing houses.

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Since March 2017, talents of forest sector have begun to be educated in **Kim Il Sung** University the highest institute of Juche education.

Zoological and botanical specimen, model, removal and stationary visual aids, reference

literatures, science documentaries have been developed and applied to adopt heuristic method in the education of biodiversity protection and its' sustainable use. Laboratory and object lessons is focused throughout equipping nature laboratory, teaching garden and forest, greenhouse and field practice yard and rabbit-hutch etc. and operating them in every schools. Zoo and botanic garden had been reconstructed and modernized as the center of extracurricular education and the natural museum newly constructed contributes to the education. Nature subjects occupies 9.4% among the education of primary school and biology related contents are included 30% among subjects of natural science of junior middle school education. Ecosystem and protection of ecological environment is included in biology subject and environment protection and sustainable development is addressed in geology and chemistry subjects of senior middle school education.

In-service training of teachers in primary and middle school has been organizing and this training is opportunity for expanding good experiments. Quality of education in teacher's collages and normal universities has been began to improve and teaching control supporting system based on real-time teaching information is applied.

Government encourages pupils and students of primary and middle school to participate positively in the activities organized during "General mobilization month of land management", "Protection month of forest and underground resources", "Protection month of useful animals", "Tree planting seasons", "Protection month of fishery resource" and "Protection month of useful bird". Activities of awareness raising through workshops organized on the occasion of "World Environment Day", "International Day for Biological Diversity", "Day of Wetland" and "World Migratory bird Day" and mass-media.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Progress Assessment: Target 18

To integrate conservation and sustainable use of biodiversity into the national environment protection strategy and provide strong incentives on conservation and sustainable utilization of biodiversity throughout all-people mobilized work such as general mobilization for land management and so on

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

As the incentives have been applied to the conservation and sustainable utilization of biodiversity while reflecting the conservation and sustainable utilization of biodiversity to implementation of the national environment protection strategy progress had been made toward this target.

Since 2017, government has organized working group for preparation of national environment protection strategy and conduct the re-investigation and exact assessment.

Government has identified the indicators related to conservation and sustainable utilization of biodiversity fit for specific feature of individual county and review the progress in fulfilling the indicators and provided strong incentives during the implementation of “the Movement of winning over the title of model forest county”, “the Movement of model county of land and environment protection” and “the Movement of winning over the title of socialist patriotism forest”

Indicators used in this assessment

- Number of important national competent organs participated in preparation of national strategy for land and environment protection
- Number of biodiversity concerned items reflected to the national strategy for land and environment strategy

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

State commission of science and technology and ministry of land and environment protection have been operating the monitoring and controlling system that deal with overall national situation on the conservation and sustainable utilization of biodiversity and they receive regular reports from stakeholder organs and submit them to the Cabinet.

Progress Assessment: Target 19

To strengthen the knowledge management capacity on biodiversity and improve the knowledge about conservation and sustainable use of biodiversity and share, transfer and introduce them widely

Category of progress towards the implementation of the selected target:

- On track to exceed target
- On track to achieve target
- Progress towards target but at an insufficient rate
- No significant change
- Moving away from target
- Unknown

Additional Information

Government had established the biodiversity homepage managed by Biodiversity Institute of SAoS to strengthen the capacity of biodiversity clearing-house and provide full share and smooth exchange of information and made it to contribute to the effective awareness raising and technology transfer about conservation and sustainable utilization of biodiversity since 2015.

Indicators used in this assessment

- Visitors in biodiversity homepage
- Number of virtual meetings convened about conservation and sustainable utilization of biodiversity annually

Level of confidence of the above assessment

- based on comprehensive evidence
- based on partial evidence
- based on limited evidence

Please provide an explanation for the level of confidence indicated above.

Government has been regularly raising public awareness throughout various works such as establishment of biodiversity homepage, propagation of technology and common sense on conservation and sustainable use of biodiversity. Forums on conservation and sustainable use of biodiversity have been convened 6 times a year and visitors in biodiversity homepage are getting increasing year by year. The more people can absorb the knowledge on biodiversity and participate in the activities to conserve the biodiversity as systemic knowledge on biodiversity has been upload to the homepage.

Homepages of the Forest Science Information Center of the State Academy of forest and the Central Nursery under MoLEP have been set up and providing answers on science and technical

problems arising from forestation and gardening.

Adequacy of monitoring information to support assessment

- Monitoring related to this target is adequate.
- Monitoring related to this target is partial.
- No monitoring system in place
- monitoring is not needed.

Please describe how the target is monitored and indicate whether there is monitoring system in place.

Biodiversity clearing house has been monitoring on the progress toward this target.

Section IV: Description of the national contribution to the achievement of each global Aichi Biodiversity Target

Government of DPR Korea has actively achieving the Aichi Biodiversity Targets.

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Government has raised awareness on biodiversity conservation through pursuing land management and environment protection campaign like afforestation as whole country and mass movement.

Activities for education and awareness raising on importance of the nature have been organized widely.

Juveniles of the country have obtained necessary knowledge on biodiversity and pressure on it, importance of biodiversity in health and wellbeing and needed measurements for sustainable use and conservation of natural resource throughout the biodiversity education of primary, middle school and university.

Awareness on biodiversity value and participation in conservation have been activated through the successful implementation of several international projects such as “Capacity building for field eco-education in Mt. Myohyang Biosphere Reserve”, “Capacity building for public awareness raising on Biosphere Reserves in DPR Korea” and so on.

Mass propaganda has been vigorously carried out about basic knowledge and importance of biodiversity throughout mass media including TV, radio, newspaper, magazine. etc. The public opinion poll had been organized among adults living in Hyangsan and Kujang county of North Phyongan Province where Mt. Myohyang locates during 2016-2017 period. According to the poll, all of the respondents knew about the contribution of biodiversity to ecosystem service and livelihood improvement and other important benefits. In 2017, training had been conducted on the subject of importance of biodiversity and its’ conservation for the students of junior and senior middle schools in Hyangsan and Kujang counties.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Various value of biodiversity and ecosystem service have been applied to regional development like development of tourist resource and planning process of land use more widely.

Government encourages conservation of biodiversity by integrating it to the national environment protection strategy. For instance, impact assessment of environment for development of Wonsan-Kumgangsan inter-tour zone, which is carried out under national consideration, is given major priority as a principle.

Biodiversity conservation and its sustainable use are reflected upon national environment protection strategy, national forest afforestation strategy and energy strategy to strengthen the collaboration between related organs. In sectoral national economic plans of forestry, agriculture, fishery and public health which are based upon the utilization of biological resources, issues related to protection of biodiversity are reflected.

In medium- and long-term plans for the development of national science and technology, research projects related to evaluation of biodiversity and development of eco-tourist resources are suggested as key projects, and experts from various research and educational institutions participate in the projects and have transformed them as national work.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Positive incentives to biodiversity conservation and its' sustainable use are applied while appreciating city, county, organization, enterprise, individual officer and citizen who obtained achievement in "Movement of winning over the title of model county of land and environment protection".

Government has strengthened the seedling production capacity of central and local nurseries to restore destructed forest with the government budget.

Various incentives such as the grant of reward to greenery guard activity for wildlife protection and winners of academic symposium and so on have been applied.

Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Additional data on this target is explained in the part of National Target 4 in Section 2 and 3 of this report.

Government guarantees the protection and sustainable use of forest resource through forest management and controls resource utilization under the license system.

According to the land law and forest law, all logging areas must be regenerated by natural or artificial method (afforestation and sowing) or mixture of these 2 methods. Successful regeneration of logging area guarantees the maintenance of biodiversity and ecosystem service such as timber and fiber productivity, carbon sequestration, controlling water quality and quantity, protection of natural habitat and so on.

Government has decided annual timber production amount to keep the balance between sustainable timber supply and developed and implemented the scientific forest management plans. Forest logging units keep thoroughly the principle of plant 10 seedlings after felling 1 tree.

Sea culture contributes directly to achieving Aichi target 4 in DPR Korea. Sea culture in DPRK is getting more important part of national economy. Government promotes the development of sea culture to the way of protection of marine ecosystem and population of wild fish species.

Government has encouraged the sustainable production and consumption and reduced exceeding consumption of resources by impact assessment of environment.

Government has been controlling the development of any project to fit the national standard on prevention of environment pollution and modifying that standard to meet the practical demand.

Integrated assessment on adverse impacts on regional ecosystem health, ecosystem safety and ecosystem service have been conducted and projects to develop overall ecosystem of region soundly have been planned and implemented.

While raising the awareness on the importance of pre-assessment of projects impacts of socio-economic environment, natural environment and life environment, propaganda has been strengthened to make all units and enterprises to keep legal demands of the country to prevent the environment pollution and destruction.

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Forestry

Government launched forest restoration campaign as the war of nature protection then carried out this campaign as nationwide and all-people one.

This campaign has been regarded as the political issue with the great importance that can be put off any more and the public awareness on the importance of forestation and its ‘protection with the view point of which forest protection is land and ecosystem protection, has been increased.

Therefore, the Nursery No.122 has been constructed as model one and the construction of Province Nurseries have been followed, the trustful arsenal of forest restoration campaign has been prepared. In such a way, dependable bases for the forest restoration have been constructed.

The phased and annual plan of 10-year afforestation to plant good tree species on 1,986,500 ha of bare land have been adopted and implementing now. The disaster prone areas are focused in restoration of forest land. While strengthening the monitoring to forbid careless utilization of forest land such as the construction of building or cultivation of agricultural crop species on bare land without permission of government and so on, public education has been conducting to prevent erosion by natural disasters including flood.

While planting right tree species on right site and enhancing the survival rate in everywhere of the country, advanced scientific and technical methods have been applied into the forest management to grow forest with rich biodiversity and high productivity. Especially, all mountains have been converting as valuable one by establishing commercial forests while establishing water resource conservation forests and forests in watersheds, slope lands and valley.

Wetland

Because DPR Korea has been surrounded by the sea on its’ three sides, there is large area of tidal land and lagoons. Wetland including rivers, creek and artificial lakes have been also distributed on large area as the mountainous landscape has been highly developed. Various wetland types such as lake Chon in Mt. Paektu, lagoon Samil, Paegam Peatland formed by volcano have been also distributed.

Due to these remarkable physiographical condition, there are large population of various water-bird species in the country seasonally and unique plant species and community and other animal species are dominantly distributed on wetlands. According to the survey on plant species in

main wetlands of the country conducted in 2016, 111 aquatic plant species, 53 genera and 35 families including 17 plant species whose habitats are tidal land, have been recorded.

Under the deep recognition on the importance of wetland protection and its' management, relevant activities have been promoted and DPRK had entered into the Ramsar Convention on Wetlands and East Asian-Australasian Flyway Partnership (EAAFP). Mundok and Kumya Migratory Bird Reserves included in East Asia-Australia Flyway Network in April 2018.

MoLEP had surveyed the function and value of wetland of the country to use the wetlands rationally with cooperation of several organizations and published "Wetland Inventory of DPR Korea" in 2018.

Simultaneous survey on migratory bird in coast of the East and West sea of Korea had been conducted and the result of that survey had been presented to the Wetland International in Jan 2019

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

In fishery section, primary effort has been put into the protection of biodiversity in in-land water and coastal area and government has set the policy that convert catching fishery into cultivating one definitely and implementing this policy.

In order to sustainable development of fishery, fishing boat and gear have been modernized and scientific fishing methods introduced, material base of fishing stations and docks have been strengthened. Strict system and order have been established and legal control has been strengthened to increase fishery production systemically through reserving and increasing fishery resources in a planned and practical way and introducing fish farming and cultivation on a large scale.

Coastal non-migratory fish species has been protected and its' population has been increasing by the improvement of fishery structure. Fish farming and cultivation have been carried out in large scale in the East and West sea of Korea while selecting right place of farming and cultivation. Spawning ground and habitats for fry, sea cucumber and ear shell have been prepared.

In sea cultivation sector, sea cucumber, ear shell, oyster, sea shell species, tangle with fast growing, strong disease tolerance and high productivity have been developed by traditional cross breeding, selective breeding and other breeding technology of good variety and introducing these super varieties into production.

Protein feed was localized and several types of feed additives have been developed and utilized.

Installation of fish bank is compulsory to all farming and cultivation area and fishing ground and size of fish bank and scope of plan on its' installation has been regulated depending on the level of fishery stations. Stocking non-migratory fish species is mandatory task and it is implemented in planned way and reviewed.

Overall survey had been conducted on natural fishing reefs and encouraged the protection of aquatic animal species fit to certain water area.

Fishery strategy is preparing for the rational and sustainable development of this sector.

April and July are regulated as “the Months of aquatic resource protection” and restrict the fishing during these months to create spawning condition for fish. Regulations of aquatic resource protection has been explained to all people to make them participate in the protection with high sense of responsibility.

Population of species with high water purification capacity such as *Pistia stratiotes*, *Hypophthalmichthys moltrix*, *Aristichthys nobilis* and so on have been proliferating. As endemic fish species of the country-Chongchon river sweet-fish has been propagated artificially and discharged into Chongchon river since 2017, endangered fish species which decreasing their population such as Chongchon river sweet-fish, char, mandarin fish, *Perca fluviatillis*, *Brachymystax lenok* has been remarkably increased.

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Agriculture

Government accepted agro-forestry management as an important strategy for food security, forest ecosystem rehabilitation, conservation of ecological environment and sustainable development of economy and has been actively introducing it to the whole country.

There had been demonstration lecture on organic farming at every province of the country and it leads to the increment of number of farms that introduce organic farming.

Number of research results have been achieved for the food security and sustainable agriculture of the country. Especially, achievement gained in productivity researches of rice and potato varieties have been introduced into practice. In addition to this, various IT products like software “Agricultural Meteorology” which contributes to the safe harvest under disastrous climate condition.

Huminite made by peat has been produced and supplied to increase the soil fertility and various biochemical which fit to the practical condition of the country have been developed and contribute to the agricultural production.

Throughout the implementation of rural energy development projects focused on local biogas, solar and wind energy, the more regions have been improved the livelihood of farmer and their agro-ecological environment.

Fishery

Government regards scientific and intensified fish farming as the breakthrough in development of fishery. Extensive development of fish farming is an important issue in improvement of people’s livelihood of the country. Now there are several thousands of artificial fish farms and natural farms in rivers, lakes and rice paddy field. Academic institutes and regular fry supply system have been already established.

Recently plenty of experience has been cumulated in introduction of scientific and intensified technology during the construction and management of modern and standardized enterprises in fish farming sector. There has been great success in farming of giant loach and sturgeon. Government has adjusted and reinforced fish farms in everywhere of the country at an early date and tried to construct more modernized and intensified farms like Pyongyang Catfish Farm. Research on localization of farming equipment and feed production have been strengthened to solve the key factor of fish farming including species, water and feed.

In order to provide scientific management of fishery resource and maintain viability of this

management, balance has been kept between production and conservation. Aquatic plant and animal species with economic value including fresh water fish species and non-migratory species in coastal area, some migratory fish species which record maximum production in the territory water and rare fish species with scientific value have been protected intensively.

Breeding fish production station, fry discharging station and sea farming stations have been increasing fishery resource by massive production and discharging of fry and cultivation of fishery products. Therefore, artificial production of fry Pollack had been succeeded in 2017, breakthrough was achieved in massive farming of Pollack and fry Pollack has been discharged in the East sea of Korea every year from end of April to beginning of May for several times.

Therefore, the Central institute of Fish Farming had been reconstructed and modernized in Dec 2018, fishery can be developed on more scientific base.

Forestry

Under the right policy of government for forest protection, afforestation and sustainable use of forest resource, occupation rate of bare land among forest land area was 14.3% in 2009 but it was decreased by 9.2% in 2018.

Nurseries of the country have been expanded and increased their seedling production capacity. Tree planting campaign has been launched during the Grand Mobilization Month for Land Management in every spring and autumn.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Government has been permanently implementing the policy on environment protection, especially prevention of pollution.

During the period of new 5-year plan for the national economy development and improvement of people's livelihood, emission concentration of all kinds of industrial waste water and domestic sewage, dust and gas will be reduced by national standards of environment protection and government set up the target that key value of environmental economic index shall be improved correspond with global trend.

Factories and enterprises high in emission of toxic gas and dust are forced to modernize their facility and processes and such factories and enterprises have been adjusted and moved out of the urban area. Efficiency of gas cleaners and dust collecting devices in boilers and industrial furnaces of hundreds of factories have been improved and dozens types of gauges what measure environmental parameters more precisely have been developed.

National environment protection standard had been updated in 2016 and "the law on marine pollution prevention" had been amended in July 2020. Coal loss to Taedong river was discontinued due to reconstruction of coal yard in hundreds of middle and small size coal mine as required by the standard design. Capacity of waste water treatment facility in factory, enterprise, city and county have been expanded and modernized to prevent the pollution of river, lake and ocean.

Development of green purification technique utilizing plant species like *Pistia stratiotes* is promoted and achievements of this fields is distributed widely.

Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

National contribution towards this target is already mentioned in activities of national target 9 described in section 2 and 3 of this report.

Government devotes great efforts to strengthen the control over the introduction of invasive alien species during the foreign trade and exchange and to reduce the damage at minimum level.

Government exerts efforts on establishment of the early detection and quick responding system against introduction and spreading of invasive alien species harmful to human health in agriculture, stockbreeding and forestry sectors.

Quarantine of plant and animal species at border, trade ports and freight depot is responsible to the Central Plant Quarantine Station and the Central Anti-Epizootic Station of Agricultural Commission and Bureau of Quality Management

Strict countermeasures to prevent introduction of diseases such as avian influenza, aftosa, African swine fever and so on, are taken.

There has been achievement in control of invasive alien species with biological method.

Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

National contribution towards this target is already mentioned in in activities of national target 10 described in section 2 and 3 of this report.

Target 11: By 2020, at least 17percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

National contribution towards this target is explained in activities of national target 11 described in section 2 and 3 of this report.

Government has been contributing toward Aichi target 11 throughout establishing protection areas and progress towards the national target 11 (at least 11 % of territorial area and 10% of coastal and marine area). These protection areas are direct contribution to the national target 11 and Aichi target 11.

Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Establishment of protection area and its' management can be safeguarded legally and favorable environment has been set up to prevent the extinction of endangered species by amending the “the Law on Nature Protection Area” several times. Government had established new wild animal protection area and protection area for migratory birds to protect and increase the population of rare animal species and adopted measure to limited the hunting during the wild animal protection season (March to July).

National measures to protect the wild life have been taken.

Government has been implementing the strict system that give permission to hunting and collection of wildlife within academic research, education and artificial propagation allowed by government.

Due to the successful implementation of the project “Crane habitat restoration in Anbyon and construction of protection area close to region”, tens of Manchurian crane (*Grus japonensis*) and white necked crane (*Grus vipio*) have a rest in this area while migrating to the wintering place since 2015 and even some of Manchurian cranes are passing winter at this area.

Due to the important of zoo and botanic garden in protection and increment of endangered wildlife, central zoo have been reconstructed and expanded by the government investment and number of animal species and their population in local zoo like Wonsan Zoo have been increased throughout modernization of facilities.

Besides of this, animals propagated in the zoo have been discharged into the natural habitats.

“Red Data Book of DPRK” is updating by the coordination of concerned organizations

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

In DPR Korea various agricultural crop and livestock species have been cultivated and raised since long time ago. One of the representative traditional genetic resource is Kaesong Koryo-ginseng which had been ameliorated the wild ginseng.

Government has adopted strategic plan on collection, conservation and sustainable use of genetic resources in the agriculture, stock breeding, medical herb cultivation, forestry and microbiology and has been strengthening institutional capacity. Government has also made plan to reinforce the existing gene bank and implement this plan. Now gene of agriculture crop and livestock species have been preserved in the Academy of Agriculture Science and microorganism gene in the State Academy of Science.

Number of varieties of agriculture crop and livestock which fix to the climate and land condition of the country and high in productivity have been bred and introduced and strains of microorganism have been also developed and introduced.

Information of genetic resources have been converted into database and national sharing system has been established to manage the genetic resources more scientifically.

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Government has strengthened the capacity that can restore degraded forest ecosystem and improve its service by facilitating the forestation and gardening of the whole country.

Throughout the projects on protection and rehabilitation of major forest ecosystem and watershed management, models which prevent flood damage, soil erosion, improve the ecosystem of watershed and maintain the balance between eco-environmental and socio-economic benefits of the region, have been created and expanding widely.

Research projects on wetland protection, restoration and sustainable use had been conducted but there has been insufficient progress to those on ecosystem services.

Though dependency on forest ecosystem service is quit high as mountain occupies majority of territory area of the country, research projects on forest ecosystem service, prediction of future impacts of climate change have been limited and non-optimized. United assessment system and methods which can attain the quantitative assessment of ecosystem has been developing now.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

National contribution towards this target is partially explained in section 2 and 3 of this report that described on activities to achieve the target 10 and 12 of NBSAP DPRK.

Government encourages the implementation of forest policy that increase the forest area consistently and protect and breed it to enhance the productivity for mitigation of climate change and combating desertification while enforcing the policy on improvement of the environment protection function of forest including land and water protection.

Strong approaches for the restoration of the destroyed forest by flood, drought, forest fire and illegal logging and sustainable use of forest resources have been applied.

Land and environment protection organs, forestry organs and units what have their forest in charge have been encouraged to establish their seed gathering and breeding system properly in order to expand tree seedling production.

Mixed forest and erosion control works have been carried out to prevent the erosion in bare land and slope land and advanced agro-forestry management technology have been introducing.

Scientific research projects have been also conducting to respond the climate change. Tree species distribution in forest has been improved and forest tree species with several type of tolerances such as extreme temperature, drought, pest and diseases, wild vegetable species, medical herb species and fodder grass species have been breeding and introducing in far-sighted view.

Government has prepared and been implementing the national action plans on green-house gas reduction, combat to land degradation and desertification and drought prevention in order to implement the UNFCCC - UN Framework Convention on Climate Change and UNCCD - UN Convention to Combat Desertification.

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Government of DPR Korea has signed the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization and entered upon preparation of its implementation. Government has begun to develop legal and institutional infrastructures for the implementation of Nagoya protocol.

Research capacities on assessment of domestic genetic resources and their value have been strengthened and efforts to collect the genetic resources and accomplish the conservation system have been paid off.

Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

National Biodiversity Strategy and Action Plan DPR Korea – NBSAP had been developed and updated 3 times since 1994 when DPR Korea had signed on CBD. In 1998 in accordance with Article 6 of the Convention,

Experts of central organizations including State Commission of Science and Technology, Education Commission, Ministry of Land and Environment Protection, Agricultural Commission, Ministry of Fishery, Ministry of Public Health and experts of State Academy of Science, Academy of Agriculture, Academy of Medical Science have been involved in development of NBSAP.

Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Farmers right have been legally protected in access and benefit sharing of plant genetic resources including traditional agricultural crop and medical herb species by “the Law on Agriculture, DPRK” and “Law on Public health, DPRK”.

One of the domestic traditional industry-Koryo pharmacy has been developing by the traditional knowledge and technology that accumulated for a long period of time.

Government encourages to seek for local special products and registers traditional knowledge about cultivation, storage and processing of local traditional crop species as national immaterial heritage and stimulate this knowledge to utilize widely.

Local communities and women participate in the distribution of traditional knowledge.

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Government pays nation-wide attention to research projects on conservation and sustainable use of biodiversity and support them while concentrating on these research projects.

Biodiversity Clearing-House and national biodiversity database has been established.

Government raised the ration of education of biodiversity conservation in educational sector and propagates the basic knowledge and importance of biodiversity conservation several hundreds of times annually through various media and publication such as TV, radio, newspaper, magazine, literatures and so on

In 2017 over 300s essays about forest, botany, gardening, land, environment, animal, fishery resource had been presented in the national symposium on nature protection sectors and more than 250 essays on bio-engineering, biology, zoology, microbiology and so on had been presented to the national symposium on biology sectors.

Government consolidates multi and bi-lateral cooperation in biodiversity sector to fulfil the obligations of UN CBD and it leads to positive achievement.

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

(Please describe how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target and summarize the evidence used to support this description)

Government of DPRK has made efforts to increase the investment into the environment protection and biodiversity conservation while regarding these sectors as fundamental one that concerns to the future of nation.

Government increases the national investment into the biodiversity conservation and facilitates forest restoration campaign through mass movement and constructs standard nursery at different level from central to province, city and county to rehabilitate destroyed forests by supplying seedlings of good tree species sufficiently to the forestation and reforestation sites.

Contribution of achievement of Aichi Biodiversity Targets to implementation of the 2030 Agenda for Sustainable Development and Sustainable Development Goals:

Government of DPRK attaches great importance to the 2030 Agenda for Sustainable Development and Sustainable Development Goals

The supreme principle of the government activity is always to improve the people's livelihood systemically.

Implementation of NBSAP is related to achievement of SDG-2030.

Government has implemented several kinds of projects to achieve the SDG in biodiversity sector.

In this section the contribution of Aichi Targets to the SDG-2030 has been assessed.

Generally, majority of Aichi targets contribute to the SDG-2030. SDG targets contributed by Aichi targets include 2.4(sustainable food production), 2.5(ABS), 4.7(knowledge and skill), 6.6(ecosystem restoration), 8.4(sustainable consumption and production), 9.5(enhancing scientific research), 11.4(protect and safeguard the world's cultural and natural heritage), 11.7(access to green and public space), 12.2(sustainable management and efficient use of natural resources), 12.8(relevant information and awareness), 13.2(integrate climate change measures into national policies , strategies and planning), 13.3(improve education, awareness-raising and human and institutional capacity), 15(protect, restore and promote sustainable use of terrestrial ecosystems), 17.6(enhance regional and international cooperation) and 17.9(enhance international support for capacity-building in developing countries)

Section V. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation

Parties to the convention on UN biological diversity adopted the 16-target of Global Strategy for Plant Conservation(GSPC) in 2002, and added some targets to be achieved by 2020 to update it in 2010. It is required in the GSPC to evaluate the conservation status of global vascular plants by 2020 and conserve at least 75% of the endangered species in-situ.

Democratic People’s Republic of Korea included GSPC in its updated National Biodiversity Strategy and Action Plan (NBSAP) (2012-2020).

Around the world, many national institutes concentrate on conservation of biodiversity in the development and management of protected areas. In our country, as well, survey on high plants is more emphasized. Most plant conservation actions are mainly conducted by the State Academy of Sciences, science institutions of Ministry of Land and Environment Protection and universities. This section presents how and to what degree DPR Korea contributed to the achievement of the targets of the GSPC. The following results are the data surveyed at the national level.

Target 1: An online flora of all known plants.

- Achievement

- The Ethernet service database and database manager software, which can be used for quick and accurate search of and access to all plants according to correct classification system that are grown wildly or planted in our country was developed in 2015.
- Korean Forest Vegetation E-dictionary “Green Forest 3.0”, which can be used for wide search of and access to forest vegetation of our country by reflecting its geographical characteristics, was developed in May 2019.
- In 2016, an E-book “Aquatic plants and our life”, which presents major species of aquatic plants that grow in wetlands of our country and their usage values was published and it is being widely used.

- Evaluation level

- Proceeding to the target but without sufficient speed.

- Implementation or collaboration organ

- State Commission of Science and Technology (SCST), Ministry of Land and Environment Protection, State Academy of Sciences, Education Commission

Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

- **Achievement**

- Evaluation on the conservation status of plant species has begun. Every year, sponsored by the Central Committee of the General Union of Korea Science and Technology, a scientific and technological forum of the national nature conservation field on the conservation status of national plant resources is being held, in which many organs including Ministry of Land and Environment Protection, State Academy of Sciences and **Kim Il Sung** University participate.
- The Botany Institution of State Academy of Sciences updated the book “Red Data Book of DPRK-Plant” in 2015 by classifying the plant species according to the International Union for Conservation of Nature (IUCN) and by surveying and evaluating the conservation status of those plant species.

- **Evaluation level**

- No great change in national level.

- **Implementation or collaboration organ**

Ministry of Land and Environment Protection, State Academy of Sciences, Education Commission

Target 3: Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared.

- **Achievement**

- GSPC has been reflected into the “National Biodiversity Strategy and Action Plan 2012-2020”, “National Environment Protection Strategy” and “10-year Afforestation Plan”. Due to completion of several research projects such as “biodiversity assessment in main nature conservation reserves of the country and development of eco-tourism resource”, “biodiversity assessment of river ecosystem and its’ sustainable use”, “biodiversity assessment of main wetlands of the country and preparation of A Wetland Inventory for DPRK” and so on, it was possible to assess correctly on plant species diversity of the country where has divers plant community.

- Botany Institute of State Academy of Science, State Academy of Forestry, Central Botanic Garden of MoLEP and other relevant organizations have cooperated and shared their research results to create model on plant protection and sustainable use.

- **Evaluation level**

- Progress towards target at national level but at an insufficient rate

- **Implementation or collaboration organ**

- Botany Institute and Biodiversity Institute of State Academy of Science, Central Botanic Garden, State Academy of Forestry of MoLEP and universities

Target 4: At least 15 percent of each ecological region or vegetation type secured through effective management and/or restoration.

- **Achievement**

- The government has taken several measure to protect the natural protected areas, such as mountains, seas, and wetlands where major animals and plant species live and grow.
- In 2016, national forest resource management information system which can be used for surveying, analyzing, and evaluating forest resources was developed to enable high level of scientific and information-based management of forest resource.
- Major ecological projects have been successfully implemented to recover the forest and river ecosystems.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organ**

Ministry of Land and Environment Protection, State Academy of Sciences, universities

Target 5: At least 75 percent of the most important areas for plant diversity of each ecological region protected with effective management in place for conserving plants and their genetic diversity.

- **Achievement**

- Many areas which have the most significance in plant diversity have been established as

different kinds of reserves and they are being protected. In particular, Mt. Oga; Mt. Kumgang, Mt. Paektu and Mt. Chilbo areas which have concentrated distribution of endemic, relict and endangered plant species are given special significance for protection.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organ**

Ministry of Land and Environment Protection, State Academy of Sciences, universities

Target 6: At least 75percent of production lands in each sector managed sustainably, consistent with the conservation of plant diversity.

- **Achievement**

- Productive land includes forest land, agricultural land, grassland and wetland. Most forest lands are expected to be managed in a sustainable manner, but other productive lands need additional measures to be taken. Recently, government of DPR Korea the plan to introducing agroforestry management method to about 64 700 hectares of land have been conducted during the second stage of forest restoration campaign (2018-2024). In relation to this, many regions have introduced agroforestry management technology which provides simultaneous and sustainable use of trees, crops, edible herbs, herbs and etc. and have contributed to the conservation of biodiversity of the regions.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organ**

Ministry of Land and Environment Protection, Agricultural Commission, Ministry of Forestry and Ministry of Public Health

Target 7: At least 75percent of known threatened plant species conserved in situ.

- **Achievement**

- Most indigenous and endangered plant species are conserved in biosphere reserves and areas of nature conservancy, such as Mt. Paektu, Mt. Kumgang, Mt. Myohyang, and Mt. Kuwol. Endangered species distributed in decentralized manner are registered as natural monuments to be conserved.

- The Botany Institute of State Academy of Sciences and the Central Botanic Garden assess endangered plant species that grow at home and take measures to conserve and restore them.

- **Evaluation level**

- Approached the level for achieving the target in national level.

- **Implementation or collaboration organ**

- Central Botanic Garden of MoLEP, State Academy of Sciences,

Target 8: At least 75percent of threatened plant species in ex situ collections, preferably in the country of origin, and at least 20percent available for recovery and restoration programmes.

- **Achievement**

- Systematic research for assessment of endangered species has set off in DPR Korea. It's been estimated that there are 47 critically endangered (CR) species, 71 endangered species (EN), 94 vulnerable species (VU), 85 near threatened (NT) species, and 80 data deficient (DD) species in DPR Korea as endangered species and among those, 212 plant species are included in (Threatened) category.
- Endangered plant of one genus and one species in our country are conserved in-vitro conditions at Branch Academy of Bio-engineering, State Academy of Sciences.
- From the importance of conserving endangered plants at ex-situ, function of botanic gardens in provinces including Samjiyon Botanic Garden and Mt. Oga Botanic Garden and material base of them is improved under government concern.

- **Evaluation level**

- Approached the level for achieving the target in national level.

- **Implementation or collaboration organ**

Central Botanic Garden of MoLEP, Samjiyon Botanic Garden, Branch Academy of Biotechnology, State Academy of Sciences

Target 9: 70% of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge.

- **Achievement**

- In-situ conservation - Habitat has been conserved throughout establishment of expanded network set up by protection and management at unit of landscape. Ex-situ conservation – reduction of plant species genetic has been prevented throughout application of bioengineering technology and botanic gardens.
- Agricultural genetic resources of crop, vegetable, fruit and livestock varieties are preserved in Academy of Agriculture
- In Central Botanic Garden, hundreds of plant species that have social and economic value are preserved.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organs**

State Academy of Sciences, Central Botanic Garden of MoLEP, Provincial Botanic Gardens

Target 10: Effective management plans in place to prevent new biological invasions and to manage important areas for plant diversity that are invaded.

- **Achievement**

- All management plans of natural reserves reflect the sustainable management of biodiversity including alien species.
- Central Plant Quarantine Station and Central Anti-Epizootic Station under the Ministry of Agriculture specialize in quarantining of animals and plants. Scientific Institutions and Universities conduct regular survey on alien species.

- **Evaluation Level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organs**

Ministry of Land and Environment Protection, Agricultural Commission, State Academy of Sciences

Target 11: No species of wild flora endangered by international trade.

- **Achievement**

- MoLEP has built up prior informed consent system for international trade of wild species and operates it.
- In order to prevent the loss of wild herbal plant species, the government has limited their harvesting and usage amount, strictly controls their import and export, and tries to meet the demand related to this by expanding the cultivation are. In particular, the export of endangered plants is strictly regulated in the country.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organs**

State Commission of Science and Technology, Ministry of Land and Environment Protection, Ministry of External Economy, Ministry of Public Health, Customs Administration

Target 12: All wild harvested plant-based products sourced sustainably.

- **Achievement**

- In order to manage the forest resources sustainably, the Study on functional forest district deployment planning approach in county units for the sustainable forest management and its application, was conducted in 2016.
- In order to protect wild plant resources and sustainable use of biological resources, cultivation of herbs, such as ginseng and *Schizandra fructus* are being actively conducted. The cultivation area of herbs throughout the country is about 10 000 hectares and the number of cultivated herb species is about 80. Along with this, every city and county aims to cultivate herbs in 300 hectares of land each.

- **Evaluation level**

- No great change in national level.

- **Implementation or collaboration organ**

- Ministry of Public Health, Agricultural Commission, Ministry of Land and Environment Protection

Target 13: Indigenous and local knowledge innovations and practices associated with plant resources maintained or increased, as appropriate, to support customary

use, sustainable livelihoods, local food security and health care.

- **Achievement**

- Through encouragement of intellectual property rights protection of local traditional crop and storage and processing of non-timber forest products including wild vegetable and wild fruit, there has been progress to the protection of biodiversity, especially genetic diversity protection.
- Local communities and women are participating actively in maintenance and distribution of traditional knowledge.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organs**

Ministry of Land and Environment Protection, Ministry of Forestry, Agricultural Commission, Ministry of Fishery

Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes.

- **Achievement**

- The importance of biodiversity and why it needs to be protected is better known to the public thanks to various research institutes and related organs. For example, on occasions, such as “World Environment Day” (5th June), “International Day for Biological Diversity” (22nd May), “Day of Wetland” (2nd February), “International Day of Forests and the Tree” (21st March) and “World Water Day” (22nd March) awareness raising campaigns have been organized about biodiversity.
- The rate of education on protection of biodiversity is increased in education field and distribution of basic knowledge about plants and their importance is widely conducted. Together with enhancing the role of Central Botanic Garden and provincial botanic gardens as the center for distributing scientific knowledge and propaganda base, the construction of Mt. Oga Botanic Exhibition with tens and hundreds of plant samples help visitors broaden their knowledge on plants.
- Several scientific, research and educational organs write, publish, and distribute many books and publications related to biodiversity, thus contributing greatly to enhancing the

public understanding on biodiversity.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organs**

- Educational Commission, Ministry of Land and Environment Protection, Agricultural Commission

Target 15: The number of trained people working with appropriate facilities sufficient according to national needs, to achieve the targets of this Strategy.

- **Achievement**

- According to the new 12-year compulsory education system, new subject - Natural Science was added to the junior middle school education and biological contents occupies majority of this subject thus students can obtain deep and broad knowledge on properties of biological organism within the nature and their lives through theoretical explanation.
- Short-term workshop, training and national seminar related to protection of environment and biodiversity for officials in ministries and central organs were conducted to strengthen the personal capacities.

- **Evaluation level**

- Proceeding to the target but without sufficient speed.

- **Implementation or collaboration organs**

- Educational Commission, State Academy of Sciences

Target 16: Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy.

- **Achievement**

- Government has organized the National Coordination Committee on Environment (NCCE) which encompasses many stakeholders including State Commission of Science and Technology, Ministry of Land and Environment Protection, State Academy of Sciences, Ministry of Fishery, Agricultural Commission, Education Committee, Ministry of Public

Health etc. to coordinate and cooperate the work of certain ministries on implementing the UN Convention on Biological Diversity and its' protocols.

- Together with secretariats of environment-related conventions, such as UN Convention on Biological Diversity(UNCBD), UN Convention to Combat Desertification (UNCCD) and Ramsar Convention on Wetlands, and non-governmental organizations, the DPR Korea takes part in international activities for the conservation of biological diversity partially.
- The issue of conducting joint research with Far East Branch Academy of Russian Academy of Sciences related to survey on plants, fungi and algae that grow in the areas near Korean-Russian border areas, publication of a book on this, identification and protection of migrants that fly between the countries by Ministry of Natural Resources Development Russia and Ministry of Land and Environment Protection DPR Korea according to the agreement ratified with former Soviet Union, and the issue of taking part in International Youth Conference on Forest and the Tree to exchange experience and knowledge and etc. are under discussion.

- **Evaluation level**

- No great change in national level.

- **Implementation or collaboration organ**

- Ministry of Land and Environment Protection, Agricultural Commission, State Academy of Sciences.

The preliminary evaluation on GSPC shows that among 16 target, 11 targets are proceeding to the target but without sufficient speed, 2 have reached the level for achieving the target and 3 have no great change in national level.

Section VI. Additional information on the contribution of indigenous peoples and local communities

In DPR Korea any kind of risk what threaten Korean's assets and rights related to biodiversity caused by migration of other nation into the territory of DPRK.

Therefore, in the DPR Korea's Territory, there are no indigenous peoples and local communities (IPLCs) as defined in Article 8 j of the Convention and Aichi Target 18 has therefore not been assessed.

Section VII. Updated biodiversity country profile

This section gives information on status and trends of biodiversity, main threat to biodiversity, possible changes and their impacts

(1) Status and trends of biodiversity

Topography of the DPR Korea is very complex vertically and horizontally as there are many mountain and rivers and long coast line.

Forest land occupies 74.3% of territory area, agricultural land-15% and water area land-6.2%.

The number of plant species recorded in DPRK so far is 10,012, including 4,426 species of higher plants which accounts for about 1.6% of the number of plant species worldwide.

And the number of chordate species recorded so far is 1,494, among which vertebrate covers 1,436 species and one of invertebrate is 8,652 species, among which insect species covers 6,257.

In DPR Korea, there are 107 species of mammals (79 species of terrestrial ones and 28 species of marine ones), 420 species of birds, 866 species of fishes (190 species of fresh water fish, 676 species of sea fish), 17 species of amphibians, and 26 species of reptiles.

There are 47 critically endangered (CR) species including *Lycopodium anceps*, *Stewartia pseudocamellia* and *Orchis gramminifolia* mentioned in “Red Data book of DPR Korea” (plant edition of 2015), 71 endangered species (EN), 94 vulnerable species (VU), 85 near threatened (NT) species, and 80 data deficient (DD) species

There are 113 endangered animal species such as *Panthera tigris altaica*, *Martes zibellina*, *Otis tarda*, *Grus japonensis* and so on mentioned in “Red data book of DPRK” (animal edition of 2016), including 1 extinct in the wild (EW), 8 critically endangered (CR), 19 vulnerable (EN), 37 vulnerable (VU), 11 near threatened (NT), 34 least concern (LC) and 3 data deficient (DD). Endangered animal species of the country is 7.71% of total number of vertebrate species. If the endangered animal species of the country is divided by taxonomic category, there are 23 mammals, 58 avian, 10 reptiles, 5 amphibians and 17 fishes.

During the past 4 years, number of new varieties with high economic value have been bred and introduced into economic activity including agriculture, pomiculture, stockbreeding, fish farming and horticulture.

According to prediction of temperature change tendency in the country, it will be increased at 2~4°C higher than now by the end of 21st century. Temperature of northern inland area will be increased too rapidly. It will be less in western coastal area than inland area but higher in eastern coastal area.

Recently, temperature of the East and West sea of Korea is gradually increasing irrespectively of

seasons but percentage of sunshine is getting decreased and It appears property of marine climate.

Forest distribution status is changing in overall area of the country by the global warming. For instance, forest line in Mt. Paektu region has been widened about 50m vertically, 1,000m horizontally (in Eastern part of the region) for the past 40s years. Number of habitats has been simplified and marine, coastal and wetlands ecosystem have been degraded and fishery resources in coastal area is decreasing. Plant distribution line in central and southward area is widening to the north and damages of alien species and insect and diseases are expanding.

Climate change is influencing to the marine biosphere.

Owing to the increment of water temperature in the East sea of Korea, species and community of main commercial fish have been changing.

(2) Change in biodiversity and its impacts to ecosystem service

Loss of biodiversity by exceeded exploitation of natural resources is exerting adverse impacts into the ecosystem service, livelihood and agricultural production and pharmacy.

Over harvesting of forest resource also decrease function of forest ecosystem service.

Reduction of forest leads to weakening of water storage and soil erosion control functions and causes landslides. For the recent years, there were severe flood damages and losses by heavy rainfalls in our country. Especially, due to the destruction of forest near the residential area at agricultural region, severe damages and losses had been caused in livelihood and agricultural production by submerging and burying thousands ha of arable land.

Clearing the slope land for farming is also occurring soil and water loss.

Water quantity of small and medium rivers is decreased dramatically during recent years therefore, there can be danger of shortage in irrigation, domestic and industrial water supply.

Irrigation water supply is primarily received adverse impact.

DPR Korea has about 900 species of medicinal plants of which the most widely used in pharmaceutical sector are 350 species. Therefore, the excessive use of medicinal resources can impact on the development of Koryo medical science, the traditional medical science of our country. and even caused the decrease of some plants with economic value. The loss of natural resources is found in medicinal plant and coastal animals; the distinct reduction is shown in medical herbs whose roots are used for medicine and in coastal animals such as *Haliotis gigantea* and *Stichopus japonicus*.

(3) Possible changes and their impacts

Government set the target to restore destroyed forest within 10 years from 2015 by mobilizing entire Party, whole State and all people and implementing it vigorously.

All people has been mobilized to plant trees on occasion of tree planting seasons of Spring and Autumn and all season tree planting method has been developed and applied actively to increase the afforestation velocity while converting the less valuable forest into resourceful one on a full scale

Once the forest ecosystem which occupies important part of country's biodiversity, will be restored the entire ecosystem of the country will be changed positively.

Habitat of endangered species has been improved by afforestation therefore, great progress was made in protection of endangered species.

Thanks to improvement of forest ecosystem functions; water purification and water storage, agricultural ecosystem has been improved and water flow of irrigation channels has been increased and resilience of agriculture against disasters such as flood and drought and so on has been strengthened therefore, agricultural production including rice, fruit and silk worm cocoon will be increased.