

DPR Korea
National Capacity Needs Self-Assessment
For Global Environmental Management
Report and Action Plan

Pyongyang

2005

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List of Abbreviations

ALGAS	Asia Least Cost Greenhouse Gas Abatement Strategy
BMH	Bureau of Hydro-Meteorology
CB	Capacity Building
CCWG	Climate Change Working Group
CDAP	Capacity Development Action Plan
CDM	Clean Development Mechanism
CIAST	Central Information Agency on Science and Technology
COP	Conference of the Parties
CSB	Central Statistic Bureau
EST	Environmentally Sound Technologies
CZ	Central Zoo
CBG	Central Botanical Garden
GEF	Global Environment Facility
GHG	Green House Gas
GPSH	Grand People's Study House
NCUK	Nature Conservation Union of Korea
MCM	Ministry of City Management
MECI	Ministry of Electricity and Coal Industry
MF	Ministry of Fishery
MLEP	Ministry of Land and Environment Protection
MLMT	Ministry of Land and Marine Transport
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOF	Ministry of Finance
MTI	Ministry of Timber Industry
NBSAP	National Biodiversity Strategy and Action Plan
NCB	National Coordinating Bodies
NCCE	National Coordinating Committee for Environment
NCSA	National Capacity Needs Self-Assessment
PSC	Project Steering Committee

RCBE	Research Center for Biodiversity and Eco-engineering
SAOS	State Academy of Science
SBSTA	Subsidiary Body for Scientific and Technological Advice
SPC	State Planning Commission
SWG	Synergy Working Group
TA	Thematic Assessment
TOR	Terms of References
UNCBD	United Nations Convention on Biological Diversity
UNCCD	UN Convention on Combating Desertification
UNDP	United Nations Development Programme
UNEP	United Nation Environmental Programme
UNFCCC	UN Framework Convention on Climate Change

EXECUTIVE SUMMARY

The National Capacity Needs Self-Assessment (NCSA) project was undertaken in the Democratic Peoples Republic of Korea from July 2004 to November 2005 with support of the United Nations Environment Programme. The objectives of the project were (1) to identify, confirm or review priority issues for action within the thematic areas of biodiversity, climate change and land degradation; 2) to assess capacity constraints, opportunities and needs within and across the thematic areas; 3) to develop a plan of action for capacity building interventions that will enhance DPR Korea abilities to implement global environmental conventions and to integrate such plan in the broader national development objectives. The Project will assist in enhancing national institutional framework through strengthening of linkages and coordination mechanisms leading to more efficiency in response to meeting the global environmental challenges.

The report is presented in three parts:

Part I: Background Information – explains the objectives and principles of the study, the obligation of DPRK under the international environmental conventions, and the processes, methodologies and the stakeholder participation that was involved in completing the NCSA project.

Part II: Summary of Thematic and Cross-cutting Assessments – summarizes the results of the thematic assessments of climate change, biodiversity and land degradation issues and capacity development priorities, and the results of the cross-cutting assessment that looked at common concerns that affect several or all of the conventions. A list of 117 capacity-building needs that were identified is included in Appendix 1. Most of the analysis in this report focuses on the 5-7 top priority issues within each of the thematic (climate change, biodiversity and land degradation) and cross-cutting components.

Part III: NCSA Action Plan on Capacity Building for Implementation of Environmental Conventions – presents a five year plan to upgrade and enhance the capacity of DPRK to implement the conventions, based on the priorities established in the NCSA assessments. The plan includes goals, objectives, implementation strategy, a project institutional structure, a monitoring and evaluation framework and a communications strategy for the project.

The thematic and cross-cutting capacity assessments provided the basis for preparation of an overall strategy for capacity development to facilitate implementation of the climate change, biodiversity and land degradation conventions within DPRK. Preliminary proposals to address the issues are presented in the 30 Activity Plans.

A national strategy for capacity development is presented in the form of six goals:

- Establish effective institutional frameworks for implementing the Rio Conventions.

- Develop information systems for environmental management.
- Develop operational methodologies and tools for implementing the Rio Conventions.
- Expand technology transfer and development for environmental management.
- Strengthen environmental education and human resources development.
- Increase public awareness of environmental issues.

Capacity development objectives for the Action Plan are then presented, providing more specific detail of the general, climate change, biodiversity and land conservation needs and direction for preparation of capacity building projects and initiatives.

An institutional framework is proposed to oversee the implementation of the NCSA Action Plan, with the National Coordinating Committee on Environment serving as the lead body, and a Steering and Implementing Committee led by State Academy of Sciences and the Ministry of Land and Environment Protection with representatives from key agencies, and three work groups established to implement the major activities.

The general process to implement the Action Plan will be based on three elements:

- Government-initiated institutional and other structural improvements, as recommended in NCSA studies, that will facilitate meeting the convention requirements, and that will signal a commitment toward addressing the priority capacity issues (presented under Section 4.1 Enabling Structure for Rio Conventions Implementation);
- A Medium-size Project proposal under Global Environment Facility entitled Institutional Strengthening Project for Implementing International Environmental Agreements in DPR Korea' (presented in Section 4.2). Further projects will be developed to address other capacity constraints, building upon the Activity Plans to produce project concepts suitable for co-financing with international agencies. Where national funding allows, capacity development projects may also be initiated solely by DPRK with the aim of fulfilling the Capacity Development Strategy.
- Strengthening of project management skills will be given a high priority within the coordination and supports units for implementing the Rio Conventions. Capacity development project designs, implementation and reporting will meet international standards for results-based management, consistent with UNEP/GEF and other agencies.

Table 4 - NCSA Action Plan Implementation, presents a summary of the components, outcomes, preliminary work tasks and timetable for the Enabling Structure project (government), and for the Institutional Strengthening project (GEF MSP proposal). Details of the Institutional Strengthening project proposal were also prepared during completion of the NCSA Action Plan. Further project concepts have been developed based on the preliminary Activity Plans.

A monitoring and evaluation framework is also presented for the NCSA Action Plan. Monitoring indicators and key questions are provided for each of the six components (goals) of the NCSA program. Monitoring will focus on six-month progress reports and annual project reviews.

Evaluations of the NCSA Action Plan implementation, including involvement of experts independent of the program, will be undertaken to determine the overall results and operational effectiveness of the plan. The evaluations will take place one year after commencement of the Plan (January 2007), Mid-term of the Plan (January 2009) and Completion of the Plan (December 2011).

A Communication Strategy is provided to guide dissemination of information about the Action Plan and a summary brochure, and to ensure government and public awareness of the NCSA program. Publication of 'success stories' and related results of projects that would benefit from wide dissemination to increase the impact of the project investments are also proposed.

Pyongyang, DPR Korea

PART I

BACKGROUND INFORMATION

1. Introduction

The Democratic Peoples Republic of Korea is located in the north east of Asia, forming a long peninsula from north to south. The land area is 122,762 km², with about 70% mountainous area. It has over 100 of natural lakes and 1,700 of artificial reservoirs. The water surface takes account of about 5% of the territory. The coastal line is 2,891.5km long and there are 180 islands in the Korean East Sea and 560 in the Korean West Sea. In the North, it is bounded by two large bodies of water: the Amnok and Tumen Rivers forming the frontiers. The agricultural ecosystem takes about 17% of the territory with long history of agricultural development. DPRK has temperate climate with 4 seasons. The annual average temperature is 8-12°C and annual precipitation ranges from 1,000-1,200mm. April and May are the drought seasons and June-August is the rainy season.

Due to the continuous natural disasters of floods in 1995, 1996 and the drought in 1997, rehabilitation of destroyed ecosystems, energy and food require immediate solutions in DPRK. The Government pays great attention to the sustainable development for the ecological and environmental rehabilitation of the country, which became worse due to the recent energy and food problems.

DPRK revised the constitution in September 1998. Article 57 of the newly revised constitution of DPRK indicates that national affairs on environmental conservation should be intensified. In April 1998, the Government issued the “Law on Environmental Protection of DPRK” with shows the principle and method for the protection and management of natural environment including atmosphere, water, soil and biology.

The legal basis of wildlife and natural resource conservation in DPR Korea has a long history, and was further strengthened by the adoption of the Environment Protection Law, which requires major development to be examined for environmental impacts. Following the UN Conference on Environment and Development (UNCED) in 1992, DPRK prepared an Agenda 21 Action Plan and DPR Korea’s commitments included an even greater focus on biodiversity conservation and sustainable use following it’s ratification of the Convention for Biological Diversity (CBD) in 1994.

In 1995, the Government issued specific administrative codes such as “Administrative code of environmental protection law, and established “Regulation Law on Land and Environmental Protection in DPRK”(May 1998) for the strict control on its implementation.

The Cabinet decision No.25 of August 1995 called for the implementation of 10-year afforestation plan to turn mountains into green forest and take many measures for afforestation and establishment of firewood forests in September 1996. More consideration should be given to maintain forest natural biodiversity. “Forestry Law” was adapted and issued on 11 December 1992. In addition, the following related laws and rules were adopted and issued by the DPRK Government.

- Land Law, 1977
- Law on Public Health, 1980
- Law on Environment Protection, 1986 (Revised in 1998)
- Forest Law, 1992
- Law on City Management, 1992
- Law on Natural Underground Resources, 1993
- Law on Marine Products, 1995
- Law on Water Resources, 1997
- Law on Marine Pollutant Control, 1997
- Law on Useful Animal Conservation, 1998
- Law on Land Protection and Controlling, 1998
- Law on Energy Management, 1998
- Law on Household Fuel, 1998
- Law on Electricity, 1999
- Law on Science and Technology, 1999
- Land Use Planning Law, 2002
- Law on River and Stream, 2002
- Rules on protection, management and controlling of coastal area, 1992
- Rules on management of rivers and streams, 1993
- Rules on management of park and pleasure ground, 1993
- Rules on culture, protection and controlling of marine resource, 1997
- Government order on forestation and greening of the whole country, 1998

The activities for national, regional and global environmental management in DPRK has been undertaken under the guidance of National Coordinating Committee for Environment (NCCE). The NCCE was organized as a non-standing body, which includes the Ministry of Foreign Affairs, State Academy of Sciences, Ministry of Land and Environment Protection, State Planning Commission, Ministry of Finance, Ministry of Agriculture and the other concerning parties.

Further, the NCCE provides a unified focal point for DPRK government communication with and participation in environment-related conventions, their secretariats, international organizations and multilateral treaty bodies. At the national level, it coordinates and assists the works of the relevant line ministries in the national-level implementation of such conventions and agreements. NCCE and line ministries have been active in global environmental issues on biodiversity, climate change, land degradation, biosafety, maritime environment and the prevention of pollution.

As one of the parties of CBD, UNFCCC, CCD, the DPR Korea aims to assess activities for capacity building, identify priorities and needs for political, social-economic and ecological capacity building and promotes the development of project proposals for GEF funding, other external funding and mobilizes domestic resources to raise the national, regional, and global benefits and therefore is very keen on conducting the NCSA process and implementing its outcomes.

Biodiversity

Due to its geographical position, at the apex of the Korean peninsula and the North-east Asian land mass, high levels of ecosystem and biological diversity has developed in a relatively small area. The fauna and flora show characteristics of both the northern temperate areas and southern temperate and sub-tropical areas, which have produced high levels of endemics (particularly amongst the plants, 315 species). The coastal wetlands of the Gulf of West Korea always provided the critical link in the migrations of main bird species between northern breeding areas and wintering sites in Japan, China, SE Asia and Australasia, as well as important breeding grounds for many species of fish which move between the Gulf and the South China Sea. DPRK has rich biological species diversity compared to the size of its territory. The number of species recorded so far is: 8,785 species of plant, 1,431 species of vertebrates, which takes about 3.2% of the world number. The birds are 416 species and it takes 4.5% of the world species. DPRK has regional and international significance in biodiversity for its 158 species of higher plant and 157 species of extinct, endangered and rare species of vertebrates (NBSAP 1998).

The Government pursues a policy that establishes the balance between natural resource use and economic development and has long recognized its globally significant biodiversity. This commitment has been strengthened with the DPRK ratification of the UN Convention of Biological Diversity (UNCBD) in October 1994.

With support from the GEF and UNDP, the DPRK prepared and submitted its first national report to the UNCBD in 198 and developed the National Biodiversity Strategy and Action Plan (NBSAP) which was adopted by the Government in 1999. It provides the country with both baseline information on the significance of its biological resources and outlines a strategic approach to priorities and actions required to meet such priorities. The NBSAP was developed in an institutional partnership comprising of relevant agencies, notably the State Academy of Sciences, Ministry of Land and Environment Protection, Ministries of Agriculture, Timber (Forestry) Industry, Public Health, Finance, Fishery and the Korean natural Conservation Union. The NBSAP identified 18 strategic objectives, 5 priority areas/themes and a number of actions and projects. The 2003 “Study on the Biodiversity in Key Areas” has been adopted as a focal task of 5-year plan for scientific and technical development, and many relating institutions and researchers are collaborating to achieve such task. Although the NBSAP identified capacity building for biodiversity conservation as one of the priority actions, there was no detailed analysis of capacity building needs.

The GEF/UNDP project “Biodiversity Management on Mt. Myohyang” was completed in 2003. The Project was designed to protect biodiversity in Mount Myohyang, identified as having global significance because of its altitudinal variation in forest-types, a diversity of plants and animals, and a degree of endemism and rarity. Mount Myohyang has top priority in DPR Korea’s national conservation ambitions, with a high profile in the National Biodiversity Strategy and Action Plan(NBSAP). A final evaluation was conducted in March 2004 and found that the project achieved most of its objectives but future GEF activities should consider biodiversity corridors to cover larger areas of the protected area system if the GEF national intervention is to have significant

contribution to global biodiversity. The report also recommended follow up actions to utilize and enhance capacities built within the project.

More recently, the GEF approved the MSP project Coastal Biodiversity Management in DPR Korea's West Sea, which has high national and global significance for ecosystem and biological diversity. The area's numerous wetlands form an important link for many species of migratory bird between northern breeding areas and wintering sites in Japan, China and SE Asia. The objective of the project is to develop and implement integrated coastal zone management plans for the area, developing in parallel the national and provincial institutional capacities to adopt eco-system approach to biodiversity conservation.

DPRK was supported by the GEF and UNEP in developing its national Biosafety Framework in response to the Cartagena Protocol. The objective of the Biosafety Framework project is to carry out an assessment of current technological capacity to manage Biosafety issues, and the implications of this on the implementation of a National Biosafety; strengthening national capacity to develop national regulatory Biosafety frameworks; strengthening national capacity for competent decision making on notifications and requests related to Living Modified Organisms(LMO), including the establishment of administrative systems. The project was executed by the State Academy of Sciences. Biosafety project staff contributed to the NCSA activities, especially stocktaking and thematic assessment phase.

Climate Change

DPRK signed the United National Framework Convention on Climate Change at the United Nation Conference on the Environment and Development in June 1992, and ratified it on 5 December 1994. The Convention has been entered into force for DPRK on 5 March 1995. The first National Communication to the UNFCCC was prepared in 2000 with support from the GEF and UNDP. The report described and summarized the GHG Inventory and the main measures and responding strategies addressed to GHG emissions and adaptation to climate change. DPRK has also participated in the GEF/UNDP regional project Asia Least-Cost Greenhouse Gas Abatement Strategy (ALGAS) that was concluded in the 1998.

According to the studies conducted within the context of the National Communication to UNFCCC, sectors and areas for agriculture, forest, coast and water resources would be highly vulnerable to possible climate change influencing to a considerable degree the country's economy and natural resources. The studies reported that severe climatic incidents such as droughts, floods and tidal waves in the country in recent years caused agriculture and forest loss to the extent that up to now the national economy has not recovered from such consequences.

The DPRK has a Long-term National Development Plan for Energy Sector that sets targets to increase the share of renewable local resources for primary energy supply. The National Energy Conservation Program has as a main goal for CO₂ emissions to be kept within reasonable limit accommodating to the international standard set by Kyoto Protocol. The State Academy of Sciences,

universities, research institutes regularly organize workshops and seminars to discuss different aspects of global warming and the possibilities for mitigating negative consequences.

Energy Industry is the cardinal sector of the national economy influencing economic development, living standards and environmental protection. Before the beginning of the 1990s, our energy industry had been developed rather smoothly, and by 1990 the total primary energy production amounted to 48 Mtoe with an average growth rate of 5.3%. The total electricity generation has reached to 56 TWh, with the per capita consumption of 2690 KWh/y, which was well above of the world's average. But in the last decade of twentieth century the national energy sector has fallen into the heavy decline. Facing the acute shortage of energy supply and lack of the investment in national energy sector, authorities concerned with our country are trying to draw up a radical plan for rehabilitation and modernization of the energy sector with a view to meeting ever growing demand in future and protecting environment in accordance with the world community's action plan.

Shortage of energy supply aggravates the problem of food deficit and encourages even more deforestation and other environmental problems. Due to energy shortages the grain production fell from 8 Mtons in 1990 to 2.5Mtons in 1996. Lack of fertilizers, fuel and electricity has reduced soil fertility, water pumping and field preparation, which has limited harvest processing and increased use of fuel wood and crop waste. On the demand side, a vigorous energy saving program in industry use and in building would contribute to balancing the national scheme or producing more activity per energy unit. Energy use in Industries and buildings is far from efficient. Based on the energy audit from 1993 to 1998, it was estimated that the energy conservation could lead to saving of 25% to 35% with small investment.

The development of the Clean Coal Technology, which is now so often talked about in the world community, appears to be appropriate for rational solution of energy problems in DPR Korea. Active involvement of the coal cleaning, enhancement of the combustion efficiency, reasonable control of pollutant gas emission, recycle of disposed ash and dust, introduction of innovative combined cycles, as well as underground coal gasification and coal briquette technology have been widely discussed in our country. Reasonable strategy of R&D in energy branch had to be formulated in order to determine the priorities assigned to each items so that, the limited national financial and human resources could be focused on the key issues without scattering the R&D forces in vain.

Land degradation

DPRK acceded to the United Nations Convention to Combat Desertification (UNCCD) on 29 December 2003 and the country is in the preliminary stages of implementing the Convention. The involvement in the NCSA of the teams dealing with the UNCCD process is deemed critical at this point in time. The national action program to combat desertification (NAP) has not been developed yet. However, the NCSA processes provide an initial platform and learning process for the relevant government agencies to explore further collaboration on the issue of land degradation and its linkages to other thematic areas. In doing so, the government selected the Ministry of Land and Environment Protection (MLEP) to lead the thematic assessment on land degradation. As the first

national report is expected in 2006 within the framework of the UNCCD Committee for the Review of the implementation of the Convention (CRIC), the outcomes of the NCSA will be reported to the CRIC along with the efforts to formulate and implement the National Action Programme (NAP), which will be the country's blueprint for implementing the Convention, thus inter alia addressing the issues of land degradation. This will enhance the relevance, sustainability and effectiveness of the NCSA Project.

Soil erosion caused the soil loss and decreased the controlling function of flood in rivers and streams by the accumulation of sand and soils in the river.

Furthermore, it decreased the capacity of storing waters in lakes, reservoir and the biological production by changing the flora and fauna of water area. It brought the great loss in biodiversity. It is very urgent task for DPRK to prevent the soil degradation in desert and deforestation lands and improve the land management by solving the food problem and sustainable development of agriculture. The overuse of agricultural land in solving the serious food problem under the limited condition of agricultural land decreases the land productivity and the sustainable development of agriculture.

To prevent the soil loss of agricultural land on slope and improve the protection and management of land, DPRK is taking various measures including building grass contour bunding and windbreaks depending on the area of agricultural land. It will also increase the soil fertility by introducing the advanced forest-agriculture compound management with the transformation of degraded land and land rezoning.

2. Objectives and Principles

- Objective

The overall objective of this capacity building is to build and/or enhance the national capabilities of implementing the global environment agreements, and in particular;

- To identify, develop and strengthen the specific capacity needs necessary for the successful implementation of the national commitments to the international environment agreements including UNFCCC, UNCBD and UNCCD, and
- At the same time, to protect and improve the quality of the environment of the country through the process of this capacity development and contribute to the improvement of the livelihood of the people and national sustainable development as well as to the efforts of the world community for the protection of global environment.

- Principles of the capacity development

- The identification of the capacity related issues should be in conformity with the requirements of capacity development for the implementation of international multilateral environmental agreements including UNFCCC, UNCBD and UNCCD, and, at the same time, be made in a way to integrate them into the national sustainable development plan/programmes.
- The process of capacity needs assessment should be based on full understanding on the text, requirements, decisions and resolutions under each international environmental agreements.
- The capacity building activities/projects should be selected and implemented in the way that they are made primarily country-driven and combining them with additional, external cooperation.
- It should also take careful consideration about the cost-effectiveness, baseline and incremental costs of the proposed activities/projects.
- The capacity building activities should have clear objectives, outputs and indicators as well as time frame to be realistic.
- The capacity building activities should ensure the participation, collaboration of all stakeholders from the planning to the decision making process to reflect fully their interests and opinions and maximize the effectiveness of the capacity building process.
- The capacity building activities/projects should include the effective monitoring and evaluation process to review and update them accordingly.
- The process of developing, implementing, revising and updating the capacity building activity plan should be made in periodic, reiterative, and continuous manner.

During the implementation of the NCSA project, the efforts have been made to keep to these principles in order to produce reliable results. However, considering the limited funds and time allocated to the project and the lack of knowledge and experiences about the NCSA processes, there

are points of weakness and uncertainties. We believe, however, that these weakness and uncertainties could be overcome by way of learning and consolidating the knowledge and lessons in the actual implementation phase of the capacity building action plans based on the principles and methodologies mentioned above. And these will also contribute to the revision and update of subsequent action plans.

3. Overview of Obligations under the Conventions

Followings are the national obligations for the implementation of Rio Conventions.

3.1 The United Nations Framework Convention on Climate Change

1. Developing, periodically updating, and publishing of national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties.
2. Formulating, implementing, publishing and regularly updating of national programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change.
3. Promoting and cooperating in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors.
4. Promoting of sustainable management, and promoting and cooperating in the conservation and enhancement of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass and forests as well as coastal and marine ecosystems.
5. Cooperating in preparing for adaptation to the impacts of climate change; developing and elaborating appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas affected by drought and floods.
6. Promoting and cooperating in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies.
7. Promoting and cooperating of exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change, and to the economic and social consequences of various response strategies.
8. Promoting and cooperating in education, training and public awareness related to climate change and encouraging of the widest participation in this process, including that of non-governmental organizations.

3.2 The Convention on Biological Diversity

1. In-situ conservation of biodiversity, esp., rehabilitation and restoration of degraded forest ecosystem and main habitats and the establishment of a system of protected areas or areas where special measures need to be taken to conserve biological diversity
2. Identification and monitoring of components of biological diversity important for its conservation and sustainable use
3. Effective national biodiversity planning
4. Ex-situ conservation of components of biological diversity, including collection of biological resources from natural habitats for ex-situ conservation purposes
5. Develop and introduce economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity
6. Establish and maintain programmes for scientific and technical education and training
7. Promote and encourage understanding of the importance of, and the measures required for, the conservation of biological diversity
8. Introduce appropriate arrangements to ensure that environmental consequences of relevant programmes and policies are subject of environmental impact assessment and that significant adverse impacts on biological diversity are minimized
9. Establish and operate clearing-house mechanism to promote and facilitate technical and scientific co-operation
10. Implement Cartagena Protocol on Biosafety
11. Access financial resources provided via the financial mechanism of the Convention and/or via other donors

3.3 The United Nations Convention to Combat Desertification

1. Development of National Action Plan (NAP) and reporting of National Communication to the COP (Articles 9, 10)
2. Development of long-term strategy, priority measures to combat land degradation (in integration with the national sustainable development strategy and poverty reduction strategy). (Article 4))
3. Establishment of institutional mechanism to address land degradation (Article 4)
4. Promotion of education, training and public awareness (Article 5(d), 19, 6)
5. Encouragement of public participation in combating land degradation (Article 19(d), 5(d))
6. Revision and improvement of relevant laws and regulations, and development of new ones, if necessary (Article 5(e))
7. Promotion of information gathering, analysis and dissemination (Article 16)
8. Research and development (capacity building) (Article 17, 19(b))

4. Description of NCSA Processes and Methodologies

4.1 Inception Phase

NCSA activities were started from July 2004 in DPR Korea.

At the beginning of NCSA, project management team was established in small group including key members from State Academy of Sciences, Ministry of Land and Environment Protection, State Planning Commission and Nature Conservation Union of Korea under the guidance of NCCE.

The Inception Workshop was held in the Peoples' Palace of Culture for two days(Aug. 2-3, 2004) with the participation of 50 officers and researchers from relating ministries, institutes, universities and NGOs in the field of biodiversity, climate change and land degradation.

In this workshop were introduced the objectives and outcomes of this project as well as past and on-going activities for the national and global environmental management within thematic areas, also were determined workplan, terms of references and responsibilities and roles for NCSA. Three thematic working groups of biodiversity, climate change and land degradation were announced formally in the workshop.

4.2 Stocktaking and Thematic Assessment

Each thematic working group has prepared the workplan for thematic assessment and terms of references (TOR) for stakeholders and individual participants in details, and selected national consultant and developed TOR for consultant.

Collection and translation of international documents and literatures related to the MEAs, and decisions of COP etc. were the first sub-step in stocktaking and about 500 international documents were analyzed and 50 documents were translated.

Meanwhile questionnaires for the stocktaking were prepared by thematic working groups and mailed several times to linkages; the questions from the replies were solved through mutual dialogues and discussions. On the basis of such replies, each working group prepared the database on international conventions, legal instruments, strategies and policies, action plans, programs and projects, previous and on-going activities related to capacity needs within each thematic area.

Thematic working groups have reviewed capacity building needs to meet the obligations under the requirements of CBD, FCCC and CCD, and conducted the assessment of national laws and activities related to capacity building on the basis of the analysis of commitments to MEAs.

Each working group has synthesized national/international documents and data, and then identified CB needs through several stakeholder consultations and mini-workshops. Identified needs are 20 in biodiversity, 34 in climate change and 35 in land degradation.

Each working group has conducted the assessment of national priorities from identified needs within thematic areas.

Prioritization of CB needs within each thematic area was conducted by the use of weighted score method suggested by Mr. Haddad, NCSA international consultant, to do this, agreement of viewpoints of all members in three working groups about the weighted criteria for prioritization and score of issue evaluation was reached.

Criteria and weight are:

- Impact on sustainable development of national economy (32%)
- Impact on human health (27%)
- Impact on environment (23%)
- Contribution to existing economic development and people's livelihood (18%)

Score is:

- 5 : decisive and positive
- 4 : very positive
- 3 : relatively positive
- 2 : little positive
- 1 : no impact
- 0 : negative

5 priority issues were selected by scoring, and then the capacity constraints in the activities to solve priority issues were analyzed by using "Root Cause and Problem Tree Analysis" method.

Each thematic working group had prepared the draft of capacity needs assessment on Apr. 2005 on the basis of in-deep analysis of the priorities and the results from stocktaking exercise. After having synthesized the opinions of stakeholders and modified the draft, the assessment report has been completed to Jun. 2005 and submitted to PSC.

4.3 Cross-cutting Analysis

The cross-cutting assessment was conducted by the cross-cutting working group under the guidance of NCCE.

After having studied and reviewed Rio convention literatures, decisions of COP and several guidelines related to NCSA, and the findings of the thematic assessment, the working group selected and defined the cross-cutting requirements, and cross cutting constraints.

The new issues for national resource management and financial support were identified and supplemented through questionnaires distributed to stakeholders and their feedback.

In this stage, the priority assessment by weighting score and problem tree analysis which were used for thematic assessments and SWOT as well were agreed to be used for cross-cutting assessment.

For the prioritization of cross-cutting requirements and cross-cutting constraints, priority selection was conducted twice and the criteria were defined differently and agreed.

Criteria and score for the prioritization of cross-cutting requirements are:

- Contribution degree to Rio Convention 45%
 - 5 – direct to 3 conventions
 - 4 – direct to 2 conventions and indirect to 1 convention
 - 3 – direct to 1 and indirect to 2 or direct to 2 and no to 1
 - 2 – direct to 1 and indirect to 1 and no to 1 or indirect to 3 conventions
 - 1 – indirect to 2, no to 1
- Impact on the national sustainable development 35%
 - 5 – direct and decisive impact
 - 4 – direct
 - 3 – indirect
 - 2 – direct but a little
 - 1 – indirect and little
- Scale and concern of problem 20%
 - 5 – global, regional and high concerns
 - 4 – national and high concern
 - 3 – local and high concern, global and regional but low concern
 - 2 – national but low concern
 - 1 – local and low concern

Criteria and score for the prioritization of cross-cutting constraints are:

- Effectiveness of investment 30%
 - 5 – Small investment, direct effect
 - 4 – Medium investment, direct effect
 - 3 – Large investment, direct effect or small investment, indirect effect
 - 2 – Medium investment, indirect effect
 - 1 – Large investment, indirect effect
- Contribution to Rio Convention 27%
 - 5 – direct to 3 conventions

- 4 - direct to 2, indirect 1
- 3 - direct to 1, indirect 2, or direct to 1, indirect 1, no to 1
- 2 - indirect to 3
- 1 - indirect to 2, no to 1
- Contribution to national sustainable development 23%
 - 5 - direct and decisive impact
 - 4 - direct and positive impact
 - 3 - indirect impact
 - 2 - little impact
 - 1 - no impact
- Periodical urgency 20%
 - 5 - shortest term (within 1 year)
 - 4 - short term (1-2 years)
 - 3 - medium (3-5 years)
 - 2 - medium-long (5-10 years)
 - 1 - long term period (Over 10 years)

The working group reviewed the overlapping requirements identified in stocktaking stage and informed them to the stakeholders with the criteria and methodologies.

The cross-cutting priority requirements were identified at the workshop with broad participants held in 30-31, May, 2005.

The list of cross-cutting capacity constraints was made on the basis of the in-deep analysis of selected priority requirements and the priority capacity constraints were identified at the 2nd workshop in 15-16 June, 2005.

Draft cross-cutting assessment was developed on the basis of the data and results from stocktaking and thematic assessment. The draft was amended, supplemented and completed through the consultative process.

In such processes, the national concern on the implementation of environmental conventions was raised and the capacity building priorities in systemic, institutional and individual level were pointed out. In addition, the basic information for action plan was provided.

4.4 Action Plan and Final Report

Action plan working group was organized by key members who had already taken part in the cross-cutting assessment and increased to 15 members by including experts and officials in charge of planning from State Planning Commission, Central Statistics Bureau and industrial ministries.

Each thematic working group was commissioned to prepare thematic action plans. Also national consultants and supervision members were nominated for the successful implementation of the work in this stage.

The essential discussion in agreement on workplan was focused on the effective workplan and activities by means of which great success in CB activities will be achieved with least cost. Therefore methodologies and tools necessary for the preparation of action plans have been investigated and stakeholder analysis to participate in implementation of action plans has been reviewed, so that agreement on the workplan has been reached on the basis of all opinions of every members.

According to the agreement, it was decided that logical framework analysis should be deeply studied for active access to GEF financed projects, so the stage of analysis and study as well as distribution of adequate references have been added in workplan to help all members understand logical framework approaches during the implementation of this project.

Working group has reviewed NCSA progress undertaken to date by putting the main stress on the review of thematic and cross-cutting assessments. It helped some members recruited in the working group to have taken the obvious understanding of the purpose and importance in preparing action plans. And realistic measures were discussed to have top priority to capacity building issues for global environmental management and national sustainable development.

The book "Introduction to the Logical Framework Approach (LFA) for GEF-financed projects" published by German Foundation for International Development was selected as a main reference to prepare CDAP while national workshop was held to take an exact understanding of methodologies and tools for the preparation of CDAPs.

In this workshop we discussed not only how to describe the objectives of CDAP, tasks and targets, measures to be taken, outcomes and indicators, risks and assumptions, etc., but also how to include stakeholders and how to allocate roles and responsibilities of each partner included in the implementation of action plan.

After repeated discussion on the subjects primarily selected from analysis and study of all assessment reports, working group has finally determined CDAP subjects at the mini-workshop.

Draft action plans were prepared on the determined subjects and modified on the basis of collection and synthesis of suggestions from stakeholders.

National workshop was held at the Peoples' Palace of Culture on Sep. 28, 2005 to be consistent with content and format as well as to modify and refine duplicated measures. As a result, 31 action plans totaled from thematic and cross-cutting priority constraints have been adopted.

The review and re-preparation of CDAP were conducted during 8-18 Nov. 2005 with assistance of international consultant Mr. Ferguson from Canada, and the refinement of the action plans and final report was done in accordance with new NCSA guideline (2005).

After distributing the draft action plan and synthesizing all opinions from stakeholders, final agreement was reached at the NCSA final workshop held in the Peoples' Palace of Culture on Nov. 30, 2005 with the participation of 50 representatives from relevant ministries, institutes, universities and NGOs in the field of biodiversity, climate change and land degradation. Then the report was submitted to NCCE/PSC to obtain government approval and ratification.

In final workshop, the following results and recommendations were agreed on NCSA project implementation.

There was an agreement on taking measures to implement the National Capacity Development Action Plan for Global Environment Management, which resulted from the project implementation, with the integration into the nation-wide prospective programme including the General Plan for Land Construction, the National Long-term Plan for Energy Development, the 10-Year Plan for Afforestation, the National Energy Saving Plan and the 5-Year Plan for Science and Technology Development.

But some obligations to environmental conventions was not yet reflected in major national and sectoral plans appropriately and sufficiently, so it was agreed that linkage and discussion between stakeholders should be continuously conducted to overcome above shortcomings.

Also it was emphasized that the measures should be established to monitor the implementation of and to sustainably, effectively improve CDAPs in integral relation to national sustainable development.

NCCE entrusted translation of whole contents of action plans and final report into English, editing and printing them to the project steering committee (PSC) because of importance of national capacity building activities for global environment management. According to that, edit and translation of CDAPs, which had already been completed, were carried out.

5. Stakeholder involvement in NCSA

Table 1. Stakeholders and responsibilities

No	Stakeholders	Responsibilities			
		Stocktaking	Thematic Assessment	Cross-Cutting	Action Plan
1	National Coordinating Committee of Environment	X	X	X	X
2	State Academy of Sciences	X	X	X	X
3	Ministry of Land and Environment Protection	X	X	X	X
4	Ministry of Foreign Affairs	X	X	X	X
5	State Planning Commission	X	X	X	X
6	Institute of Economy	X	X	X	X
7	Institute of Thermal Engineering	X	X	X	X
8	Environment Development Center	X	X	X	X
9	Central Forest Design and Technical Institute	X	X	X	X
10	Research Center for Biodiversity and Eco-engineering	X	X	X	X
11	Zoology Institute	X	X	X	X
12	Ministry of Finance	X	X	X	X
13	Central Statistics Bureau	X	X	X	X
14	Nature Conservation Union of Korea	X	X	X	X
15	Bureau of Hydro - Meteorology	X	X		X
16	Branch Academy of Cell and Genetic Engineering	X	X		
17	Ministry of Education	X	X		X
18	General Union of Science and Technology of DPRK	X			
19	Ministry of Electricity and Coal Industry	X	X		X
20	Ministry of Metal Industry	X			X
21	Ministry of Agriculture	X	X		X
22	Academy of Agricultural Sciences	X	X		
23	Ministry of Timber Industry	X	X		X

No	Stakeholders	Responsibilities			
		Stocktaking	Thematic Assessment	Cross-Cutting	Action Plan
24	Ministry of Machine-Building Industry	X			X
25	Ministry of Chemical Industry	X			X
26	Ministry of Fishery	X	X		
27	Ministry of Public Health	X	X		
28	11 Provincial Authorities	X			
29	Kim Il Sung University	X	X		
30	Pyongyang Power Station	X			
31	Namhung Complex of Chemicals	X			
32	Bureau of Mt. Daesong Management	X			
33	Central Scientific and Technological Information Agency	X			
34	Central Zoo	X			
35	Central Broadcasting Station	X			
36	Central Botanical Garden	X			
37	University of Natural Sciences	X			

PART II

SUMMARY OF THEMATIC AND CROSS-CUTTING ASSESSMENTS

1. Summary of Thematic Assessments

1.1 Capacity Building Needs

The capacity needs were developed in 3 thematic areas (Appendix 1) and the following 5-7 priority issues were identified.

1) Climate Change

The 34 capacity building issues are listed in Annex 1. The following are the five priority issues:

- To arrange the institutional framework for preparing a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and to strengthen its role (For implementation of Article 4, 12 to UNFCCC and Kyoto Protocol)
- To develop and introduce technologies and processes for controlling/reducing anthropogenic emissions of greenhouse gases and to promote technology transfer from developed countries (including introductions of clean combustion technology in boiler, cogeneration system and renewable energy technologies in rural areas) (*According to Article 4, paragraph 1(c) to UNFCCC)
- To review and concretize long-term energy-environment plan for mitigation of greenhouse gas emission and to develop practical and economical planning methodologies coincided with long-term activity strategy (*According to Article 4, paragraph 1(f) to UNFCCC)
- According to Article 12 of Kyoto Protocol, to establish national institutional framework for controlling and promoting activities for acceptance, revision and implementation of CDM projects, and to strengthen international exchanges and cooperation activities
- To establish measures for strengthening sustainable management for reinforcing and protecting sinks and reservoirs of greenhouse gases and for solving energy lack in the rural areas

2) Biodiversity

- Recovery of the destroyed forest ecosystem and rehabilitation of main habitats important in terms of ecology, in-situ conservation of species.
- Realization of integrated and rational management of watershed through the development and introduction of eco-forestry and eco-agriculture.

- Identification and monitoring of biodiversity components important for its conservation and sustainable use.
- National economy planning of the conservation and sustainable use of biodiversity and its integration into the whole socio-economic development.
- Ex-situ conservation of threatened species, especially animal species.

3) Land Degradation

- The national strategy and action plan for combating land degradation is not developed
- Lack of integrated database (including soil maps) for land management and weakness in information gathering and dissemination
- Inadequate establishment of firewood forest to solve energy issues in rural areas, and lack of strategy development and demonstration of community based forest management
- Weakness in introduction of eco-farming technologies including establishment of windbreak plantations
- Lack of training measures for rapid technical transfer of sustainable land management technologies
- Weakness in development and technical transfer of new energy sources including solar and wind energy
- The poor capacity in climatic, hydrological observation, forecasting, early warning and advance planning

1.2 Capacity Building Constraints

The constraints in the implementation of the priority issues for the capacity building were analyzed at the systematic, institutional and individual levels.

1) Climate Change

Constraints at systemic level

- Items on technology development and introduction, and technology transfer have been clearly described in Articles 5, 6 of Chapter 1 and Articles 28, 31, 32 of Chapter 3 of Science and Technology Law. But regulations and provisions, plans and measures for implementation of those have not been detailed.
- Duties on business for continuously reducing greenhouse gas emissions in associated ministries, institutions, departments under prioritizations are not clear.
- Lack of capable officials for management and scientific and technological research (lack of implementation of Article 49 of Chapter 6, Science and Technology Law).
- Poor linkages among institutions and processes in the regional/national/global range (lack of implementation of Article 32 of Chapter 6, Science and Technology Law, and Article 8 of Environment Protection Law).

Constraints at institutional level

- There is no long-term energy-environment planning institution for reducing greenhouse gas emissions.
- Insufficient inter-sectoral mechanism
- Preparation of plan, evaluation, monitoring and diagnosing processes for energy-environment are not effectively conducted.
- Lack of officials with comprehensive capabilities are lack.
- Lack of accuracy of information in data collecting system gaps in information.
- Lack of material means, such as equipment for monitoring and diagnosing greenhouse gas emissions, vehicles, computers and so on are lack.

Constraints at individual level

- Low demand for getting a job in environment protection sector and capacity of individuals.
- Poor practical education for the environment protection.
- For individuals, low overall life level and income.
- Lack of Information required.
- Poor communication facilities.

2) Biodiversity

Systemic capacity constraints

- The fact that many laws reflecting the conservation and sustainable use of biodiversity exist, but they are not strongly enforced.
- For instance, in spite of laws that only organizations making up marine resources can get permissions for fishing industry, some organizations ignoring it are fishing without making resources.
- In addition, many biodiversity articles dispersed in different laws could not ensure the harmonization of sectoral enforcement and consistency.
- The fact that fair and scientific monitoring framework on changes and decreases of resources in protected areas, main habitats, forests and fishing grounds is weak.
- Poor national monitoring framework makes it impossible to call the institutions in charge of conservation of biodiversity and development to account and to take rapid measures to decreases of resources with scientific and objective information and data.
- The fact that high-level coordination for assuring the relationships, resolving the conflicts and generating the synergies between biodiversity related ministries and agencies, scientific research institutions and NGOs such as Nature Conservation Union of Korea is not effective.
- To ensure the effective cooperation and information sharing, smooth transmission of data between all stakeholders, coordination mechanism to link and enable the formal commands form higher to lower and its positive action are needed.

- But existing inefficient coordination between stakeholders is not very helpful to implementation of CBD in DPRK.
- The fact that national framework for environmental impact assessment which includes all the governmental ministries, agencies and other stakeholders is weak.
This resulted in preventing the incorporation of conservation and sustainable use of biodiversity into the broad space of whole socio-economic developments.
- Poor financial resource necessary for conservation and sustainable use of biodiversity.
- The fact that public awareness on biodiversity is poor.
- Lack of easy and popular conception of biodiversity causes insufficient understanding on “biodiversity” among general people except the specialists.
- Specially, central ministries related to socio-economic development don’t recognize clearly that biodiversity is just a source of all socio-economic property and it is the important life basis for our generation and future.

Institutional capacity constraints

- Insufficient controlling power of supervisory authorities against the illegal accesses to habitats.
- This is also concerned with the weak legal enforcement mentioned as one of the systemic capacity constraints.
- The terminal supervisory institutions sometimes can’t control illegal access to natural resources with enough authority, because legal obligations equal to those of police officers are not given to them.
- Poor human resource and its inefficient and unreasonable deployment.
- The lack of capable experts and officers with science and technology on the protection of biodiversity and its sustainable development is leading to failure to implementation of CBD in DPRK.
- The fact that effective communication between institutions is poor.
- Communication is one of the fundamental means for performing all institutional functions including the monitoring, identification of changeable biodiversity components, data transmission, commanding and reporting.
- Scattered working of the stakeholders related to biodiversity, especially of their terminals without sufficient communication is the main cause to duplication of efforts and loss of time, money and further success.
- Insufficient monitoring and assessment in institutional processes.
- This causes the qualitative decreases of activities and their outputs, and injures the transparency.
- The fact that partial responsibilities of institutions are not clear.
- The administrative range of Ministry of Land and Environment Protection, Ministry of Timber Industry and Ministry of Agriculture is often not clear in their terminal institutions.

As a result, friction in resource development and neglects of conservation and management are being generated.

- Inadequate data generating and information sharing systems between institutions.

For instance, UNESCO MAB national committee is not involved in the system for data transmission and information sharing with data resource institutions such as the state Planning Committee and Central Statistics Bureau, and feels inconveniences in convention related reporting and project implementations.

In addition, insufficient and untimely distribution of international documents including conclusions and recommendations of CBD secretariat, COP and SBSTTA to the broad range of internal stakeholders hinders detailed planning and direction setting in institutions.

Individual capacity constraints

- Not yet identified proper accountabilities of each member.
- This results in insufficient human mobilization, qualitative decrease of expected outputs and neglects to the business.
- Insufficient effort for acquiring the technical skills and qualifications to respond to the requirement arising from the job.
- Individuals especially in local areas are neglecting training, retraining and learning by doing.
- Terminal officers and supervisors neglecting to get technical skills could not accomplish their duties and causes the failure to field implementation of convention.
- Insufficient rewards and incentives according to the actual results, quality and quantity of work done by each individual.
- Average rewards and incentives are of the negative impacts on the attitudes and behaviors of people working in all sectors related to biodiversity.
- Lack of free access to necessary information and in efficient communication.
- Most of people except scientists and technicians in many cases, don't understand where and how to get needed information.
- The greater the distance from city and from higher rank, the more difficult access to information gets.
- In addition, communication barrier makes individuals unable to exchange information and build business partnership and interdependence.
- This is brought from the nation-wide infrastructure of communication that telephones the useful and universal communication tool are decisively lacking, and moreover, automatic telephones are of low rate.
- Lack of communication is an urgent problem especially in mountain and rural areas including protected areas, and exerts bad influences upon field affairs.

3) Land Degradation

Constraints at systematic level

- Lack of public awareness on land degradation
- No relevant laws, regulations and guidelines
- Lack of linkage and coordination between institutional framework and agencies
- Weakness in dissemination of information technology
- Shortage of financial resources

Constraints at institutional level

- Not yet identified the appropriate agency to charge the relevant issue or no proper accountabilities
- Inadequate institutional structures and insufficient operational capacities of relevant agencies,
- Insufficient human resources and weak material and technical basis
- Insufficient availability and access to necessary information and technical sources

Constraints at individual level

- Lack of awareness on sustainable land management of decision makers, relevant specialists and management staff
- Passive participation due to lack of understanding on the value of land resources and advantages of its sustainable use
- Lack of knowledge and training on advanced technology of relevant experts

1.3 Opportunities for capacity building

1) Climate Change

- To revise and supplement the national strategies and action plans related with climate change,
- To establish the National Research Center for Studying Climate Change Impact,
- To rally, supplement, and complete national system for the preparation of a inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol
- To enhance the ability of national scientific and technical subsidiary body by supplementing the capable experts to address climate change problem
- To supplement contents related with climate change into educational programs and to strengthen the systemic education for future exports
- Through UNDP/GEF, CDM, bilateral/multilateral cooperation, to promote, enlarge and strengthen training through international exchanges, abroad training and practice
- To strengthen the national financial supports for reducing greenhouse gas emissions and the activities for receiving international financial, material and technological supports from UNDP/GEF

- To set up national Clearing House and to complete local network for information sharing and exchange

2) Biodiversity

- Explore the possibility of legislation to ensure the integrated conservation of biodiversity, identify and strengthen coordination mechanism to resolve the conflicts and assure the consistency in sectoral implementation of biodiversity related articles dispersed to many laws.
- Continuously improve and strengthen the laws to prevent all kinds of illegal accesses to natural resources including forest clearing to agricultural land, and strengthen the legal controls. Authorize the supervisors to widely and strongly control the illegal accesses, and ensure the close connection and cooperation with police stands.
- More expand the investments of government and provinces to the conservation of biodiversity by exploiting all possible financial sources, and solidly execute the allocated budget. Explore the possibility of and realize the financial support from all international organizations, NGOs, individual parties to CBD.
- Establish strict system for monitoring and responsibility on the negative impacts on the environment. Environmental impact assessment can be incorporated into the office regulations of the police and the prosecutory authorities.
- Establish the web site on the implementation of CBD and conservation of land and environment. This site will act as a position to collect public comments and raise awareness, discuss the environmental issues.
- Establish and periodically operate the platform on the conservation of environment between the ministries, agencies, scientific research institutions related to implementation of CBD and socio-economic development.
- This platform will exchange with the ones on similar subjects in the regional and international range.
- Establish the monitoring system on biodiversity in good order and improve the data exchange between sectors. Review and identify the focal point and possible stakeholders that can be included in the monitoring system on biodiversity. The responsibilities of institutions included in the monitoring system should be clearly divided, and the State Academy of Sciences, one of the governmental institutions could be the focal point of the system.
- Expand the window for the dialogue and negotiation, exchange of data and information with the CBD secretariat and the other international organizations.
- Install the windows for international dialogue in the necessary stakeholders, or increase the function of NCCE for collecting and distributing the convention related information and for intermediating the international dialogue and negotiation.

- Identify the key institution in establishing data base system on environmental issues and ensure the CBD related information sharing between main stakeholders, such as State Planning Committee and Central Statistic Bureau, scientific research institutions.
- The database system will support decision making related to the environmental conservation and ensure the use of scientific information in the national economy planning.
- Periodically hold a national workshop involving all stakeholders such as institutions for conservation and supervision, biodiversity related research institutions and NCUK and exchange successes, lessons and missions gained.
- By positively using the public lecture system existing in good order, generate awareness on in-country and international issues related to biodiversity.
- Strengthen the local management institutions in protected areas to exchange the successes and experiences gained in practices with the ones in regional and international range of protected areas.
- Decrease the unnecessary movement on business of officers from low-echelon to central grade in the environmental management sectors, settle them in their original field for sustainable use and encourage the learning by various practices.
- Actively operate the existing education system for working people and improve its qualitative level. Ensure that more working people in the biodiversity related sectors attend evening schools and take correspondence courses. Review and improve the curricula of the education system for working people.
- Strengthen the function and role of the scientific research institutions in the identification and monitoring of biodiversity components. Identify the institution that can perform as a focal point among the research institutions under the State Academy of Sciences, and review and promote the establishment of center for research and information on biodiversity under the institution.
- Promote the training of young men and provide the joint stations for long-term research on biodiversity in the key areas and improve the methodologies and equipments for research.
- Improve the curricula in all universities for training specialists on environmental conservation and management including **Kim Il Sung** University and Kim Hyong Jik University of Education. Take the measure to dispatch the graduates to the majored sectors to meet the demands for human resources.
- Develop the national framework and short, mid and long-term plans for training of specialists and technical experts on biodiversity.
- Foster the international support to the internal scientific research and training on biodiversity, and open the channel for systematic training.
- Manufacture and distribute the interesting animations, science and education programs appropriate to each step of 11 years compulsory education, and retrain the school

teachers in charge of it. For these, establish the training center that can be named “Center for biodiversity education” with the support from international organizations.

- Develop the national plan for, and improve the level of popular propaganda on biodiversity, and institutions related to education, research, publication, news, science film production improve the level of mass propaganda with close relation.
- Introduce good experiences on the above through the multilateral, and bilateral supports for raising public awareness, improve the function and role of NCUK, and strengthen its physical infrastructure.

3) Land Degradation

- Establish a training center for transferring technology on prevention of land degradation and sustainable land management and its dissemination, and training relevant land management staff
- Increase public awareness on prevention of land degradation through mass media
- Strengthen cooperation with other countries by participating in regional, sub-regional initiatives including TPNs for Asia

1.4 Priority Issues Analysis

1) Climate Change

Priority Issue 1. To arrange the institutional framework for preparing a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and to strengthen its role (For implementation of Article 4, 12 to UNFCCC and Kyoto Protocol)			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • weak enforcement of laws • unclear responsibility for GHG inventory • lack of equipment, funds and technologies • lack of local network and internet • lack of planning for preparation of GHG inventory • gaps of necessary information in data collection system • low public awareness 	<ul style="list-style-type: none"> • to rally, supplement, and complete the national system for the preparation of a GHG inventory • to detail plan of GHG inventory • to establish a comprehensive Clearing House and strengthen infrastructure • to enhance international cooperation • to modernize measuring and monitoring equipment 	<ul style="list-style-type: none"> • more effective institutions for preparing GHG inventory • clearing House and data base established and is operating as intended 	<ul style="list-style-type: none"> • determined clear responsibilities and roles of stakeholders • completed infrastructure for data collection • arranged and trained capable experts, domestic workshops • modernized measuring and monitoring equipment • complemented institutional structure for preparing GHG inventory • established database framework for information sharing • trained experts for learning technologies related to Clearing House operation • established effective database management system for information exchange

Priority Issue 2. To develop and introduce technologies and processes for controlling/reducing anthropogenic emissions of greenhouse gases and to promote technology transfer from developed countries (including introductions of clean combustion technology in boiler, cogeneration system and renewable energy technologies in rural areas) (* According to Article 4, paragraph 1(c) to UNFCCC)

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • lack of necessary information • lack of capable management and research personnel • lack of connections for technology transfer with other countries • lack of funds • lack of research equipment • lack of concretion of regulations and provisions, and measures for technology transfer • low level of necessary practical special education • dispersed activities in production and use of methane gas 	<ul style="list-style-type: none"> • strengthening regulations and provisions, and measures for technology transfer • training for technology development, introduction and transfer • Technology transfer through CDM • strengthening international communications and connections • strengthening cooperation research with other countries for technology transfer 	<ul style="list-style-type: none"> • reduction of GHG emissions by efficient energy use and comprehensive development and use of renewable energy • training scientific and technological experts for sustainable development of country • Preparation of national framework for CDM application 	<ul style="list-style-type: none"> • improved boiler thermal efficiency from current 89 to 94% by introduction of CFBC boiler and combustion of low calorific coal, created demonstration pilot for introduction of clean combustion technologies in industrial boilers • created demonstration pilot of comprehensive development and use of renewable energy in rural areas • improved industrial processes and management by efficient use of energy and dissemination of technologies • complemented national foundation for development and use of hydrogen energy • trained research personnel by international exchange and cooperation • established national institutional arrangement for CDM application • prepared project proposals for CDM application • trained capable experts for CDM implementation • complemented training course and materials related to climate change in educational organs

Priority Issue 3. To review and concretize long-term energy-environment plan for mitigation of greenhouse gas emission and to develop practical and economical planning methodologies coincided with long-term activity strategy (*According to Article 4, paragraph 1(f) to UNFCCC)

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • lack of capable experts and weak training of them • lack of scientific research method and equipment • insufficient comprehensive database of energy-environment • deficiency of close connection in local, national and global ranges • lack of effective and efficient performance of planning, assessment and monitoring • lack of communication equipment • low level of practical special education • incompleteness of long-term energy planning methodology suitable for in-country situation 	<ul style="list-style-type: none"> • development of planning methodology • training of capable expert • ensuring of correctness and objectiveness of information • exchange of experiences with other countries • strengthening of education • complement of database and equipment for collecting data • rearrangement of institutions for energy-environment planning 	<ul style="list-style-type: none"> • long-term energy-environment plan at a national level • use of advanced tools for long-term energy-environment planning and sufficient database 	<ul style="list-style-type: none"> • experts trained for energy-environment planning • equipment for planning database management and complement of database • complemented communication equipment • performed international exchange and training • selected planning methodology and improved planning tool • improved institutional arrangement for energy-environment planning

Priority Issue 4. According to Article 12 of Kyoto Protocol, to establish national institutional framework for controlling and promoting activities for acceptance, revision and implementation of CDM projects, and to strengthen international exchanges and cooperation activities

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Lack of regulations and provisions related to CDM • non-establishment of executive organ • weak capacities of scientific and technological personnel • Lack of connections in collection and exchange of information data related to CDM 	<ul style="list-style-type: none"> • Preparing of regulations and provisions related to CDM • establishment of organization • training of research and technology personnel • strengthening of international connections 	<ul style="list-style-type: none"> • created enabling environment of CDM framework • implementation of some CDM projects for mitigation of climate change 	<ul style="list-style-type: none"> • prepared regulations and provisions related to international CDM • Prepared stocktaking reports for preparation of CDM projects • performed domestic and international training for preparing CDM projects • improved rearrangement of communication system and equipment for strengthening of local, regional and international communication • performed tens of bilateral and multilateral negotiations • prepared several proposals for CDM projects • Establishment of the CDM center

Priority Issue 5. To establish measures for strengthening sustainable management for reinforcing and protecting sinks and reservoirs of greenhouse gases and for solving energy lack in the rural areas

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • ineffective enforcement of laws related to energy and environment • poor connection between ministries/agencies, institutions and individuals • poor capacity of scientific and managerial experts • lack of efficient technologies • lack of energy resource in rural areas • poor awareness on importance of ecosystem conservation 	<ul style="list-style-type: none"> • complement of regulations and provisions for law-observance • raising of qualification of scientific and technical experts • development and introduction of sustainable energy production technologies suitable for rural areas • preparation of forestation plan for protection of forest resources in rural areas and introduction of fast growing trees 	<ul style="list-style-type: none"> • demonstration of forest protection and sustainable management, and solution of urgent energy needs in rural areas • sustainable energy production and use technologies suitable for rural areas 	<ul style="list-style-type: none"> • complemented regulations and provisions for law-observance related to forest management in rural areas • equipped monitoring and protection equipment • developed technologies of renewable energy use including biogas production and use • prepared plans and reports for creation of demonstration • selected beneficial kinds of trees, constructed nursery • trained management and research personnel for forest resource protection and proliferation • trained research personnel for renewable energy production and use • performed activities necessary for technology transfer

2) Biodiversity

Priority Issue 1. Recovery of the destroyed forest ecosystem and rehabilitation of habitats important in terms of ecology, in-situ conservation of species			
<i>Current constraints</i>	<i>Capacity needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> Weak enforcement of laws for forest and in-situ conservation of species Poor cooperation and linkage between the ministries and agencies related to the management of forest ecosystem Poor consideration on the value of biodiversity in trade High dependence on the wood for energy resource in local areas Poor technical support to the sustainable forest management Scattered managing activities in and weak inter-relationship between the natural 	<ul style="list-style-type: none"> More effective enforcement of laws related to the conservation of main habitats, destroyed forest ecosystem and in-situ conservation of species Establishment of steering committee for the effective cooperation and linkage between the relevant ministries and departments for the rehabilitation and conservation of forest ecosystem Trade-related laws reflecting the biodiversity value Socio- economic, 	<ul style="list-style-type: none"> Forest ecosystem function are in the process of recovery in the selected areas, esp., 4 Counties surrounding the Mt. Kuwol Biosphere Reserve The poorly conserved and managed areas will be decreased or the friction in resource exploitation will be removed. Decreasing of endangered species will be stopped. Human impact to the forest, e.g. Forest fire, over-woodcutting, illegal transformation will be lowered. 	<ul style="list-style-type: none"> Review and amendment of laws Introduction of community-based compliance practices Increase of the numbers of the rangers in the protected areas and adjacent areas Correct identification of management areas and responsibilities of each concerning departments More regular meetings between ministries and local governments Review and revision to trade laws Economic valuation of forest Introduction of energy- efficient stoves in local areas Introduction of wind power and solar devices in the local villages around the protected areas Demonstration site for energy- efficient devices in Mt. Kuwol Biosphere Reserve Active application of rational forest rehabilitation technology into practices. Development assessment indicators and guidelines for forest ecosystem and their application

<p>protected areas.</p> <ul style="list-style-type: none"> • Lack of expertise and skills of managing stuff in the main habitats • Poor Communication between the managing departments • Poor public awareness on biodiversity. • Insufficient authority of the relevant ministries and departments for the conservation and management of the main habitats 	<p>scientific and technical measures for energy supporting at rural areas</p> <ul style="list-style-type: none"> • Correct assessment of the forest. • Development of forest eco-technology and its dissemination. • Training of managing stuff • Enhanced public awareness on forest rehabilitation • Enhanced authority of the local managing stuff and rangers in the main habitats and their strengthened linkage with police 	<ul style="list-style-type: none"> • Assessment of the current state of protected areas • Development of building plan for natural protected area network • Active operation of various type of lectures and short-term training, suited to the local situation • Establishment of communication framework within and between the regional managing offices in the key protected areas and habitats • Further increment of communication facilities • Dissemination of public awareness materials on forest biodiversity and environmental issues. • Strengthening of social propaganda activity by all possible means including newspaper, broadcasting and TV • Changes to laws for enhanced authority and respect to the rangers and their activities among the local peoples in the forest and main habitat • Directives to ensure stronger enforcement leading to immediate punishment to the illegal activities
<p>Priority Issue 2. Realization of integrated and rational management of watershed through the development and introduction of eco-forestry, eco-agriculture and eco-aquaculture</p>		

<i>Current constraints</i>	<i>Capacity needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Lack of watershed management plan by poor understanding of the officials in the ministries and departments on the importance of watershed management • Insufficient prioritization to the eco-forestry, eco-agriculture and eco-aquaculture • Poor understanding and technology of the officials in local governments and farmers on the eco-forestry, eco-agriculture and eco-aquaculture • Insufficient socio-economic incentive to the farmers 	<ul style="list-style-type: none"> • Enhanced awareness on the watershed management among officials and their capacity for watershed management planning • Establishment of demonstration site for eco-forestry, eco-agriculture and eco-aquaculture at the selected areas (e.g. Mt. Kuwol Biosphere Reserve and its adjacent areas) and its application and generalization • The effective linkage between the scientific research institutions and local governments • Measures for enhanced socio-economic incentive to the farmers 	<ul style="list-style-type: none"> • The integrated strategy and action plan for watershed management in the selected areas with ecological and economic significance will be developed and promoted. • The ecological method for watershed management will be mainstreamed into the general environment management. • Improved view points and understanding of officials on the eco-agriculture and eco-forest • The environmental activities of local governments will be in accordance with the scientific standard • The local people will be the masters of using ecological method in the watershed management and the public participation will be a part of the management. • Adverse environmental pressures will be reduced 	<ul style="list-style-type: none"> • Short-term training courses for ministries and departments on the issues of various ecosystems including forest, agriculture, water and watershed. • Mobilization of the local people to the activities for watershed management • Creation of watershed groups in selected areas • Demonstration site of watershed management in the estuary of Chongchon River • Technical advice on eco-forestry, eco-agriculture and eco-aquaculture to the local people. • Governmental supporting system for eco-forestry, eco-agriculture and eco-aquaculture

Priority Issue 3. Identification and monitoring of biodiversity component important for its conservation and sustainable use			
<i>Current constraints</i>	<i>Capacity needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> Weak institutional framework for the identification and monitoring of the biodiversity components Poor investigation data and information on the resource Lack of free access and exchange of the necessary information esp., from the international organizations including CBD Secretariat Poor specialized technical skill Poor communication between the related ministries including MLEP, MOA, MTL, MOF and their terminal institutions Weak role of NGOs. 	<ul style="list-style-type: none"> Establishment of institutional framework for the identification and monitoring of biodiversity Increment of members for the field survey of rare and endangered species, enhanced technical equipments Establishment of effective information delivery system and enhanced access to the information of international organizations Training and reeducation of technical staff for the identification and monitoring of biodiversity, esp., the taxonomists Enhanced cooperation between ministries and agencies for the identification and monitoring of biodiversity 	<ul style="list-style-type: none"> The regular monitoring on the rare and endangered species and migratory birds in the concerning areas will be ensured. Identification and monitoring of biodiversity components will be based on reliable inventory data The CHM for biodiversity will be established and fully implement its function. The ignored objectives will be reduced in the investigation of biodiversity resource, and the duplication in the activities will be removed 	<ul style="list-style-type: none"> Established Institutional arrangement for the identification and monitoring from the ministries (MLEP, MOA, MTL, MOF). Identified clear responsibilities of each ministry Completion of inventory on the rare and endangered species and resource amounts. Enhanced usage of modern technical equipments in the identification and monitoring The computer data base on the component of biodiversity Government approval for the rapid information exchange between the relevant departments Establishment of information communication infrastructure in the ministries and departments related to

	<p>components</p> <ul style="list-style-type: none"> • Enhanced role of NCUK, esp., its local communities in each province. 		<p>biodiversity.</p> <ul style="list-style-type: none"> • Linkage between the existing databases on biodiversity. • Appropriate usage of various methodologies • New inter-agency consultation procedures for the identification and monitoring of biodiversity components • Survey and activities by the members of the society under the NCUK including the Plant Protection Society and Animal protection Society • Collection and allocation of skilled experts.
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Priority Issue 4. National economy planning of the conservation and sustainable use of biodiversity and its integration into the whole socio-economic development				
<i>Current constraints</i>	<i>Capacity needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>	
<ul style="list-style-type: none"> • Poor information for the national economy planning • Weak legal enforcement on the negative impacts of the development to the environment. • Poor consideration of the officials on the biodiversity conservation and its sustainable use in the planning and economic development. • Uncertainty of responsibility allocation between the enterprises for environmental conservation and mitigation of pollutant emission 	<ul style="list-style-type: none"> • Capacity development of the scientific and technical support for the enough consideration of existing biodiversity status in the national economy planning • Training of the technical members for the environmental impact assessment and development of guidelines • Legal control by the police on the negative activities to the environment • Improved consideration of the officials on the importance of biodiversity conservation and its sustainable use. • Measure for strict control of pollutant emission from the enterprises and its monitoring. 	<ul style="list-style-type: none"> • The organic relation between the socio- economic development plan and the biodiversity conservation activities will be made and the biodiversity will be conserved in the course of development • The negative actions including deforestation, water pollution and the damage to the animal and plant resources will be reduced in the economic development areas and factories. • Various ecosystems, esp., water ecosystems will meet habitat conditions. 	<ul style="list-style-type: none"> • Establishment of Biodiversity CHM available for national economic planning • EIA process modification with the scientific base • Established reasonable indicators for EIA • Introduction of new EIA reporting procedures • National economic planning procedures based on the consideration of EIA reports • Revised emission standards and regulations for reduced pollutants and GHG emission from the factories and enterprises. 	

Priority Issue 5. Ex-situ conservation of threatened species, especially animal species

<i>Current constraints</i>	<i>Capacity needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • No hosting institution for ex-situ conservation and its conservation plan • Limited research data on the distribution and ecology of endangered species in nature • Poor material and technical facilities for the technical development of breeding and management of endangered species in research institutions • Weak ability for conservation of endangered species at zoo • Poor expertise and skills of feeders • Lack of finance for the conservation and management of endangered species 	<ul style="list-style-type: none"> • Establishment of national infrastructure for ex-situ conservation of endangered species • More effective legislation • Development of general plan for ex-situ conservation of endangered species • Capacity building for the research institution for ex-situ conservation and strengthening of its framework 	<ul style="list-style-type: none"> • Preventing the extinction of endangered species in DPRK by strengthening the capacity for developing the artificial breeding method of endangered animal species and species conservation capacity 	<ul style="list-style-type: none"> • Developed general plan for ex-situ conservation of endangered species • Identification of responsibility of stakeholders for ex-situ conservation of endangered species • Inventory of priority endangered species for ex-situ conservation • Improved database on the distribution and ecology of endangered species in nature • Developed technology on artificial breeding and management • Enhanced educational capacity for training schools • Improved skills of feeders responsible for animals

3) Land Degradation

Priority Issue 1: The national strategy and action plan for combating land degradation is not developed			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Lack of the understanding on the convention among the public including relevant stakeholders • Lack of institutional arrangement including responsibilities assignment, collaboration and coordination among stakeholder agencies • Weakness in communication and linkage with relevant international agencies including UNCCD Secretariat • Limited, low knowledge and technologies related to preventing land degradation 	<ul style="list-style-type: none"> • Public awareness raising including stakeholders on the convention and its related issues. • Knowledge transfer among decision makers and planning officials on the UNCCD and its implementation • Development of institutional capacity for convention implementation, including NAP • Capacity development in participatory, integrated planning process 	<ul style="list-style-type: none"> • The National Action Plan for CCD will be incorporated into the national development strategy/plans and implemented accordingly • All relevant stakeholders participated with enhanced understanding and knowledge from the planning to implementation processes of the CCD-NAP. • The participation of the public in the convention implementation increased with raised awareness • Policy and legislation on land management will be improved 	<ul style="list-style-type: none"> • The national institutional system to implement the NAP/UNCCD will be established including identification of national office and its enhanced capability. • The National Action Plan for CCD implementation will be developed • Awareness and understanding on CCD and its implementation among relevant stakeholders including decision makers and planning officials increased • Relevant information and advanced knowledge related to preventing land degradation introduced through information sharing with other countries as well as international institutions

Priority Issue 2: Lack of integrated database (including soil maps) for land management and weakness in information gathering and dissemination

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Lack of comprehensive, integrated information network related to land degradation • No standard database format is used and the database limited in agricultural sector • Weak collaboration and coordination among relevant stakeholders in information gathering and exchange • Low and outdated technical and material basis in relevant institutions due to the lack of financial resources • Weakness in human capacities including relevant technicians and scientists • Limited access to the advanced information and technologies available in international institutions and other countries 	<ul style="list-style-type: none"> • Establish the national comprehensive land management information center and prepare up-to-date databases format and indicators related to land use and management. • Development of human capacity in building up-to-date information base and networks through training and study tours • Introduce advanced technologies in information gathering, analysis and dissemination including GIS • Provide access to, and linkage with, regional, sub-regional data and information bases 	<ul style="list-style-type: none"> • The comprehensive and integrated national information networks regarding to prevention of land degradation will be established • The relevant institutions have the proper levels of competences in data survey, gathering, processing as well as in information dissemination • The necessary information and advanced technologies will be provided and disseminated properly to the users in the field of land use and management. • Access to the land management information and advanced technologies will be improved. 	<ul style="list-style-type: none"> • The comprehensive national land management information center will be established • Assessment of data needs and gaps, design of data collecting methods, data recoding protocols, data storage methods, etc • The technological, material and operational basis/capacities of information center and other stakeholder institutions will be built or strengthened • Technical staffs and scientists from relevant stakeholder institutions will be trained and improved in their skills. • The linkage with regional and sub-regional information bases will be established to increase regular information exchange.

Priority Issue 3: Inadequate establishment of firewood forest to solve energy issues in rural areas, and lack of strategy development and demonstration for community based forestry

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Low efficiency and effectiveness of current activities for solving energy problems such as firewood establishment due to the lack of proper funds and appropriate technologies • Lack of proper planning processes in rehabilitation of degraded forests and its management • Weak capacities of authorized institutions from central to local levels • Lack of expertise, deployment of skills and trained, technical staffs • Lack of, and limited access to, advanced knowledge and technologies regarding sustainable natural resources management • Adverse behaviors and attitudes of local users towards 	<ul style="list-style-type: none"> • Capacity building in planning sustainable, community-based forest management and natural resources use. • Technical transfer of best practices and technologies in forest rehabilitation and sustainable forest management and natural resources use • Demonstration of solving energy problems through sustainable natural resources management and use (introduction of renewable and new energy sources including wind-, solar energy, and CDM, etc) • More effective legislation • Coordination mechanisms between stakeholder and agencies • Public awareness raising on sustainable land management and natural resource use 	<ul style="list-style-type: none"> • The degraded forest land are rehabilitated or are in the process of recovery in selected areas of degraded forest • The sustainable land and natural resources management strategy/plan is integrated into sustainable development strategy/plans of the country • The needs for energy, esp. fuel wood, are met and the natural resources available are utilized in a rational way in selected areas. • The local people get direct benefit from sustainable natural resources management and their behavior are changed with increased understanding on the values and importance 	<ul style="list-style-type: none"> • The integrated, sustainable land and natural resources management strategy and plan developed and implemented in demonstration areas • The options available for the sustainable management of land and natural resources in selected areas are identified and introduced. • Improved skills of forest officers in forest rehabilitation and sustainable management • Forest rehabilitation plans that meet needs of both given communities and surrounding areas • Improved legislation that provides for community-based forest rehabilitation and sustainable management • Demonstration of effective energy development programs in rural areas that meet the local

the sustainable natural resources use, concerning only current needs.		of land resources. <ul style="list-style-type: none"> The lessons and experiences gained from the demonstration areas will provide input to the improvement of national legislation and serve as a basis for the dissemination in other rural areas of the country. 	needs and are compatible with sustainable natural resource management
Priority Issue 4: Weakness in introduction of eco-farming technologies including establishment of windbreak plantations			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> Limited access to information on effective, advanced technologies and weakness in its introduction and dissemination Poor institutional and human capacities for the shift into sustainable farming methods Lack of financial resources Lack of incentives that drive the sustainable and safe food production and prevention of land degradation Poor understanding on the 	<ul style="list-style-type: none"> Development of guidelines and regulations for sustainable agricultural production such as eco-farming. Demonstration of eco-farming technologies in selected areas Introduction and exchange of information and technologies related sustainable agricultural production. Strengthening of human and technical capacities of relevant agencies (managerial and user sectors) to enable the adoption 	<ul style="list-style-type: none"> Public awareness on the best practices and participation in sustainable sloping land management via ecological approaches are increased. Education and training on sustainable sloping land management and use enhanced, creating environment for the dissemination of the advanced farming technologies in remaining 	<ul style="list-style-type: none"> Through the introduction of new sloping land management technologies in selected areas, the soil erosion is reduced by 60% and the crop yields are raised up to 125%, providing direct benefit to the livelihood of local people and contributing to the implementation of the food safety strategy of the country. Trained staff and improved skills for sustainable land management and safe food production in selected areas

<p>value of sustainable land management among management staffs and farmers</p> <ul style="list-style-type: none"> • Lack of appropriate regulations and guidelines 	<p>of sustainable farming methods.</p> <ul style="list-style-type: none"> • Establishment of measures to distribute the best technologies to the wide areas of the country. • Public awareness on sustainable agricultural development including eco-farming system 	<p>300,000ha of sloping lands of the country.</p> <ul style="list-style-type: none"> • Improved legal environment for dissemination of environmentally sound sustainable agricultural development 	<ul style="list-style-type: none"> • Public awareness and dissemination of sustainable land management and food production in selected areas and among key stakeholder agencies • Regulation and guidelines for sustainable land management and agricultural production developed • The linkage and coordination between stakeholders and interested agencies strengthened • Information exchange and technical transfer provided through the cooperation and joint study on sloping land management with international agencies
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Priority Issue 5: Lack of training measures for rapid technical transfer of sustainable land management technologies			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Limited and poor public awareness • Weak financial and technical base for the introduction of sustainable land management technologies • Weak institutional arrangement • Limited access to the information and advanced technologies available outside the country • Lack of expertise and deployment of skills 	<ul style="list-style-type: none"> • Establishment and operation of awareness and training center on addressing land degradation. • Training of the managers and trainers of the center • Establish the linkage and exchange the information and experiences with relevant national, regional and international institutions • Effective public awareness and training system on land degradation and sustainable land management 	<ul style="list-style-type: none"> • Public awareness increased and their participation in sustainable land management and prevention of land degradation activated • The institutional and human capacities increased through proper trainings • The information about the knowledge and advanced technologies related to land degradation and sustainable land management are disseminated and applied properly 	<ul style="list-style-type: none"> • awareness and training center established • selected staff and trainers of the center trained • operational programme of the center and public awareness programme established and implemented • public awareness programme/activities with targeted stakeholders established and implemented • public awareness including targeted stakeholders raised and number of trained persons • the linkage and networks between the center other institutions within and outside the country established

Priority Issue 6: Weakness in development and technical transfer of new energy sources including solar and wind energy			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Limited and poor public awareness • Weak financial and technical base for the introduction and development of new energy technologies • Lack of incentives that drive the introduction of renewable and new energy sources • Weak institutional capacity for the research of renewable and new energy development • Limited access to the advanced technology and information 	<ul style="list-style-type: none"> • Assessment of existing energy balance and development possibilities of alternative energies including wind and solar energies in selected areas • Study and research capacity for environmentally sound and effective development of energy sources available within the country • Transfer of training and technologies on new and renewable energy sources including wind and solar energies • Development of incentives for promoting the introduction of alternative energy sources in rural areas 	<ul style="list-style-type: none"> • The local demands for energy are met through sustainable natural resources management and development of alternative and new sources of energy in selected areas • The degradation of forest land and its ecosystem is prevented or restored through decreased pressure on firewood collection from the forests in selected areas • Legal improvement for the adoption and dissemination of new energy development options throughout the country • The environmentally sound and land protective energy development is promoted through the incentives developed 	<ul style="list-style-type: none"> • Demonstration of renewable and new energy sources development to meet the energy needs in selected areas • Improved skills and trained staff with expertise in energy and natural resources management • Improved database on rural energy sources available and adaptive technical options that reduce or avoid of the land degradation and meet the local needs for energy • The assessment of effectiveness of the options taken and dissemination of best practices and techniques • Strengthened institutional capacities in research, development and dissemination of advanced energy technologies that are compatible with sustainable land management • rules and guideline for large scale introduction of alternative energy in rural areas developed

Priority Issue 7: The poor capacity in climatic, hydrological observation, forecasting, early warning and advance planning

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • weakness in legislation • weak institutional capacity • lack of expertise and trained staff • limited financial resources • poor communication between departments/agencies • low public awareness on the early warning and preparedness against the disasters 	<ul style="list-style-type: none"> • Improvement of communication ability of real time information between local observation stations and forecasting center • Efficient forecasting and early-warning system against flood and drought • Effective water control and water use regulation and coordination between water management and use sectors • Improvement of decision-making process system based GIS such as risk mapping of flood so as to reduce or avoid human and property loss in a region • Development of disaster prevention strategy/action plan and its demonstration in selected area(s) • Integration of pre-response strategy and reduction of natural disasters into national 	<ul style="list-style-type: none"> • Reduction of natural disasters and decrease of degradation and erosion of land resources • The disaster risk management is streamlined into the sustainable development activities of the country • Increased awareness and participation of the public in preparedness and prompt response to the disasters • Effective and sustainable water resources management 	<ul style="list-style-type: none"> • Enhanced abilities for forecasting precipitation, flood and drought in relevant institutions • Improved coordination and cooperation between related agencies/institutions • Development of national action plan for early warning system and disaster risk reduction and its integration into sustainable development plans of the country • Trained staff and improved skills in application of FDEWS in institutions involved • Decision making system for forecasting and early warning against flood and drought established • Dissemination of methods, technologies and best practices within the country

	<p>and sectoral development programme</p> <ul style="list-style-type: none"> • Training of staff in disaster reduction management and affected sectors • Creation and Improvement of communication and exchange among Asian countries in establishing early-warning system and pre-response strategy 		
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2. Summary of Cross-cutting Assessment

The 28 cross-cutting capacity building issues are listed in Appendix 1. The following are the 6 priority cross-cutting requirements:

- 1) Simultaneous implementation of afforestation and management of forest resource and introduction of renewable energy in local area.
- 2) Monitoring network for observing biodiversity component and land status
- 3) Regular renewal of national development system for preparation of an inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases.
- 4) Development of technology for organic farming, eco-farming and their application.
- 5) Identification of criteria, indicator and method for EIA.
- 6) International cooperation and exchange for the implementation of Rio Conventions in training, technical transfer and planning.

The following are the six priority cross-cutting constraints:

- 1) Poor knowledge, information collection and information sharing system in environmental field.
- 2) Poor communication with convention secretariats.
- 3) Inadequate institutional framework and incorrect working sharing.
- 4) Poor international cooperation and exchange related to technical transfer in environment.
- 5) Poor training of experts and re-education of officials.
- 6) Limited public commitment and understanding on Rio Conventions.

The capacity development opportunities included:

- 1) Establishment of capable standing advisory body under existing NCCE which can support the activities of Rio Conventions.
- 2) Enhancement of vertical linkage between the NCCE and government agencies and scientific research institutions related to Rio Conventions.
- 3) Establishment of input system of information related to Rio Convention at the Central Statistic Bureau.
- 4) Enhancement of linkage between NCCE and central statistic Bureau in parallel.
- 5) Decision of responsible offices and their activity in the implementing agencies of Rio Convention and responsibility enhancement
- 6) Promotion of MLEP's role for the implementation of Rio Convention.
- 7) Reinforcement of information facilities at the implementing agencies.
- 8) Improvement to the existing educational courses and curricula.
- 9) Establishment of training school for re-education of officials.
- 10) Enhancement of the role of NCUK for public awareness activity on Rio Conventions.

- 11) Active participation of NGO community and social education network to the public awareness on Rio Conventions.

2.1 Capacity Building to Meet Convention Requirements

The general requirements under the relevant articles for each convention and the major capacity building needs in DPRK that are associated with these provisions are presented below. These are the major requirements and capacity building needed to meet the obligations of each convention. The proposed Action Plan will target these particular gaps or needs in fulfilling the general convention requirements.

There are other capacity development needs that may not have been referenced in a convention that nevertheless will require specific consideration. For example, biodiversity conservation will require strengthening of national inventories on degraded landscapes and rare and endangered species, although 'national inventories' may not be specifically identified within the CBD.

1) Requirements for National Inventories

Climate Change

Arrangement of the institutional framework for preparing a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and to strengthen its role (For implementation of Article 4, 12 to UNFCCC and Kyoto Protocol)

Land degradation

Lack of integrated database (including soil maps) for land management and weakness in information gathering and dissemination

Synergies

Improvement of linkage and coordination as well as information exchange between relevant stakeholders and among thematic areas

2) Requirements for National and regional action programmes/plans

Biodiversity

National economy planning of the conservation and sustainable use of biodiversity and its integration into the whole socio-economic development

Climate Change

According to Article 12 of Kyoto Protocol, establishment of national framework for controlling and promoting activities for acceptance, revision and implementation of CDM projects, and strengthening of international exchanges and cooperation activities

Review and concretization of long-term energy-environment plan for mitigation of greenhouse gas emission and development of practical and economical planning methodologies coincided with long-term activity strategy (*According to Article 4, paragraph 1(f) to UNFCCC)

Land degradation

The national strategy and action plan for combating land degradation is not developed.

Synergies

The integration of thematic priority issues and action plans into the national and sectoral development strategy and plans.

Development of participatory and integrated watershed management plan and its demonstration

3) Requirements for Identification and monitoring

Biodiversity

Identification and monitoring of biodiversity components important for its conservation and sustainable use

Climate Change

Study of systematically monitoring data and impacts of emissions by sources and removals by sinks of greenhouse gas, construction of database, and strengthening of international cooperation (*According to Article 4, paragraph 1(g), Article 5 to UNFCCC)

Land degradation

Lack of nationwide proper assessment and monitoring system on land degradation, especially on forestland degradation

Lack of classification, assessment and regular observation of forestland

Synergies

Nationwide monitoring and observation networks to monitor and assess the dynamics of biodiversity and land degradation process

4) Requirements for Legislation

Biodiversity

Legislation for integrated biodiversity management and establishment of responsible organizations

Climate Change

Establishment of systemic and institutional framework for integral management of energy-economy-environment

Land degradation

The requirements of the convention are to be reflected in the existing legislations and the land use sectors are not provided with proper and sustainable land management regulations and guidelines.

Synergies

Improvement and/or revision of relevant laws and regulations to promote the implementation of CBD, FCCC and CCD in comprehensive way

Improvement enforcement and development of proper guidelines and approaches according to the changing situations

5) Requirements for Research

Biodiversity

Strengthening the scientific research work on the biodiversity.

Climate Change

Study of systematically monitoring data and impacts of emissions by sources and removals by sinks of greenhouse gas, construction of database, and strengthening of international cooperation (*According to Article 4, paragraph 1(g), Article 5 to UNFCCC)

Building up of research capacity for scientific conservation of forest ecosystem in order to cope with Global Warming

Building up of research capability for scientific management of the coastal area by considering the rise of seawater level

Land degradation

Lack of value estimation of effective land management and economic incentives

There is no study on the classification of national soil types and the GIS- based database is not yet developed

The method of participatory rapid appraisal on land use is not introduced

Weak studies on improving fuel combustion efficiency for household's cooking and heating

Weak institutional capacity for the study on assessing soil pollution and its prevention options

Synergies

Identify and develop research priority plans including joint researches to synergy the thematic priority research issues

Strengthening of institutional capacities to carry out the research priority plans including joint researches

Researches on adaptive measures to the possible environmental changes in industries, agriculture and forestry sectors

6) Requirements for Public education

Biodiversity

Measures for ensuring effective education on biodiversity in all types of educational stages, especially in the stage of 11 years compulsory education

Climate Change

Preparation of plans for education, public awareness and participation on the climate change mitigation, establishment of a National Center for Propaganda on Climate Change Impact, promotion of exchange of propaganda materials and information and strengthening of role of mass media (*According to Article 4, paragraph 1(i) to UNFCCC)

Establishment of a National Training Center on Climate Change and promotion international training, exchanges and acceptance of international supports (According to Article 4, paragraph 1(i), Article 6)

Land degradation

The contents related to the convention and sustainable land management is not incorporated in the curriculum of medium and high school (e.g. universities) education.

Low understanding and knowledge on sustainable land management and early warning system among all relevant stakeholders

The public awareness on land degradation and sustainable land management is low and the awareness materials are not sufficient

Synergies

Revision and improvement of educational curriculums reflecting the issues in thematic areas

Public awareness raising through outreach programme and based on existing educational system and media

7) Requirements for Environmental Assessment

Biodiversity

National economy planning of the conservation and sustainable use of biodiversity and its integration into the whole socio-economic development.

Climate Change

Study of systematically monitoring data and impacts of emissions by sources and removals by sinks of greenhouse gas, construction of database, and strengthening of international cooperation (*According to Article 4, paragraph 1(g), Article 5 to UNFCCC)

Land degradation

Weak environmental impact assessment (EIA) system for the land use related development activities including industry and infrastructure development and less consideration of land use issues

Synergies

Improvement of existing institutional system for environmental impact assessment

Development of proper criteria and indicators and advanced approaches for environmental impact assessment

Strengthening of monitoring system and legal enforcement for environmental impact assessment

8) Requirements for Technology transfer and exchange

Biodiversity

Regional and international supports and exchanges including the training, technology transfer and planning in the purpose of conservation and sustainable use of biodiversity.

Climate Change

- Establishment of a national and regional CHM for sharing and exchanging information related to climate change and for networking, and strengthening of its role
- According to Article 12 of Kyoto Protocol, establishment of national framework for controlling and promoting activities for acceptance, revision and implementation of CDM projects, and strengthening of international exchanges and cooperation activities
- Development and introduction of technologies and processes for controlling/reducing anthropogenic emissions of greenhouse gases and promotion of technology transfer from developed countries (including introductions of clean combustion technology in boiler, cogeneration system and renewable energy technologies in rural areas) (*According to Article 4, paragraph 1(c) to UNFCCC)
- Building up of pilot unit for integrated use of biomass energy, and organization of national/local workshop on biomass energy technology so as to generalize pilot unit

Land degradation

- Lack of criteria and indicators for sustainable forest management and certification system for forest management unit
- Low efficiency of reforestation activities and failure of rehabilitation of degraded ecosystems due to the lack of introduction of natural regeneration techniques
- Weak capacity to deal with the forest pests and lack of introduction of integrated pest management (IPM) technologies.
- Lack of introduction and dissemination of advanced approaches to integrated watershed and water resources management, and no experimental practices available
- Weakness in development, technical transfer and dissemination of organic farming methods to ensure sustainable crop production without undermining the productivity of agricultural lands
- Weakness in introduction of eco-farming technologies including establishment of windbreak plantations.
- Lack of technologies to assess the status of sloping land use, identify and introduce best practices of protective farming
- Lack of sustainable silvi-pasture technologies to prevent degradation of forest pasture lands
- Weakness in development and technical transfer of new energy sources including solar and wind energy

Synergies

Technical cooperation for biodiversity conservation and sustainable management and use of land and natural resources with international agencies including UNDP, UNEP and FAO, etc.

9) Requirements for Information exchange

Biodiversity

Establishment of clearing house mechanism for biodiversity

Climate Change

According to Article 12 of Kyoto Protocol, establishment of national framework for controlling and promoting activities for acceptance, revision and implementation of CDM projects, and strengthening of international exchanges and cooperation activities

Promotion of public awareness on the dispersed power system and enhancement of activities for international exchange and cooperation concerned

Land degradation

Lack of integrated database (including soil maps) for land management and weakness in information gathering and dissemination

Lack of introduction and dissemination of advanced approaches to integrated watershed and water resources management, and no experimental practices available

Establishment of national environmental information system to gather, compile, process and disseminate the data and information related to Biodiversity, Climate change and Land degradation

10) Requirements for Public participation

Climate Change

Promotion of participation of public organizations in the activities for preventing climate change and strengthening of linkages among key stakeholders in areas of biodiversity, climate change and land degradation (strengthening linkage with NCUK) (According to Article 4, paragraph 1(i), Article 6)

Land degradation

Inadequate establishment of firewood forest to solve energy issues in rural areas, and lack of strategy development and demonstration of community based forest management

Lack of introduction and dissemination of advanced approaches to integrated watershed and water resources management, and no experimental practices available

The method of participatory rapid appraisal on land use is not introduced

11) Requirements for Training

Biodiversity

Improvement and completion of the training system of biodiversity specialists and strengthening of popular propaganda.

Climate Change

- Preparation of plans for education, public awareness and participation on the climate change mitigation, establishment of a National Center for Propaganda on Climate Change Impact, promotion of exchange of propaganda materials and information and strengthening of role of mass media (*According to Article 4, paragraph 1(i) to UNFCCC)
- Establishment of a National Training Center on Climate Change and promotion of international training, exchanges and acceptance of international supports (According to Article 4, paragraph 1(i), Article 6)

Land degradation

- Inadequate establishment of firewood forest to solve energy issues in rural areas, and lack of strategy development and demonstration of community based forest management
- Lack of training measures for rapid technical transfer of sustainable land management technologies
- Low understanding and knowledges on sustainable land management and early warning system among all relevant stakeholders
- Weak studies on improving fuel combustion efficiency for household's cooking and heating

Synergies

Establishment of training center to train the thematic experts and staff

International cooperation and information exchange in the field of training, technical transfer and planning for the implementation of the Rio conventions

2.2 Synergies between Climate Change, Biodiversity and Land Degradation

The following table presents a summary of the major interactions between the priority cross-cutting requirements that were identified by the Cross-cutting Assessment team, and each of the thematic areas.

Priority Requirements	Climate Change	Biodiversity	Land Degradation
1) Simultaneous implementation of afforestation and management of forest resource and introduction of renewable energy in local area.	<ul style="list-style-type: none"> ▪ Afforestation for carbon sequestration ▪ Climate change adaptation in forestry 	<ul style="list-style-type: none"> ▪ Habitat conservation and enhancement within afforestation ▪ Renewable energy to reduce deforestation effects on biodiversity 	<ul style="list-style-type: none"> ▪ Soil and water conservation within afforestation ▪ Renewable energy to reduce deforestation effects on soil erosion
2) Monitoring network for observing biodiversity component and land status.	-	<ul style="list-style-type: none"> ▪ Biodiversity indicators in habitat management 	<ul style="list-style-type: none"> ▪ Biodiversity indicators in land management
3) Regular renewal of national development system for preparation of a inventory of anthropogenic emissions by sources and removals by sinks of GHGs	<ul style="list-style-type: none"> ▪ Inventory of GHG emissions ▪ Carbon sequestration strategies ▪ Climate change adaptation measures 	<ul style="list-style-type: none"> ▪ Biodiversity aspects of more diverse species in afforestation programs 	<ul style="list-style-type: none"> ▪ Agricultural and other land management methods to reduce GHGs and enhance adaptation to climate change
4) Development of technology for organic farming, eco-farming and their application.	<ul style="list-style-type: none"> ▪ Nitrogen fixing plants as GHG reduction measure ▪ Adaptation measures in agriculture 	<ul style="list-style-type: none"> ▪ Habitat conservation within agricultural practices 	<ul style="list-style-type: none"> ▪ Soil and water conservation within organic farming
5) Identification of criteria, indicator and method for EIA	<ul style="list-style-type: none"> ▪ Effects of developments on GHG emissions and adaptation capacity 	<ul style="list-style-type: none"> ▪ Methods for assessment of impacts on biodiversity values 	<ul style="list-style-type: none"> ▪ Methods for assessment of impacts on soils and watershed processes
6) International cooperation and exchange for the implementation of Rio Conventions in training, technical transfer and planning.	<ul style="list-style-type: none"> ▪ General knowledge of integrating climate change into natural resources management and energy management 	<ul style="list-style-type: none"> ▪ In-situ and ex-situ biodiversity conservation strategies within development activities 	<ul style="list-style-type: none"> ▪ Land conservation strategies within development activities

2.3 Priority Issues Analysis

Priority issue 1. Inadequate institutional framework and incorrect working sharing			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Non-existence of subsidiary body of scientific and technical advise under NCCE relate to the implementation of environmental conventions • Non-determination of organizations and working groups responsible to implement three thematic areas • Uncertain task of stakeholders and weak legal control of their execution • Poor connection between stakeholders • Poor awareness on conventions among officials in ministries/agencies 	<ul style="list-style-type: none"> • Establishment of subsidiary body of scientific and technical advise relate to the implementation of Rio conventions • Determination of core organizations for implementing three thematic conventions and constitution of three working groups • Determination of tasks and departments in charge of convention implementation in relevant agencies and raising their responsibilities • strong legal control of convention execution • Enhancement of qualification of governmental officials through in-service training 	<ul style="list-style-type: none"> • Well-organized national institutional arrangement for the implementation of Rio conventions and well-planned activities for the implementation of conventions • Clear assignment of tasks of stakeholders and strengthened legal control in implementation of conventions 	<ul style="list-style-type: none"> • Determined core executing agencies responsible for implementation of thematic conventions • Established subsidiary body of scientific and technical advise for implementing conventions and determined functions and operating system • Established three thematic offices for implementing conventions, determined functions and operating system and developed programmes • Determined tasks and departments in charge of convention implementation in relevant agencies • Developed overall workplans for implementing Rio conventions and detailed assignment • Regulated summing of work for implementing conventions and improved measures • Measures of strengthened legal control for implementing conventions

Priority issue 2. Poor international cooperation and exchange related to technical transfer in environment			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> Uncertain institutional system in charge of technology transfer and international cooperation and exchange in environment Lack of information of valuable technologies for the technical transfer developed in environment Lack of material and technological instruments for multilateral connection with international organizations Non-existence of academic team for analyzing and evaluating possibility and object for the application of technologies in environment Poor rapidity in determination of objects and sizes of technology transfer due to the scattered of environmental data 	<ul style="list-style-type: none"> Establishment of agency in charge of technical transfer and international cooperation in environment Provision of valuable technologies developed in environment Modernization of communication equipment for connection with international organizations Establishment of group responsible for creation of demonstration and generalization in environmental technical transfer 	<ul style="list-style-type: none"> Determined core agency in charge of international cooperation and exchange related to environmental technical transfer Environmental technologies transferred under international cooperation to DPRK 	<ul style="list-style-type: none"> Prepared and approved measures for international cooperation and exchange related to technical transfer Developed national economy plan for international cooperation and exchange Established agency for transferring environmental technologies(e.g., Service Center of Environment Technology Transfer) Established classification system of thematic data and database related to technical transfer Strengthened material and technical foundation capable of rapid data exchange with international organs Continuously developed projects for international exchange and cooperation Sufficiently implemented and monitored projects for international exchanges and cooperation

Priority Issue 3. Strengthening the capacity of integrated watershed management and its demonstration

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Lack of watershed survey, assessment and mapping technology • RS sources • GIS technology • Assessment and prioritization • Lack of knowledge on land use planning • Lack of negotiation skills in participator processes • Lack of technology transfer of sloping land management • Weak enforcement of environment law • Lack of skilled technicians • Lack of public awareness, especially in decision maker level • No institutional arrangement • No specialized legislation • Lack of fund. 	<ul style="list-style-type: none"> • Public awareness raising including decision making land • Training of technicians <ul style="list-style-type: none"> • GIS technology • land use planning • community based forestry • agro - forestry including sylvo pastoral management • conservation farming in sloping land • CDM in land use land change and forestry • Exercise opportunities and demonstrations in selected watershed • Improved policy and legislation in watershed management • Logistic support 	<ul style="list-style-type: none"> • Extended rehabilitation of degraded land ecosystem in integrated and participatory way • Enhanced capacity on sustainable and rational use and management of natural resources • Effective control on pollution in watershed • Improved polity and legislation watershed management • Food security and firewood supply • Disaster mitigation • Contribution to carbon pool and biodiversity • Improved water regime. 	<ul style="list-style-type: none"> • Raised public awareness in watershed management • Trained staff and technicians • Database of watershed management established • Watershed management strategy and action plan in national or a river basin level developed • Technologies of sloping land management and resources use developed • Development of CDM projects • Improved enforcement of environment legislations • Arrangement of watershed management institutions.

Priority Issue 4. Improvement of infrastructure for knowledge and information collection, dissemination and sharing in environmental field			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Weak legislation for collection, dissemination and sharing of environmental information • General weak awareness on necessity and methodology for establishment of environmental information system among high level officers • Not identified institution for the establishment of environmental information system resulting in the lack of information sharing • Data scattered in several institutions • Weak infrastructure for environmental information system in science and research institutions and related stake holders • Lack of periodical acquisition of data and information from research institutions as well as inter national organizations. 	<ul style="list-style-type: none"> • Legislative basis for the collection, dissemination and sharing of environmental information and data. • Training of govern mental officers on the needs for the environmental information system • Development of institutional mechanism for the environmental information flow • Establishment of environmental data bases for each conventional thematic areas (including Biological Diversity, Climate Change and Land Degradation) • Modern equipments for the information and communication fin convention-related institutions 	<ul style="list-style-type: none"> • Improved information exchange followed by the establishment of regular national system for collection, dissemination and sharing that ensures domestic and international data acquisition in timely manner 	<ul style="list-style-type: none"> • Identification of existing information utility • Completion of laws for information sharing • Awareness materials on the necessity and methodology of information sharing for governmental officers prepared • Schemes for the establishment of information sharing system conceptualized • Systematic database on existing information and data built • Information network between related institutions for each convention implementation established.

Priority Issue 5. Training of experts and capacity building of re-education in the field of environment

<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Lack of harmonized reflection of thematic and cross-cutting issues in curriculums of educational institutions • Limited educational resource materials • Limited knowledge of trainees • Limited information on up-to-date environmental knowledge to update the educational materials • Lack of reeducation action plan for environmental staff • Lack of technical and material base for reeducation of on-job environmental staff 	<ul style="list-style-type: none"> • Improved contents and quality of environmental education in tertiary educational institutions • Strengthened technological and material base of environmental education institutions • Establishment of reeducation institution for on-job staff, The trained trainees • Development of operational strategy of the reeducation institution • Development of training plans and curriculums • Development of educational and reference materials 	<ul style="list-style-type: none"> • The competent specialists with environmental expertise are trained • The reeducation institution is established and the skills and expertise of the trainees are improved 	<ul style="list-style-type: none"> • Assessment report on the current curriculums and educational contents of tertiary educational institutions • Measures taken for the capacity building of tertiary environmental institutions • Revised curriculums, educational and reference materials for the improvement of the environmental education • Experimental devices and apparatus necessary for the environmental education in regular educational institutions • Measures taken for the establishment and operation of reeducation institution • Recruited teachers for the environmental education, supplied educational materials and curriculums • Material and technical base of reeducation institution strengthened

Priority Issue 6. Public awareness raising on Rio Conventions			
<i>Current Constraints</i>	<i>Capacity Needs</i>	<i>Expected Outcomes</i>	<i>Proposed Outputs</i>
<ul style="list-style-type: none"> • Institution of integrated public awareness raising on 3 Rio convention related-issues not identified • Weak relationship between organizations for public awareness raising • Integrated plan for public awareness on 3 Rio conventions not developed • Various public awareness materials not existing • Weak physical infrastructure of preparation of public awareness materials 	<ul style="list-style-type: none"> • Identification of main institution responsible for the public awareness on 3 Rio conventions, enhanced relationship between public awareness organizations • Integrated an sustainable planning on public awareness • Preparation of a variety of awareness materials • Strengthening of physical infrastructure of public awareness organizations. 	<ul style="list-style-type: none"> • General mechanism for the public awareness raising has been established in good order • Awareness raising efforts have been improved in quality • Extensive public has been educated or aware of domestic / international environment concerns. 	<ul style="list-style-type: none"> • Institution for integrated awareness raising and its stakeholders investigated • Strategic direction and plan for awareness raising on 3 Rio conventions developed • Responsibility allocation of related organizations on awareness raising completed • Rational schemes for mobilization of NGOs (such as NCUK, General Union for Science and Technology of DPRK) into the variety of awareness raising activities through possible opportunities prepared • Awareness publications considering the different levels of social groups made • Physical and technical equipments for awareness raising organizations provided

PART III

NCSA ACTION PLAN ON CAPACITY BUILDING FOR IMPLEMENTATION OF ENVIRONMENTAL CONVENTIONS

1. National Capacity Development Strategy

The thematic and cross-cutting capacity assessments provided the basis for preparation of an overall strategy for capacity development to facilitate implementation of the climate change, biodiversity and land degradation conventions within DPRK. Priority issues have been analyzed and preliminary proposals to address these issues are presented in the Activity Plans.

The activity plans are summarized on Table 2. They provide the initial framework for discussions with funding agencies on potential projects to implement the DPRK commitments under the climate change, biodiversity and land degradation conventions. Further project planning will be undertaken once the preliminary project concepts are accepted by funding agencies and the government. The proposed initiatives within these plans may be combined and/or further expanded and refined to form individual projects.

The national strategy for capacity development under NCSA is summarized in the form of six goals:

Establish effective institutional frameworks for implementing the Rio Conventions.

better coordination and integration of multi-stakeholder and multi-disciplinary approaches to climate change, biodiversity and land degradation issues, and central focal points and clearing houses for implementing the conventions.

Develop information systems for environmental management.

improvements to the various databases and the information management arrangements and technologies in order to enhance the scientific basis for environmental management.

Develop operational methodologies and tools for implementing the Rio Conventions.

increased use of various planning, assessment, forecasting and decision support methodologies and tools in natural resources management to anticipate and respond to climate change, biodiversity and land degradation issues.

Expand technology transfer and development for environmental management.

increased use of advance technologies, particularly as they relate to pollution prevention/emissions reduction energy efficiency and energy alternatives, and sustainable land management.

Strengthen environmental education and human resources development.

improvements in the professional skills and capabilities of government, educational and research organizations and NGOs to address climate change, biodiversity and land degradation issues.

Increase public awareness of environmental issues.

improvements in public knowledge and understanding of climate change, biodiversity and land degradation issues.

Table 2. Summary of Activity Plans for Capacity Development related to Climate Change, Biodiversity and Land Degradation

No.	Activity Plans from Thematic and Cross-cutting Assessments	Lead Agency	Duration
CROSS CUTTING			
1	Improvement of national institutional framework for the implementation of Rio Conventions	NCCE	
2	Strengthening of international exchange and cooperation for the technical transfer in environmental field	NCCE	5 years
3	Develop operational methodologies and tools for implementing the Rio Conventions	NCCE	5 years
4	Improvement of infrastructure for knowledge and information collection, dissemination and sharing in environmental field	NCCE	
5	Training of experts and capacity building of reeducation in the field of environment	NCCE	
6	Public awareness raising on Rio Conventions	NCCE	
CLIMATE CHANGE			
7	Establishment of the National Center on Climate Change and its capacity Development	SAOS	2 years
8	Institutional capacity development & material and technological foundation strengthening for estimating GHG emission/ removal	SAOS, CBS	2 years
9	Establishment of the Center for Clean Development Mechanism (CDM) and its Capacity Development	NCCE, SAOS	3 years
10	Capacity Development for Modernization of Existing Thermal Power Plants	SAOS	3 years
11	Establishment of Center for Biogas Technology and its capacity development	SAOS, MOA	2 years
12	Capacity building for Hydrogen/Fuel Cell Development	SAOS, Kim Il Sung University, MLMT	5 years
13	Complement of the national strategy and action plans for implementation of the UNFCCC	IEC, SAOS	2 years
14	Establishment of the Clearing House on Climate Change and its Capacity Development	SAOS	3 years
15	Capacity Building for Professional Education on Climate Change	MOE, Kim Il Sung University	2 years
LAND DEGRADATION			
16	Demonstration of integrated, community-based land management and rational, sustainable use of natural resources in rural areas	MLEP, MOA	3 years

17	Strengthening of institutional capacity for the development and implementation of National Action Plan and its regular update in accordance with the UNCCD requirements	MLEP	1~2 years
18	Capacity building for the establishment of integrated database and information sharing in relation to the land degradation.	MLEP, AOAS	3 years
19	Technical transfer and demonstration of advanced sustainable farming methods including eco-farming to prevent degradation of agricultural lands while ensuring the safe and sustained agricultural production to meet the food demands	MOA	5 years
20	Establishment and operation of training/awareness center on land degradation and sustainable land management to promote public awareness and dissemination of advanced technologies.	MLEP, MOA, MFI	5 years
21	Demonstration of solving energy problems and improving livelihood in rural areas through introduction of new energy sources	MLEP, MOA	5 years
22	Capacity-building for establishing early-warning systems and pre-responsive action plan to encounter with flood and drought	MOA	4 years
BIODIVERSITY			
23	Capacity building on national coordination for harmonious CBD implementation in DPRK	SAOS, MLEP	2 years
24	Action Plan. Establishment of Clearing House Mechanism on Biodiversity	NCCE, SAOS	3 years
25	Capacity building for the management of natural Protected Areas and the establishment of infrastructure of natural Protected areas	MLEP, MOA	5 years
26	Capacity building for the rehabilitation and sustainable use of the forest resources	MLEP, MOA	5 years
27	Capacity building on ex-situ conservation for the recovery and rehabilitation of the species, especially endangered animal species	SAOS	5 years
28	Development of capacity on scientific and technical support to CBD implementation and regular national biodiversity workshop	SAOS	3 years
29	Arrangement of national framework on the education and training for the human resources in biodiversity areas	MOE	4 years
30	Capacity building of the Nature Conservation Union of Korea for Improvement of Public Awareness	NCUK	5 years

These goals reflect the major themes associated with the various priorities and detailed action plans. The goals are further elaborated in Table 3 below, which provides a summary of the proposed outcomes, their indicators and the critical assumptions and risks that could affect achievement of the goals.

Table 3. Goals and Outcomes for National Capacity Development

Goals	Proposed Outcomes	Outcome Indicators	Critical Assumptions and Risks
Institutional frameworks	<ul style="list-style-type: none"> Coordinated support for implementing and monitoring conventions Increased action on convention objectives within the sectors Use of integrated approaches to addressing the issues 	<ul style="list-style-type: none"> Effective implementation and reporting on convention objectives Changes in land, water and energy use practices from mainstreaming Programs or projects that integrate convention objectives 	<ul style="list-style-type: none"> Resistance to institutional change related to the objectives is overcome Resource managers are aware of opportunities to integrate the convention objectives into operations
Information systems	<ul style="list-style-type: none"> Essential information available to fulfill convention requirements Standardized natural resource inventory and data management Efficient means of access to and sharing of scientific information 	<ul style="list-style-type: none"> Information is compiled into common databases for more effective use Increased quality and consistency of technical data Extent of dissemination of information between organizations 	<ul style="list-style-type: none"> Agencies and organizations agree on common data collection and storage protocols Data gaps are recognized and filled, where required to address the priority issues
Operational methodologies	<ul style="list-style-type: none"> Increased use of more advanced and effective methods for natural resources and energy management 	<ul style="list-style-type: none"> Resource management plans/strategies that provide increased technical direction and scientific basis Participatory methods in resource management 	<ul style="list-style-type: none"> Improved methodologies are accepted and used in decision making
Technology transfer and development	<ul style="list-style-type: none"> New appropriate and effective technologies are available and used Increased international collaboration in the development and transfer of technologies 	<ul style="list-style-type: none"> Adaptation and use of new or improved technologies with effective environmental results Increased international cooperation projects and exchanges related to such technologies 	<ul style="list-style-type: none"> Pilot testing demonstrates the suitability of technologies Technologies are financially viable Collaboration is consistent with gov't. policy and intl. protocols
Environmental education	<ul style="list-style-type: none"> Increased technical skills acquired by resource managers Increased environmental research, training and other activities within education institutions 	<ul style="list-style-type: none"> Priority issues are being resolved through application of greater technical skills Increase in environmental projects and curriculum in education institutions 	<ul style="list-style-type: none"> Opportunities exist for trainees to apply new technical skills Ability exists to modify educational curriculums
Public awareness	<ul style="list-style-type: none"> Increased availability of public information on environmental issues Increased public understanding of the issues 	<ul style="list-style-type: none"> Extent of public participation in environmental activities Local availability and use of environmental information and media programs 	<ul style="list-style-type: none"> Economic and social factors that affect environmental activism Effective design and delivery of media campaigns

2. Capacity Development Objectives

The following objectives are proposed to guide the implementation of the National Capacity Development Strategy described in the preceding section. These objectives were derived from the thematic and cross-cutting assessment of priority issues.

General Objectives

Capacity development projects and initiatives will be proposed to:

- pursue the Goals outlined in the National Capacity Development Strategy;
- increase the general knowledge within government and the public of DPRK commitments and obligations under the Rio Conventions;
- establish a well defined and effective institutional framework to meet these commitments and obligations;
- overcome weaknesses in the compliance with and enforcement of laws related to implementation of the conventions; and
- enhance the current monitoring capacity and reporting on the state of climate change, biodiversity and land degradation in DPRK.

Climate Change Objectives

Capacity development projects and initiatives will be proposed to:

- enable DPRK to meet the requirements specified under the UNFCCC, including Kyoto Protocol;
- improve the technical, scientific basis for greenhouse gases reduction and carbon sequestration;
- encourage greenhouse gases reduction in conjunction with ongoing economic development and upgrading of industrial infrastructure;
- encourage greenhouse gases sequestration and sinks in land use change and forestry;
- promote energy conservation and renewable energy technologies; and
- support measures for increasing the capacity to anticipate and adapt to climate change.

Biodiversity Objectives

Capacity development projects and initiatives will be proposed to:

- enable DPRK to meet the requirements specified under the UNCBD;
- encourage the compilation of essential inventory information on the distribution and status of plants and animals, particularly rare and endangered species;

- improve mainstreaming of in-situ biodiversity conservation in land and resource management and development practices in DPRK; and
- strengthen the capacity to establish and manage a system of parks and other protected areas that maintain representative elements of national biodiversity.
- enhance the ability to undertake ex-situ conservation of endemic species that are important to the biodiversity heritage of the country;

Land Degradation Objectives

Capacity development projects and initiatives will be proposed to:

- enable DPRK to meet the requirements specified under the UNCCD;
- encourage the compilation of essential inventory information on the status of land cover, soil capability, hydrological conditions and degraded lands;
- facilitate relevant capacity building identified in the National Action Plan for UNCCD;
- support the capacity to undertake watershed, ecosystem-based and participatory approaches to land rehabilitation and management; and
- support the capacity to apply sustainable land management and energy technologies that can address problems of rapid run-off, flooding, soil loss and fertility and forest and grassland regeneration.

3. Institutional Arrangements of the Action Plan

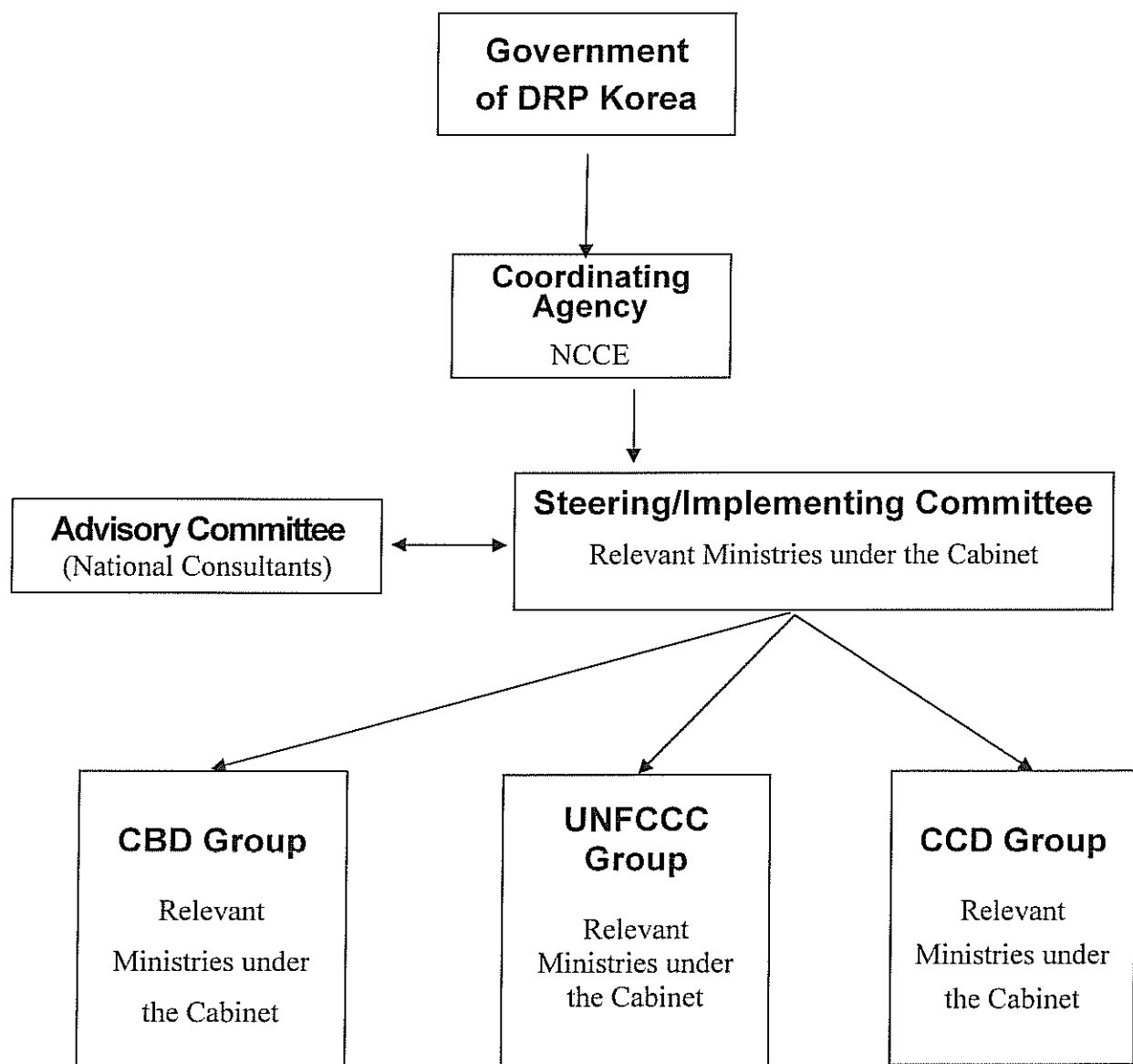


Figure 1. Project Institutional Arrangement

4. Implementation of the Action Plan

The general process to implement the Action Plan will be based on the following approach.

Firstly, DPRK will initiate required institutional and other structural improvements, as recommended in NCSA studies, that will facilitate meeting the convention requirements, and that will signal a commitment toward addressing the priority capacity issues. The proposed changes are documented in the thematic and cross-cutting assessments, and are highlighted in Section 4.1 below.

Secondly, detailed project proposals will be formulated through discussion with NCSA-UNEP/GEF and other multi-lateral and bilateral donor agencies. The discussions will build upon the Activity Plans to produce project concepts suitable for co-financing with international agencies. A project is proposed to develop the information systems and the initial institutional capacity (see Section 4.2 below) and further projects will be developed to address the specific thematic area constraints (see Section 4.3 below). Where national funding allows, capacity development projects may also be initiated solely by DPRK with the aim of fulfilling the Capacity Development Strategy.

Thirdly, capacity development project designs, implementation and reporting will meet international standards for results-based management, consistent with UNEP/GEF and other agencies. Strengthening of project management skills will be given a high priority within the coordination and supports units for implementing the Rio Conventions.

The implementation program is described in the following components and summarized on Table 4.

4.1 Enabling Structure for Rio Conventions Implementation

Part 1 - Organizational Coordination

During the initial stages of the implementation process, the focus will be on establishing the enabling organizational arrangements to undertake the National Capacity Development Strategy. This involves improvements to institutional structure to manage issues and obligations related to the conventions, and raising general awareness of the climate change, biodiversity and land degradation conventions.

The organizational development opportunities are identified in the Cross-cutting Assessment, as follows:

- Establishment of a capable standing advisory body under existing NCCE which can support the activities of Rio Conventions.
- Enhancement of linkage between the NCCE and government agencies and scientific research institutions related to Rio Conventions.

- Determination of responsible offices and their activity in the implementing agencies of Rio Convention and responsibility enhancement
- Promotion of MLEP's role for the implementation of Rio Convention.
- Reinforcement of information facilities at the implementing agencies.

Part 2- Legislation and Policy Review

The inception stage will also involve a review of key legislative and policy constraints affecting the conventions. This review will involve the following:

- Updating and where appropriate, introducing legislation to directly enhance integration of climate change, biodiversity and land degradation concerns into land, water and forest management and into Environmental Impact Assessment processes.
- Identifying and establishing specific regulatory and community-based measures to improve compliance with and enforcement of relevant environmental legislation and policy.
- Development of a national watershed management strategy that provides clear direction for land and forest rehabilitation and management initiatives, and coordinates agencies to address the land degradation problem.
- Improvements to national forest management policy to strengthen the protection and conservation of identified species at risk and other key biodiversity values.
- Consideration of climate change, biodiversity and land management objectives and sustainable natural resources management within national development strategy and planning.

This component of the program will be undertaken directly by the Government of DPRK. Ideally, it should be complemented by the institutional strengthening measures identified in the following component.

4.2 Institutional Strengthening Project for Implementing International Environmental Agreements in DPRK

Strengthening the institutional capacity is a key element throughout the NCSA thematic and cross-cutting assessments. It is proposed to initiate a project, with support from international donors, that will enhance the effectiveness of the enabling institutional structure, described above, to undertake substantive action on climate change, biodiversity and land degradation. This project will principally address the issues and objectives discussed in the institutional-related aspects of the.

The goal of the project is to prepare DPR Korea for full participation in the implementation of the climate change, biodiversity and land degradation conventions.

The following outcomes are proposed for the project:

a) Information Management Systems

- Establishment of an information management system with a meta database that will facilitate access to relevant information needed for implementing climate change, biodiversity and land degradation conventions.
- Establishment of national environmental information network for data collection, exchange, transfer and dissemination related to implementing climate change, biodiversity and land degradation conventions.

b) Institutional Infrastructure

- Responsible agencies equipped with the necessary basic technical resources and communication facilities to participate in the climate change, biodiversity and land degradation conventions.

c) Human Resources Development

- Increased understanding by key technical staff of international approaches and methods in climate change management, biodiversity conservation and land management.
- Increased technical collaboration between DPRK and foreign scientists with regard to climate change, biodiversity and land degradation.

d) Environmental Management Practices and Technologies Awareness Building

- Increased awareness of appropriate and sustainable environmental management practices and technologies within the relevant DPRK programs.
- Development and refinement of selected practices and technologies to address particular problems in the DPRK context.
- Demonstration of selected practices and technologies in association with HRD training.

e) Educational Institutional Support

- Improved training system/curriculum related to climate change, biodiversity and land degradation in selected universities and training institutions.
- Re-education of officials in relevant agencies responsible for climate change, biodiversity conservation and land management.

Part 2 of Table 4 summarizes the components and proposed outcomes and tasks involved with the above project.

4.3 Climate Change, Biodiversity and Land Degradation Capacity Development Projects

Capacity development projects evolving from the thematic assessment will be developed based on the concepts presented in the Activity Plans and in conjunction with discussions with international donors. The priorities for such projects are listed in sequence in Table 1.

Table 4.

NCSA Action Plan Implementation

Components and Proposed Outcomes		Preliminary Work Tasks	Timetable
1. Enabling Structure for Rio Conventions Implementation			
Part 1 - Organizational Coordination			
Establishment of a capable standing advisory body under existing NCCE which can support the activities of Rio Conventions.	<ul style="list-style-type: none"> Development of TOR, operational framework of standing advisory body Financial guarantee for its operation Purchase of required equipments and facilities Training of members of the Standing advisory body 	2006 - 2007 2006 – 2008 2007 - 2010 2007 – 2008	
Enhancement of linkage between the NCCE and government agencies and scientific research institutions related to Rio Conventions.	<ul style="list-style-type: none"> Regular meeting of stakeholders by NCCE to implement Rio Conventions Dissemination of the information publications from international environmental organizations Evaluation and measure - taking on the implementation of Rio Conventions 	2006 - 2006 - 2006 -	
Determination of responsible offices and their activity in the implementing agencies of Rio Convention and responsibility enhancement.	<ul style="list-style-type: none"> Stakeholders consultations for the establishment of the implementing agencies and for the determination of their work tasks In-depth assessment of the ability to implement conventions, Determination of three focal points, organization of working groups and development of terms of references Building up required physical infrastructure Training for capacity building of staffs Regular evaluation and monitoring of their activities 	Mar. – May 2006 Jun. - Dec. 2006 Jan. – Mar. 2007 Jan. – Dec. 2007 Apr. – Dec. 2007 Mar. 2006 – Dec. 2007	

Components and Proposed Outcomes	Preliminary Work Tasks	Timetable
Reinforcement of information facilities at the implementing agencies.	<ul style="list-style-type: none"> Investigation of institutions/agencies related to implementation of conventions Preparation of required facilities list Survey of financial resources 	<p>Jan. – Jun. 2007</p> <p>Jul. – Aug. 2007</p> <p>Sep. – Dec. 2007</p>
Part 2 - Legislation and Policy Review		
Updated or new legislation for Rio convention objectives in land, water and forest management and Environmental Impact Assessment.	<ul style="list-style-type: none"> Training on the international environmental laws relevant to Rio Conventions Research, review and confirmation of gaps of the current environmental relevant laws Development and approval by the government of amendment of legislations 	<p>Jan. 2006-2007</p> <p>2006 – 2008</p> <p>2009-2010</p>
Regulatory and community-based measures to improve compliance with and enforcement of relevant environmental legislation and policy.	<ul style="list-style-type: none"> Raise roles of law compliance committee several levels Raise the standard of law interpreter of agencies and enterprises Write law interpretation material relevant to environment Strengthening of legal control on illegal activities 	<p>Jan. 2006 - 2008</p> <p>Jan. 2006 - 2008</p> <p>Jan. – Dec. 2008</p> <p>2006 – 2010</p>
A national watershed management strategy that provides direction and coordination for land and forest rehabilitation and management	<ul style="list-style-type: none"> Public awareness raising in watershed management Watershed survey, assessment and prioritization Development of watershed management strategy and action plan Mainstreaming into National development strategy and planning 	<p>2005 - 2006</p> <p>2007 - 2009</p> <p>2010</p> <p>2010 -</p>
National forest management policy that provides protection and conservation of identified species at risk and other key biodiversity values.	<ul style="list-style-type: none"> Public awareness raising in sustainable forest management National and local workshops for National Forest Programme (NFP) Development of National Forest Program Mainstreaming into National development strategy and planning 	<p>2005 - 2006</p> <p>2006</p> <p>2007</p> <p>2008</p>
Integration of climate change, biodiversity and land management objectives and sustainable natural resources management within national development strategy and planning.	<ul style="list-style-type: none"> Public awareness raising on environment protection and sustainable development through media and workshop Stakeholder Consultations Training of planning staff of all the levels Concentration of environment-related strategies and action plans into the 	<p>2006 - 2010</p> <p>2006 - 2007</p> <p>2008</p> <p>2009</p>

Components and Proposed Outcomes	Preliminary Work Tasks	Timetable
	<p>planning agencies</p> <ul style="list-style-type: none"> ▪ Incorporation of environment-related SAPs into the State Development Strategies/Plans 	2010
2. Institutional Strengthening Project for Implementing International Environmental Agreements in DPRK		
<p>a) Information Management Systems</p> <ul style="list-style-type: none"> - Establishment of an information management system to facilitate access to information for implementing Rio Conventions. - Establishment of national environmental information network for data collection, exchange, transfer and dissemination. 	<ul style="list-style-type: none"> ▪ undertake an assessment of management information needs and data gaps for Rio conventions implementation ▪ undertake and information management systems design and upgrading evaluation ▪ determine air emissions survey monitoring data system development requirements ▪ determine biodiversity database and monitoring system development and testing ▪ develop a land information system for forest, watershed and agricultural lands ▪ install, test and evaluate the management information system ▪ Establishment of integrated environmental database for the implementation of Rio Conventions ▪ Establishment of National environmental information network for data collection, exchange, transfer and dissemination at the national and international relating agencies. ▪ Standardization and harmonization of the information exchange and sharing in environmental field. ▪ Modernization of IT equipments at the integrated and sectional environmental database ▪ Awareness rising of the decision makers and officers at the related agencies on the establishment of database and information network in the environmental field. ▪ Publication of periodical report on the state of environment through the database and information network. ▪ Mainstreaming of the results and analysis of the integrated environmental 	<p>Proposal submission: early 2006</p> <p>Subject to funding: Implementing period: late 2006 to 2009 (3 yrs)</p>

Components and Proposed Outcomes	Preliminary Work Tasks	Timetable
	<p>information and their measures into the national and sectional sustainable development strategy plan</p> <ul style="list-style-type: none"> ▪ Training of experts for the establishment of integrated database and operation of information network. ▪ Establish the national comprehensive land degradation information center and linkages between existing databases related to land use and management. ▪ Develop compatible indicator and criteria, including biophysical and socio-economic indicators. ▪ Introduce advanced technologies in information gathering, analysis and dissemination ▪ Provide access to, and linkage with, regional, sub-regional data and information bases 	
<p>b) Institutional Infrastructure</p> <ul style="list-style-type: none"> - Responsible agencies equipped with the necessary basic technical resource and communication facilities to participate in the climate change, biodiversity and land degradation conventions. 	<ul style="list-style-type: none"> ▪ Identification of basic infrastructure support needs, in conjunction with Part I of the Action Plan: Enabling Structure ▪ Procurement of technical equipment and communication facilities 	
<p>c) Human Resources Development</p> <ul style="list-style-type: none"> - Increased understanding by key technical staff of international approaches and methods in climate change management, biodiversity conservation and land management. - Increased technical collaboration between DPRK and foreign scientists with regard to climate change, biodiversity and land degradation. 	<ul style="list-style-type: none"> ▪ Identify priority human resource capacity development needs ▪ Develop a training program and exposure tour to address the identified HRD needs ▪ Initiate targeted technical assistance for specific on-the-job training ▪ To train experts through international cooperation and to exchange experience ▪ To understand the national strategy and action plans for sustainable development, and to collect and analyze necessary data ▪ To complement the national strategy and action plans for sustainable development for implementing the Convention 	

Components and Proposed Outcomes	Preliminary Work Tasks	Timetable
<p>d) Environmental Management Practices and Technologies Awareness Building</p> <ul style="list-style-type: none"> - Increased awareness of appropriate and sustainable environmental management practices and technologies within the relevant DPRK programs. - Scoping, development and refinement of selected practices and technologies to address particular problems in the DPRK context. - Some demonstration of selected practices and technologies in association with HRD training. 	<ul style="list-style-type: none"> ▪ Identify specific practices and technologies that affect implementation of the conventions and case study situations in DPRK that could provide a focus for introduction of such practices and technologies ▪ Develop a program for assessing the viability of the selected practices and technologies within a DPRK context ▪ Further development of proposals for specific Capacity Development projects under Part 3 ▪ technologies appropriate for integrated land, water, forests and biodiversity ▪ technologies appropriate for rural energy and energy efficiency ▪ potential for demonstration of low cost technologies in association with training 	
<p>e) Educational Institutional Support</p> <ul style="list-style-type: none"> - Improved training system/curriculum related to climate change, biodiversity and land degradation in selected universities and training institutions. - Re-education of officials in relevant agencies responsible for climate change, biodiversity conservation and land management. 	<ul style="list-style-type: none"> ▪ Identify particular training deficiencies at key institutions related to improving applied skills in climate change, biodiversity conservation and land conservation ▪ Develop training materials and curriculum designs to address these needs ▪ Undertake selected testing and refinement of teaching aids and training materials ▪ Renewal of teaching materials, integrating the requirements of Rio Conventions into its contents. ▪ Training for the teachers in the field of environment. ▪ Organization and operation of short-term national environmental training course for the training of officials. ▪ Development of operation programme of training center and its implementation, preparation of material base. ▪ Training of talent for reeducation. ▪ Training of officials and expert in educational institutions at abroad. ▪ Add issues related to climate change into education curriculum and develop new subjects. 	

Components and Proposed Outcomes	Preliminary Work Tasks	Timetable
	<ul style="list-style-type: none"> ▪ Select subjects and write teaching materials and references for analytic consideration and understanding on cause of global warming, adverse effect of climate change and adaptation to and mitigation of climate change, ▪ Increase time for execution of curriculum on environment protection subjects and to add contents for professional education in general universities (natural sciences and social sciences), ▪ Organize special lecture on climate change for students and postgraduates at universities by able experts of scientific research field. ▪ Build capacity of educational workers. ▪ Strengthen exchange with other countries for training educational workers continuously, ▪ Build capacity of training schools for training and re-education, and foreign language education in order to let educational workers have comprehensive knowledge related to climate change, ▪ Distribute experienced experts into organs of education. 	
3. Further Consultation on Climate Change, Biodiversity and Land Degradation Capacity Development Projects Further projects to be developed in consultation with international agencies based on Annex 1.	<ul style="list-style-type: none"> ▪ Review of funding sources for priority capacity development needs ▪ Discussions with potential funding agencies 	Ongoing

5. Monitoring and Evaluating the NCSA Action Plan

The following framework will be used for regular monitoring of progress and results from implementation of the Action Plan.

Monitoring Data	Data Collection Process	Timing and Responsibilities
1. Information Systems		
<ul style="list-style-type: none"> • Identification of key data gaps needed to address convention requirements • Available inventory data compiled and mapped • Consolidation of environmental data into common databases • Efficient access to available technical data through modern information technology 	<ul style="list-style-type: none"> • Identify studies completed to assess data status and data gaps and information system development requirements • Determine the effectiveness of the new information system through discussions with users • Review any post-project evaluations of the information systems that were installed 	<ul style="list-style-type: none"> • Six-month progress reports • Annual reviews <p>Duties: NCCE</p>

Key Questions:

- Have the relevant inventory and assessment databases been effectively reviewed and updated?
- Has a new information system been designed in collaboration with resource information users?
- Is the new system installed and operating as planned; are the information system users satisfied?

2. Institutional Framework

<ul style="list-style-type: none"> • Coordinating mechanisms functioning with regular meetings and joint activities between departments • Laws updated to address issues related to Convention implementation • Policies updated to address issues related to Convention implementation • Tasks associated with implementation of the Enabling Structure have been effectively completed as planned 	<ul style="list-style-type: none"> • Review changes in government organizations and committees to see if they conform with the Enabling Structure plan • Identify legal changes and policy changes that occurred as a result of the NCSA program • Consult with government staff on the effectiveness of the organizational changes • Consult with government officials to determine changes in awareness 	<ul style="list-style-type: none"> • Six-month progress reports • Annual reviews <p>Duties: NCCE</p>
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Key Questions:

- Are the government organizations operating in a more integrated manner to address climate change, biodiversity and land degradation issues?
- Are updated laws and policies resulting in more effective achievement of the objectives within the conventions?

3. Operational Methodologies

- Use of new or improved methods for assessing climate change, biodiversity and land degradation
 - Use of more integrated land use and watershed planning processes and methods
 - Use of participatory methods in natural resource management related to the conventions
 - Review files and consult with implementing agencies to identify new approaches or methods that were introduced
 - Interview participants on the effectiveness and results of the new approaches or methods
 - Six-month progress reports
 - Annual reviews
- Duties:
Advisory committee

Key Questions:

- Are scientific methods being used to assess resource management and climate change issues related to the conventions?
- Are there more comprehensive, cross-cutting approaches to natural resources management?
- Are the affected stakeholders and beneficiaries directly involved in planning and decision making?

4. Technology Transfer and Development

- New technologies to address DPRK issues have been identified
 - Selected technologies have been adopted and installed
 - Other potential technologies have been identified and assessed in terms of suitability
 - Review files and consult with implementing agencies to identify new technologies that were identified
 - Visit locations of installed technology demonstrations and determine effectiveness
 - Document collaborations between national and foreign experts associated with technology transfer and development
 - Six-month progress reports
 - Annual reviews
- Duties:
NCCE

Key Questions:

- What new technologies have been identified and adopted to improve implementation of the conventions?
- Are the adopted and implemented technologies operating effectively?
- Are the proposed technologies sufficiently assessed in terms of suitability to the DPRK context?
- Has increased international collaboration occurred in association with the technology transfer and development?

5. Environmental Education

- Training skills and technical assistance is being used in subsequent job functions
 - New curriculums and training material are adopted and being used
 - Participants views of the effectiveness of the training and technical assistance
 - Undertake representative sampling of training activities
 - Document new training materials produced by the project
 - Interview participants on the effectiveness and results of the educational support activities
 - Six-month progress reports
 - Annual reviews
- Duties:
NCCE

Key Questions:

- Have the environmental education activities made a difference in terms of environmental and resource management practices?
- Is the new content of training programs considered effective by the trainers and trainees?

6. Public Awareness

- | | | |
|--|--|---|
| <ul style="list-style-type: none">• Increased public information on environmental issues• Public response to increased information in terms of participation rates• Changes in local government and public attitudes toward climate change, biodiversity and land degradation issues | <ul style="list-style-type: none">• Review files and document public information and discussion created by the project and the form of dissemination• Consult with representative targeted audiences to assess the effectiveness of the information and responses to the public discussions | <ul style="list-style-type: none">• Six-month progress reports• Annual reviews <p>Duties:
NCCE</p> |
|--|--|---|

Key Questions:

- Is the public information effectively disseminated to target groups?
- Has the information had an observable effect attitudes or actions toward the environmental issues?

Evaluations of the NCSA Action Plan implementation will be undertaken to determine the overall results and operational effectiveness of the plan. They will include reviewers independent of the program.

The following evaluations are proposed:

- One year after commencement of the Plan; January 2007
- Mid term of the Plan; January 2009
- Completion of the Plan; December 2011

6. Communication Strategy

Information on the Action Plan should be disseminated through the following means:

- Presentations to government committees and affected departments following approval of the Plan.
- Preparation and distribution of an NCSA Action Plan brochure that summarizes the Plan; to be printed immediately following approval of the plan.
- Distribution of six-monthly progress reports to government departments and key stakeholders.
- Presentations on NCSA Action Plan to interested organizations, when opportunities arise.
- Dissemination of information for potential users of new information management systems and databases that are produced by the NCSA program.
- Publication of 'success stories' and related results of projects that would benefit from wide dissemination to increase the impact of the project investments.

APPENDIX 1. NCSA Inventory of Capacity Building Needs in DPR Korea

Climate Change	Biodiversity	Land Degradation	Cross-cutting Issues
<p>1) To establish a standing National Climate Change Committee/National Center for implementing UNFCCC and Kyoto Protocol, and to strengthen its sustainable enabling environment</p> <p>2) To establish a Scientific and Technological Subsidiary Body to control activities related to climate change mitigation and to strengthen its capacity in institutional level (including improvement of management, and administrative structure) (*According to Article 4, paragraph 5 to UNFCCC)</p> <p>3) To arrange the institutional framework for preparing a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and to strengthen its role (For implementation of Article 4, 12 to UNFCCC and Kyoto Protocol)</p> <p>4) To improve management and administrative structure of stakeholders and to close linkages among them</p> <p>5) To establish a national and regional CHM for sharing and exchanging information</p>	<p>1) Recovery of the destroyed forest ecosystem and rehabilitation of main habitats important in terms of ecology, in-situ conservation of species.</p> <p>2) Realization of integrated and rational management of watershed through the development and introduction of eco-forestry and eco-agriculture.</p> <p>3) Identification and monitoring of biodiversity components important for its conservation and sustainable use.</p> <p>4) National economy planning of the conservation and sustainable use of biodiversity and its integration into the whole socio-economic development.</p> <p>5) Ex-situ conservation of threatened species, especially animal species.</p> <p>6) Measures for the conservation</p>	<p>General issues</p> <p>1) Lack of nationwide proper assessment and monitoring system on land degradation, especially on forestland degradation.</p> <p>2) The national strategy and action plan for combating land degradation is not developed</p> <p>3) The poor capacity in climatic, hydrological observation, forecasting, early warning and advance planning</p> <p>4) Lack of integrated database (including soil maps) for land management and weakness in information gathering and dissemination</p> <p>5) The requirements of the convention are to be reflected in the existing legislations and the land use sectors are not provided with proper and sustainable land management regulations and guidelines.</p> <p>6) Lack of value estimation of effective land management and</p>	<p>1) Regular renewal of national development system for preparation of an inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases.</p> <p>2) Mainstreaming of the projects mentioned at NSAP into the national development strategy and planning.</p> <p>3) Integrated management of Taedong River and Chongchon River</p> <p>4) Priority setting in research subject and joint research for the implementation of Rio Conventions.</p> <p>5) Research on correspondence to the environmental change in Industry agriculture and forestry in future.</p> <p>6) Monitoring network for observing biodiversity component and land status.</p> <p>7) Development, amendment</p>

Climate Change	Biodiversity	Land Degradation	Cross-cutting Issues
<p>related to climate change and for networking, and to strengthen its role</p> <p>6) According to Article 12 of Kyoto Protocol, to establish national framework for controlling and promoting activities for acceptance, revision and implementation of CDM projects, and to strengthen international exchanges and cooperation activities</p> <p>7) To study systematically monitoring data and impacts of emissions by sources and removals by sinks of greenhouse gas, to construct database, and to strengthen international cooperation (*According to Article 4, paragraph 1(g), Article5 to UNFCCC)</p> <p>8) To prepare plans for education, public awareness and participation on the climate change mitigation, to establish a National Center for Propaganda on Climate Change Impact, to promote exchange of propaganda materials and information and to strengthen role of mass media (*Article4, paragraph1(i), UNFCCC), and to establish a National Training Center on Climate Change and to promote international training, exchanges and acceptance of international supports</p>	<p>and management, sustainable use of marine biodiversity including seas and coasts, fresh waters, construction of resource management fishery.</p> <p>7) Continuous development and introduction of socio-economic incentives for the conservation and sustainable use of biodiversity.</p> <p>8) Regional and international supports and exchanges including the training, technology transfer and planning in the purpose of conservation and sustainable use of biodiversity.</p> <p>9) Measures for provision of national and local funds for the conservation and management of biodiversity, satisfying ensuring of the investment.</p> <p>10) Improvement of management system and practice in the protected areas, equipments for the conservation and management.</p>	<p>economic incentives</p> <p>7) Limited institutional capacities in land and water use sectors and weakness to coordinate them</p> <p>Forest land</p> <p>8) Lack of criteria and indicators for sustainable forest management and certification system for forest management unit</p> <p>9) Weakness in establishment and effective management of protected areas</p> <p>10) Low efficiency of reforestation activities and failure of rehabilitation of degraded ecosystems due to the lack of introduction of natural regeneration techniques</p> <p>11) Weak capacity to deal with the forest pests and lack of introduction of integrated pest management (IPM) technologies.</p> <p>12) Lack of introduction and dissemination of advanced approaches to integrated watershed and water resources management, and no experimental practices available</p>	<p>and supplement of the relating laws for the further promotion of implementation of CBD, UNFCCC and CCD.</p> <p>8) Frequent improvement of law enforcement in keeping with the needs of current development.</p> <p>9) Improvement of educational materials on environment which reflect biodiversity, climate change and land degradation and its integration into curricular.</p> <p>10) Active involvement of social education network into public awareness activity.</p> <p>11) Strengthening the activity of NCUK based on the integrated social education principles.</p> <p>12) International cooperation and exchange for the implementation of Rio Conventions in training, technical transfer and</p>

Climate Change	Biodiversity	Land Degradation	Cross-cutting Issues
<p>(According to Article 4, paragraph 1(i), Article 6)</p> <p>9) To promote participation of public organizations in the activities for preventing climate change and to strengthen linkages among key stakeholders in areas of biodiversity, climate change and land degradation (strengthening linkage with Korean Nature Protection Union) (According to Article 4, paragraph 1(i), Article 6)</p> <p>10) To develop and introduce technologies and processes for controlling/reducing anthropogenic emissions of greenhouse gases and to promote technology transfer from developed countries (including introductions of clean combustion technology in boiler, cogeneration system and renewable energy technologies in rural areas) (* According to Article 4, paragraph 1(c) to UNFCCC)</p> <p>11) To establish measures for strengthening sustainable management for reinforcing and protecting sinks and reservoirs of greenhouse gases and for solving energy lack in the rural areas</p> <p>12) To review and concretize long-term energy-environment plan for mitigation of</p>	<p>11) Strengthening the scientific research work on the biodiversity.</p> <p>12) Fostering the conservation and increase of Koryo medicine resources, ensuring its sustainable use</p> <p>13) Developing and realization of biodiversity management plan in each protected areas.</p> <p>14) Measures to prevent negative impacts of the alien species.</p> <p>15) Legislation for integrated biodiversity management and establishment of organizations responsible for.</p> <p>16) Improvement and completion of the training system of biodiversity specialists and strengthening of popular propaganda.</p> <p>17) Measures for ensuring effective education on biodiversity in all types of educational stages, especially in the stage of 11 years compulsory education.</p> <p>18) Measures for regulating the</p>	<p>13) Lack of classification, assessment and regular observation of forest land</p> <p>14) Inadequate establishment of firewood forest to solve energy issues in rural areas, and lack of strategy development and demonstration of community based forest management</p> <p>15) Lack of introduction of advanced, environmentally sound technologies for the processes from logging, transportation to natural regeneration of logged areas in timber production forests.</p> <p>Agricultural land</p> <p>16) Weakness in development, technical transfer and dissemination of organic farming methods to ensure sustainable crop production without undermining the productivity of agricultural lands</p> <p>17) Weakness in introduction of eco-farming technologies including establishment of windbreak plantations.</p> <p>18) Weak capacity to survey, assess</p>	<p>planning.</p> <p>13) Training base for experts and reeducation of officials in the field of environment.</p> <p>14) Improvement of institutional frameworks of environmental impact assessment.</p> <p>15) Identification of criteria, indicator and method for EIA.</p> <p>16) Monitoring system and legal enforcement on EIA.</p> <p>17) National environmental information system for data collection, storage, analysis, information sharing and its expansion throughout the country.</p> <p>18) Cooperation on science and technology related to the implementation of Rio Convention through international organizations including UNDP, UNEP, FAO and NGOs.</p> <p>19) Information exchange, global and regional</p>

Climate Change	Biodiversity	Land Degradation	Cross-cutting Issues
<p>greenhouse gas emission and to develop practical and economical planning methodologies coincided with long-term activity strategy (* According to Article 4, paragraph 1(f) to UNFCCC)</p> <p>13) To reinforce system where the processes to exceed national maximum permissible limits of emission of greenhouse gases will be paid the penalty and to establish regional, sectoral Technology Service Facilities for reducing emission of greenhouse gases</p> <p>14) To strengthen the development, introduction and transfer of technologies on effective equipment for production and use of energy for household</p> <p>15) To increase national investments for reducing energy loss in network of power transmission and distribution</p> <p>16) To develop special methodologies for performing energy trade to national actual conditions</p> <p>17) To build pilot unit for the activity to mitigate and remove emissions of greenhouse gases, and to generalize the experience throughout whole country</p> <p>18) To build pilot unit for integrated use of biomass energy, and to organize national/</p>	<p>access to and fair benefit sharing resulted from the genetic resources.</p> <p>19) Development of eco tourism and its resources.</p> <p>20) Greening of city.</p>	<p>and identify proper management options for water-logged areas</p> <p>19) Lack of technologies to assess the status of sloping land use, identify and introduce best practices of protective farming</p> <p>20) Lack of sustainable silvo-pasture technologies to prevent degradation of forest pasture lands</p> <p>Scientific research</p> <p>21) There is no study on the classification of national soil types and the GIS- based database is not yet developed</p> <p>22) The method of participatory rapid appraisal on land use is not introduced</p> <p>23) Weak studies on improving fuel combustion efficiency for household's cooking and heating</p> <p>24) Lack of institutional capacity for the research area of forest land and soils.</p> <p>25) Weak institutional capacity for the study on assessing soil pollution and its prevention options</p> <p>Education and Awareness</p> <p>26) The contents related to the</p>	<p>consultation through internet.</p> <p>20) Measure for sustainable and effective financial support to the protection and management of environment.</p> <p>21) Rehabilitation of damaged and degraded forest ecosystem.</p> <p>22) Simultaneous implementation of afforestation and management of forest resource and introduction of renewable energy in local area.</p> <p>23) Wetland management in Korean West Sea area.</p> <p>24) Early warning system for the preventing of disasters (tsunami, forest fire, flood, draught)</p> <p>25) Development of technology for organic farming, eco-farming and their application.</p> <p>26) Rational institution for the</p>

Climate Change	Biodiversity	Land Degradation	Cross-cutting Issues
<p>local workshop on biomass energy technology so as to generalize pilot unit</p> <p>19) To make re-investigation into local wind energy resource, and to prepare scientific and technological guarantee for usability and outlook of wind energy</p> <p>20) To increase the national investment to encourage activities for development and utilization of solar energy</p> <p>21) To modernize coal analysis equipment in the coal mines and improve analysis method and skill</p> <p>22) To strengthen cooperation between plants in energy production and use, and to establish of multiple-stage use system of energy in industrial zones</p> <p>23) To establish systemic and institutional framework for integral management of energy-economy-environment</p> <p>24) To enhance activities to readjust and reinforce equipment and renew technical management in the mini-hydroelectric power plants</p> <p>25) To promote public awareness on the dispersed power system and to enhance activities for international exchange and cooperation concerned</p> <p>26) To enhance activity to disseminate the</p>		<p>convention and sustainable land management are not incorporated in the curriculum of medium and high school (e.g. universities) education.</p> <p>27) Low understanding and knowledge on sustainable land management and early warning system among all relevant stakeholders</p> <p>28) Lack of training measures for rapid technical transfer of sustainable land management technologies</p> <p>29) The public awareness on land degradation and sustainable land management is low and the awareness materials are not sufficient</p> <p>Others</p> <p>30) Weak environmental impact assessment(EIA) system for the land use related development activities including industry and infrastructure development and less consideration of land use issues</p> <p>31) Weakness in development and</p>	<p>implementation of Rio Conventions.</p> <p>27) Prevention of soil pollution.</p> <p>28) Enough information needed for policy, making for implementation of Rio Conventions.</p>

Climate Change	Biodiversity	Land Degradation	Cross-cutting Issues
<p>scientific and technical knowledge for promoting agricultural production by a organic fertilizer</p> <p>27) To build up research capacity for scientific conservation of forest ecosystem in order to cope with Global Warming</p> <p>28) To amend measures to practically overcome the damage of flood and drought, and to improve activities concerned</p> <p>29) To enhance the technical supports for scientific river arrangement and land arrangement according to national physical geographical and climatologic circumstances in science and education sectors</p> <p>30) To enhance capability of the planners to keep balance in reforestation and deforestation</p> <p>31) To take more powerful control measures against the wood cutting.</p> <p>32) To improve the activities for monitoring, prevention of forest fire, rehabilitation and make them into general public movement.</p> <p>33) To control the activity to convert forest areas into arable</p> <p>34) To build up research capability for scientific management of the coastal area by considering the rise of seawater level</p>		<p>technical transfer of new energy sources including solar and wind energy</p> <p>32) Lack of proper fund raising mechanism for combating land degradation and ensuring sustainable land management</p> <p>International cooperation</p> <p>33) Lack of bilateral joint projects on soil and water management in stream areas sharing the borders with neighboring countries</p> <p>34) Lack of the plan to participate in sub-regional programs on combating desertification</p> <p>35) Lack of linkages with regional programs, especially TPNs for Asia as well as weak capacity to participate in them</p>	

