GOVERNMENT OF MONGOLIA

MINISTRY OF ENVIRONMENT,
GREEN DEVELOPMENT AND TOURISM

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National Biodiversity Program (2015-2025)

MINISTRY OF ENVIRONMENT,
GREEN DEVELOPMENT AND TOURISM

National Biodiversity Program

2015-2025

This English version of the National Biodiversity Program includes not only the Program itself, but also the results of the assessment on current state of strategies, goals, objectives and outputs. The Program has been approved by the Resolution No.325 of the Government of Mongolia on August 4, 2015.

Unofficial translation

National Biodiversity Program (2015-2025)

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Abbreviations

UNEP	United Nations Environment Program
UN	United Nations
PA	Protected Area
WWF	World Wide Fund for Nature
MEGD	Ministry of Environment and Green Development
MEGDT	Ministry of Environment, Green Development and Tourism
MNET	Ministry of Nature, Environment and Tourism
MES	Ministry of Education and Science
UNDP	United Nations Development Program
GDP	Gross Domestic Product

Foreword

Biodiversity has become a fundamental concept in the development of policies for sustainable social and economic development. With the State Great Khural ratifying the Convention on Biological Diversity in 1993, Mongolia became the 30th nation to officially join this international agreement.

The Mongolian Government first passed the “National Strategic Action Plan for the Protection of Biodiversity” in 1996. The action plan comprises from 21 goals and 87 actions covering the research, protection, and sustainable use of biodiversity, together with goals for sector and cross-sectoral policy and regulation improvement. Two assessments have been made in the past concerning program implementation, with a study in 2010 concluding that 96% of the goals had been implemented, indicating that full implementation had been achieved (Batbold, Laurie 2002, Adiya et al., 2010).

With the adoption of the “Aichi Biodiversity Targets” at the 12th Meeting of the Conference of the Parties to the Convention on Biological Diversity, a recommendation to the parties was made concerning updating national strategic action plans to reflect the goals agreed upon during the conference.

The massive changes to Mongolia’s society, economy, and environment, together with the implementation progress of the previous action plan has necessitated the update of the National Biodiversity Strategy and Action Plan to reflect better the Aichi Biodiversity Targets as well as coordinate the plan with national environmental policies. Therefore, from 2012-2015, we have developed the second National Biodiversity Program, passed by the Mongolian Government on June 29, 2015 (Government Resolution No.325, August 04, 2015).

The newly developed National Biodiversity Program is a mid-term policy document outlining prompt implementation of state policy at the national and sectoral level, goals and targets to solve critical issues, budgetary concerns and funding sources, and various other implementation details. The full implementation of this national strategic action plan by all parties will enable continuity and cohesion, and promote stability between sectoral and cross-sectoral policy documents.

I extend my personal gratitude to the WWF Mongolia Program Office, who spearheaded the development of this program, as well as the many researchers, scientists, specialists, and other organizations who contributed to the working groups by supplying their valuable knowledge and expertise.

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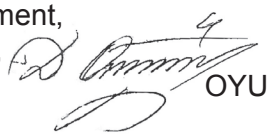

OYUNKHOROL D.

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ONE. GENERAL INTRODUCTION

Biodiversity, or biological diversity, is the variability among living organisms from all sources including but not limited to terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, this includes diversity within species, between species and of ecosystems.

World biological resources are of immense importance to humanity's economic and social development, and awareness of the importance and value of healthy biodiversity is increasing among the world's population. Despite this, due to the increased pressure from anthropogenic activities, the number and range of flora, fauna, and ecosystems have been steadily decreasing over the past two centuries, while human consumption has increased to the point that it uses 1.5 times more biological resources than the Earth can bear. These factors, combined with world population growth and the unequal distribution and unsustainable use of resources that is indicative of differing levels of development among the world's nations, have led to the reduction of the population of vertebrate species alone by 52% during the period of 1970 to 2010.

The United Nations Environment Programme created a working group that was tasked with forming the Convention on Biological Diversity, opening for signature at the United Nations Summit Conference on Environment and Development (The Rio "Earth Summit") in 1992. It officially entered into force with Mongolia becoming the 30th Contracting Party to the Convention.

The Convention on Biological Diversity is the first multilateral treaty to address all aspects of biological diversity, including genetic resources and diversity, having the main objectives of the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. With over 190 parties to the Convention, it is the largest such environmental treaty to have entered into force by both scope and subject matter.

By becoming a Party to the convention, Mongolia accepted the responsibility of developing national strategies, plans and programs for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programs which are to reflect, among others, the measures set out in this Convention relevant to the Contracting Party concerned; and integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programs and policies.

At the 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity held in Nagoya, Japan in 2010, a "Strategic Plan for Biodiversity 2011-2020" was adopted, with the aim of developing a flexible, base strategic plan reflecting the targets (The Aichi Biodiversity targets) set forward by this strategic plan. This plan stresses the importance of integrating the national development policy on conservation of biodiversity together with policies on poverty reduction into relevant sectoral or cross-sectoral plans, and embeds issues of biological diversity into the national accounting system.

TWO. CURRENT STATE OF BIODIVERSITY IN MONGOLIA

Located between Russian Federation and the People's Republic of China, in the heart of Central Asia, Mongolia spans across the Siberian taiga, Euroasian steppes and the Gobi and deserts of Central Asia, in the watershed of the Arctic, Pacific, and Central Asian Internal Drainage basins. With its unique geography, ancient traditions of nomadic livestock herding, culture and customs, and sparse population, Mongolia is an important focal point in Eurasia for both sustainable and parallel existence of human and nature and the conservation of degraded ecosystems and endangered animal and plant species.

Mongolia contains 16 ecosystem types within its borders, which have been consolidated into four ecoregions, namely the Daurian steppe (28.2% of total area), Khangai (16.4% of total area), Central Asian Gobi Desert (16.4% of total area), and the Altai-Sayan (23.1% of total area), in order to increase integration between national conservation and development policies and plans.

Mongolia is divided into 16 phytogeographical regions based on geographical characteristics. The flora itself contains representatives of endemic to Mongolia plant species, Siberian, Daurian, Manchurian, Central Asian and Altai Mountain ranges flora species, contributing to a unique vegetation dictibution and population. At present Mongolia has 3127 species or subspecies of vascular plants over 39 orders, 112 families, and 683 genera (Urgamal and etc, 2014), approximately 1400 species of algae over 105 families and 288 genera, approximately 510 species of moss, 7 species of lycophyta over 10 families and 15 genera; 9 species 556 species of seed plant over 1 order and 1 family, and 22 species of gymnosperm over 4 orders and 6 families. According to the IUCN's Red List criteria, of the 148 species of plant are considered endangered in Mongolia, 74% were assessed regionally threatened, of which 11% were critically endangered, 26% were endangered, 37% were vulnerable, 1% was not applicable for assessment, and 3% were categorized as data deficient.

Mongolia's fauna consists of 138 species of mammal, 75 species of fish, 22 species of reptile, 6 species of amphibian, 476 species of bird, over 13 thousand species of insect and 516 species of mollusk. Total of 110 species of fauna and 192 species of flora were deemed to be endangered and entered into the Mongolian Red Book (updated version of 2013) as either critically endangered or endangered.

As the end of 2013, land use types of Mongolia were seen as the following: 115,361.3 thous. ha or 73.76% of the total area was under use of agricultural production including pastural land use and crop production, 699.5 thous. ha or 0.45% of the area comprised of settled areas such as city, town or any other urban area, 437.8 thous.ha or 0.28% land was allocated for road and other linear construction, 14,295.4 thous.ha or 9.14% of land was under forested or forest fund area, 686.6 thous.ha area was water bodies and 24,931.1 thous.ha or 15.94% of land area was allocated for special needs (National Statistical Yearbook, 2013). According to the statistical information of 2013, out of 24,636.8 ha of degraded land due to mining activities,

10,263.1 ha or 41.65% of land was undergone for technical restoration and 6,781.5 ha or 27.5% of land was biologically restored. As of 2014, 2,736 mining licenses of two different purposes were issued for an area of approximately 11 mln.ha which is about 7% of the total country territory. Of which 1,391 licenses are for exploitation purposes in 1,079.9 thous.ha area and 1,345 licenses are for exploration in an area of 9.9 mln.ha. area.

Mongolia's protected areas have been steadily increasing over the years, with 27.2 million hectares comprising from 99 protected areas, or 17.4% of the total area under protection as of 2014 (MEGDT, 2015). Of these, 20 were Strictly protected areas (12,402,429 hectares), 32 were National parks (11,711,815 hectares), 34 were Natural reserves (2,958,142 hectares), and 13 were National monuments (126,848 hectares).

As of 2014, total area of nationally protected areas has been increased by 5,306,452 ha or 19.5% compared to 2008.

According to the national water survey of 2011, 6,646 rivers, of which 6,095 with permanent flow and 551 dry, 3,613 lakes, of which 3,130 with permanent water and 483 dry, and 10,557 springs, of which 8,970 with permanent water and 1,587 dry were counted. Due to a drought period lasting until 2011, various lakes incuding Goviin Orog, Taatsiin Tsagaan, Adgiin Tsagaan, Khaya, and Ulaan, together with various rivers and the Ulaan Tsutgalan waterfall, ran dry. With higher precipitation starting from 2012, Taatsiin Tsagaan, Adgiin Tsagaan, Ulaan and Orog lakes became watered again, and water levels steadily rose. Despite an increase in surface

water levels, groundwater levels continue to decrease. From the other hand, the use of water resources, especially groundwater use is steadily increasing due to intensification of mining activities. (MEGDT, 2015).

As of 2014, Mongolia's forest fund totals 18,658 thous.ha which comprises of 11.92% of the total area of the country. Of which 12,519 thous.ha being forest covered areas and of which forest quality was estimated to be 8.0%. In accordance with its ecological and economical importance the forest of Mongolia is classified into two different zones, namely conservation and exploitation zones.

Conservation zone forest compise of alpine forest, forests of national protected areas, green zones of urban areas, forests of prohibited for use areas, saxaul forests, forests of oasis, small sized forests of an area of less that 100 ha, and forest of mountain slopes of less than 30 degrees, which all together contains 82.8% of all forest fund or 15,4004,675 ha forest. Exploitation zone forest is regarded as all the remaining areas of the forest fund and it is 17.2% land of the forest fund or 3,187,735 ha area (MEGDT, 2015).

Of the non-forested areas of forest fund, 3,476.7 thous.ha were open or sparcely populated forest, 1,196.8 thous.ha were burned forest, 124.1 thous.ha were logged areas, 95.7 thous.ha were forest land affected by harmful forest insects , 230.5 thous.ha were naturally regrowing and reforested areas, and 0.9 thous.ha were forests damaged by natural disasters. Of the total forest fund, 75.4% are coniferous and deciduous forest, while 24.5% are saxaul forest. As of 2010, 29% of total forest fund have been included into the national protected area network.

To the Mongols, the term "Environmental protection" has the connotation of being governed by and to live in harmony with nature, respecting the soil and earth as one does their own mother, having compassion towards both the earth and its creatures, and to behave ethically when using ecological resources. Although biodiversity and conservation have been regarded to be vitally important since ancient times due to traditional and religious beliefs, the transition to a market economy, an economic policy founded on mineral resources, and lastly rampant globalization have made the sustainable use and conservation of natural resources an important social and political issue.

The Constitution of Mongolia, written after the transition to a democracy and a market economy, enshrines the right of every citizen to live in a healthy and safe environment, with the nation's land and natural resources to be under the authority of the people, and under state protection. In order to fulfill its global commitments in protecting national biodiversity and ecological resources, Mongolia has developed and implemented "Mongolia Biodiversity Action Plan" (MBAP) since 1996. Evaluations on the implementation of the MBAP were made in 2002 and 2010, of the 21 main targets and 87 actions outlined, 96% of the total actions were deemed to be achieved (Batbold et al., 2002, Adiya et al., 2010).

Taking into account drastic changes that have occurred in Mongolia's society, economy, and environment over the past 20 years, and the degree of implementation of the first MBAP, it was therefore necessary to update and newly develop a National Biodiversity Program that fulfills Convention on Biological Diversity requirements and ties into national and sectoral environmental policies.

THREE. METHODOLOGY

In developing a new National Biodiversity Program, we focused on integration with national and sectoral environmental policies, eliminating barriers to and loopholes on the conservation and sustainable use of biodiversity, and used various local and international research on biodiversity and environmental conservation, taking into account new knowledge and attitudes.

In order to fulfill international obligations in the implementation of the Aichi Biodiversity Targets, we also focused on integrating Mongolia's environmental, social, and economic specificities and requirements with Mongolia's contribution to the targets, as well as the creation of baselines and indicators to evaluate the results of our implementation in line with global targets.

We have used the Open Standards for the Practice of Conservation developed by the Conservation Measures Partnership to identify the main threats and threatening factors to biological diversity, develop implementation details and relationships between threats and actions, and conduct evaluations. Individual goals toward achieving objectives, threats and threatening factors to biodiversity, outputs and their interrelations have been outlined in Appendix 1.

The task of establishing and developing goals, objectives and outputs was completed with input from multiple discussion groups, one-to-one sessions, and web conferences with environmentalists and relevant ministry representatives, and revised with the cooperation of a team of legal, policy, and governance professionals.

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FOUR. NATIONAL BIODIVERSITY PROGRAM STRATEGIES, GOALS, OBJECTIVES AND OUTPUTS

Mongolia's National Biodiversity Program has the vision of guaranteeing all citizens' "right to a healthy and safe environment and to be protected against environmental pollution and ecological imbalance" as defined by the Constitution of Mongolia.

The newly created National Biodiversity Program includes 14 goals, 29 objectives, and 74 outputs within the frame of 4 strategies to ensure the conservation and sustainable use of Mongolia's biological diversity until 2025:

Strategy 1: Increase awareness and knowledge on Biodiversity conservation and sustainable use among both decision makers and the general public (2 goals, 4 objectives and 9 outputs)

Strategy 2: Develop and implement science based policy on conservation and sustainable use of biological resources (5 goals, 12 objectives and 34 outputs)

Strategy 3: Sustainable Use of Biodiversity (3 goals, 5 objectives and 14 outputs)

Strategy 4: Improve policies and legal environment for conservation and use of biological diversity and ecological services (4 goals, 8 objectives and 17 outputs)

STRATEGY 1. INCREASE AWARENESS AND KNOWLEDGE ON BIODIVERSITY AND SUSTAINABLE USE AMONG BOTH DECISION MAKERS AND THE GENERAL PUBLIC

Goal 1: The education for sustainable development is integrated into all level education curricula and this information is disseminated by at least 5% of mass media.

Indicators:

- Number of and scope of operations for news media outlets that encourage sustainable development.
- Amount of material concerning sustainable development in the curriculum of general education schools, universities and vocational training centers.

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

Since 1997, Mongolia has strived to introduce Education for Sustainable Development (ESD) concept, developing and implementing the "Ecological education for the general public" (1997-2005) and "Education" (2010-2021) National programs. In addition, ecological education is reflected in the National programs related to nature conservation such as programs on "Conservation of endangered and threatened animal species" (2011-2020), "Climate change" (2011-2021), and "Combating desertification" (2003).

According to multi-level baseline survey on ESD, conducted in 2014 (MES, 2014), the concept of ESD is not reflected in secondary education documents (e.g. standards, curricula, textbooks). For instance, only 53% of natural science subjects and 56% of textbooks provide knowledge about sustainable development and ecosystems, the subjects related to social sciences deliver limited knowledge or nothing is mentioned. Based on results of this survey, the Ministry of Education and Science is attempting to renew education curricula; however, it is necessary to cooperate with environment and health related organizations in improving the curriculum. It is necessary to renew curriculum at different levels of education system i.e. pre-school, technical and vocational and universities.

Mass media is one of tools to disseminate information and create awareness on Education for sustainable development. According to a public survey, the main sources of news for respondents were as follows: television (33%), newspapers and magazines (9%), the internet (21%), social media - facebook, twitter, youtube, (8%), and others (29%) (Mongolian Media Today, 2013). It is therefore necessary to include promotion activities to integrate ESD principles into the policy of national print and broadcast media institutions.

Currently, there are 135 newspapers, 99 magazines, 84 radio stations (including 77 FM stations), 166 television channels, 24 cable channels, and 68 news websites actively operating in Mongolia. Among these, 15 television channels and 3 radio stations broadcast nationwide, while 16 daily newspapers and 7 weekly magazines are circulated nationally. Although there is small coverage on environmental issues in national and local print and broadcast media, there is almost none pertaining to sustainable development. With 51% of respondents to a survey on the access to information on environment (Press Institute, 2011) state that information access is non-satisfactory, we can infer that comprehensive, public information on environmental issues is not being disseminated effectively.

Goal 1: The education for sustainable development is integrated into all level education curricula and this information is disseminated by at least 5 per cents of mass media.	
Objective 1	To cohere and improve cooperation among policy developers, decision makers and general public in implementing program on education for sustainable development.
Outputs	• By 2018, the concept of education for sustainable development is integrated into all level education curricula and a necessary human resources' capacity is improved. • By 2020, the stakeholders' actions to accommodate the implementation of education for sustainable development is coordinated. • By 2025, the stakeholders' activities for implementation of education for sustainable development is expanded.
Objective 2	Provide the general public with systemized and comprehensive knowledge on sustainability.
Outputs	• By 2018, the national communication programme and action plan on education for sustainable development for all age groups is in place. • By 2020, media professionals (journalists, producers and editors) have necessary knowledge on education for sustainable development. • By 2025, at least 5 per cents of mass media is disseminating an information about the education for sustainable development.

Goal 2: Establish the biodiversity sub-database through improving the content and access to the National Environmental Information Database and ensure its use in decision making.

Indicators:

- Input and evaluation results from government, citizens, and legal entities regarding the composition, content and accessibility of the database on biodiversity.

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

During the last century, the biodiversity researches in Mongolia were conducted by national and international universities, research organizations and individual researchers; however, their outcomes in forms of lists, registers and reports are not fully elaborated. For instance, about 37% of total mammals, which the most researched part of biodiversity, still referred as lack of information (Human development report of Mongolia, 2011).

The survey on the Environmental Management Structure in Mongolia conducted in 2008 revealed that there is a need to improve environmental information management system which supports delivery of information on environmental law implementation, compliance of policy projects and programmes and ecosystem monitoring results to general public and decision makers (Institutional structure for environmental management in Mongolia. Philip Tortell, Adiyasuren Ts., Erdenesaikhan N., 2008).

Mongolia has newly established the Environmental Information Center in 2010 which serves users with environmental information consisting of 19 sub-databases in accordance to the law. Although in a framework of the Environmental Protection Law of Mongolia the organization has rights and mechanisms to integrate all environmental related information from research organizations, government agencies, public and legal entities, its implementation is not efficient due to its inconsistency with market rules and intellectual property rights. Moreover, the National Statistical Office in a framework of its methodology on environmental statistics publishes all collected information and is now implementing researches in possibilities and methodologies for establishment of the environmental economics accounting which will come into force in the near future.

The above mentioned organizations are designated to deliver or publicize environmental related information; however, the system for analyzing and reporting the synthesis of environmental data and information to public and decision makers is not linked to the function of these organizations. In addition, the National Statistical Office, which issues information compiled from methods of calculating environmental statistical indicators, has been examining the achievability of introducing an Environmental- Economic account, to be preliminarily implemented from 2015 onwards.

Goal 2: Establish the biodiversity sub-database through improving the content and access to the National Environmental Information Database and ensure its use in decision making.

Objective 3	Create a state and private enterprise framework and development of economic incentives that support research on biodiversity.

Output	• By 2018, a mechanism is created to use state and private funding to do vital research on biodiversity protection, its sustainable use, awareness and values. • By 2020, state and private funding is increased to support research. • By 2025, scope of research that is funded by state and private funding is expanded.
Objective 4	Improve the mechanism for systematic delivery of biodiversity related information and data on its state to general public and decision makers.
Outputs	• By 2016, the type, content and methods of data collection to report the state of biodiversity is defined. • By 2018, tools to systematically integrate biodiversity values and benefits into the policy of print and broadcast agencies are defined. • By 2020, the national capacity for data consolidation, integration, validation and dissemination is improved. • By 2022, biodiversity information system is is fully modified and improved.

STRATEGY 2. DEVELOP AND IMPLEMENT SCIENCE BASED POLICY ON CONSERVATION AND SUSTAINABLE USE OF BIOLOGICAL RESOURCES

Goal 3: Create a legal environment for the protection, sustainable use, and fair and equitable sharing of benefits arising from widely used and economically significant genetic resources, and to implement sustainable use, and protection from genetic erosion and depletion.

Indicators:

- A legal environment for the use of and sharing of benefits arising from genetic resources.
- Types and number of source materials contained in the genetic resource database.
- Types and dissemination frequency of inter-sectoral and public information pertaining to genetic resources and their utilization.
- Number of actions ensuring and taking precautionary measures for biosafety.

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

Humans have been using biodiversity for their own livelihoods including in agriculture, farming, livestock herding, health, cosmetics, and biotechnology for generations. In developing countries, over 80 percent of pharmaceuticals are either sourced or derived directly from biological and genetic resources (Farnsworth NR, Akerele O, Bingel AS., 1985. Medicinal plants in therapy. Bulletin of the World Health Organization 63: 965-981).

Genetic diversity is closely linked with the modern and traditional development of farming and livestock herding. Sustainable use of biological diversity is indispensable to create and find new and more productive varieties and breeds of plants and animals needed to sustain the increasing food consumption of humans worldwide.

With the world population predicted to reach 9.2 billion by the 2050s, and a 60% rise of agricultural output needed just for food consumption, actions are being undertaken to save genetic resources, ensuring the continued development of more efficient crops, and securing continuous production of high yield crops (Second Global Plan of Action for Plant Genetic Resources, 2011). However, genetic resources are decreasing due to number of wild families, genera, and species falling, and the increasing hybridization of local breeds and varieties, which is occurring to satiate the ever-increasing world demand.

The Convention on Biological Diversity has the following three goals pertaining to genetic resources:

1. Conservation of biological and genetic diversity
2. Sustainable use of biological and genetic diversity
3. Fair and equitable sharing of current and possible future benefits arising out of the utilization of genetic resources by introducing and implementing appropriate laws and regulations in the member countries.

While Mongolia has been fulfilling its commitments as a signatory party to the Convention with Government Resolution 163 of July 10, 1996 entitled “National Program of Action for the Conservation of Biodiversity” being passed, the fair and equitable sharing of benefits arising out of the use of genetic resources was not mentioned in the document. As public knowledge regarding the usage and fair sharing of benefits arising from genetic resources is inadequate, genetic resources as a whole are not valued (Report by Working Group on Draft Legislation on Genetic Resources of Mongolia, 2011).

Research on Mongolia’s genetic resources is currently in its infancy. Weaknesses include the lack of risk assessment studies done on genetically modified crops, livestock, and other animals to the environment and human health, inadequate knowledge on genetic resources among citizens, and the absence of an appropriate legal framework targeting the utilization of genetic resources (Report by Working Group on Draft Legislation on Genetic Resources of Mongolia, 2011).

Goal 3: Create a legal environment for the protection, sustainable use, and fair and equitable sharing of benefits arising from widely used and economically significant genetic resources, and to implement sustainable use, and protection from genetic erosion and depletion.	
Objective 5	Register and protect genetic funds of Mongolian livestock, cultivars and specimens of endemic and crop plants and their wild relative species.
Outputs	• By 2017, feasibility study for legislation of genetic resource is conducted. • By 2020, rules and regulations on performing research on the genetic fund, collection and processing traditional knowledge and manufacturing and sustainable use of products is adopted; thus creating an integrated authority on these activities. • By 2025, seeds of 100% of endemic plants at the botanical garden, sperm and embryo of wild animals is recorded and stored in a gene bank. • By 2025, relevant actions of the Global action plan to sustainably use food and agricultural genetic resources is implemented.
Objective 6	Register genetic resources and GMO and create a genetic resource bank.

Outputs	• By 2018, knowledge and experience of registering genetic resource, GMO and database establishment is created. • By 2020, methods of research and assessment technique for endemic plants, animals, and organisms, their genetic resources and derived genetically modified organisms are developed. • By 2025, a system and dissemination scheme for information regarding genetic resources, genetically modified organisms, and their use is created.
Objective 7	Create a legal environment enabling the sustainable use and fair and equitable sharing of benefits arising from genetic resources.
Outputs	• By 2017, situation analysis on legal environment of genetic resources is undertaken. • By 2020, legislation on the usage and sharing of benefits arising from genetic resources and related traditional knowledge is passed. • By 2022, a legal environment for use and protection of food and agricultural genetic resources and become a party to relevant international treaty is created.

Goal 4: The national programs on conservation of rare and endangered animal and plant species is fully implemented.

Indicators:

- Protection state of endemic, endangered and threatened species
- Number and intensity of spread of invasive species in Mongolia
- Amount of funding for comprehensive protection plan

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

Mongolia has developed National Development Policy based on its National Security Concept and Millennium development goals, and a Green development concept concerning its environmental policy. The government has focused its attention on the conservation and sustainable use of endemic, endangered, and threatened flora and fauna, passing the National Biodiversity Conservation Action Plan (1996), National Program for Argali Conservation, Mongolian National action plan for the protection and sustainable use of threatened plants (2002), Mongolian National action plan for the protection of the Saker Falcon (2003), National Action Plan for the protection and farming of game fish (2008), National Action Plan for the Protection of Endangered and Threatened Species (2011). In addition, by the resolution of the the State Great Khural (Parliament) National Action Plan for Red Deer (2000), by the decree of the Minister of the Environment, National Action Plan for Snow Leopard Conservation (2005), National Action Plan for Saiga Conservation (2007) and the National Action Plan for Taimen Conservation (2007) were approved.

Additionally, the Law on Fauna, Law on Natural Plants, Law on Protection of Plants, and Law on Payments for Usage of Natural Resources have been passed by the State Great Khural to address issues and implement legislation concerning the protection and sustainable use of flora, fauna, and other natural resources.

Mongolia's fauna consists of 138 species of mammal, 75 species of fish, 22 species of reptile, 6 species of amphibian, 476 species of bird, over 13 thousand species of insect, and 516 species of mollusk, while its flora consists of about 3060 species of vascular plants, about 1400 species of algae, and about 510 species of moss. Of these, 110 species of fauna and 192 species of flora were deemed to be endangered, and included into the Mongolian Red Book as either critically endangered or threatened.

The main factors contributing to the loss of flora and fauna in Mongolia include reduction and fragmentation of habitats, poaching, and improper usage of vulnerable and endangered species. The consequences of changing livestock herding techniques and the over-exploitation of land and plant resources, coupled with effects of climate change lead to decline of animal and plant habitat areas and loss of resources, becoming the main contributing factor to the increase of species to be categorized as endangered. Due to poaching and trafficking of animal organs, the population of formerly abundant animals has been declining in Mongolia. According to the Customs General Administration, 15.3 million USD worth of red deer derived products was trafficked abroad during the period 1990-2002. An additional 76 Mongolian saiga, 4 dalmatian pelicans, 14 red deer, and 6 brown bears, all considered to be rare and very rare species, were found by authorities to be poached during 2009-2012, showing that these offences still occur. The lack of in-depth studies and unplanned use of rare species have also been the main factor of the population decline of economically significant animals such as Argali sheep, Siberian ibex, and Saker falcon. During 2008-2013, 267 individuals of Argali sheep, 895 individuals of Siberian ibex, and 1110 individuals of Saker falcon were hunted or harvested by foreign hunters. Aside from animal resources, the trade in plant resources for production of pharmaceuticals and household use in rural areas was blooming, with 255.9 tons of plant materials being exported during 2008-2011.

In recent years, the issue of invasive animal and plant species has become a relatively new problem for discussion. Researchers have shown that encroachment of invasive species is detrimental to the collective native ecosystem, contributing to the decline of biodiversity in the region. It is therefore necessary to keep track of, conduct research, and perform coordinated eradications of newly introduced (both intentional and accidental) invasive species of animal and plant in order to prevent potential dangers.

The "Preservation of biological diversity and prevention of resource deficiency" component outlined in Mongolia's National Security Concept ratified by the State Great Khural includes provisions on taking measures to prevent changes from occurring to biodiversity and the creation of an oversight framework for the introduction of alien species of animal, plant, and insect. In addition, the National Commission On Protection of Animals and Plants has been supervising the issuance of licenses for transplanting foreign plants in the wild, in accordance with the newly revised Law on Natural Plants. Recommendations on focusing attention on foreign species have also been incorporated into the Fifth National Report for the implementation of the Convention on Biological Diversity in Mongolia, thereby serving as a formalization of the issue of alien animal and plant species.

<table>
<tr><td colspan="2">Although considerable efforts have been undertaken in the formulation of policies and the creation of a legal framework for the protection, sustainable use, and breeding of endemic, endangered and threatened species of animals in Mongolia, issues such as shortage of funding, insufficient coordination between different sectors, and lack of participation of local communities are proving to delay implementation. Therefore, in order to fulfill the requirements of the fourth goal of the National Action Plan based on the Aichi Targets, a stable implementation and funding mechanism is required for the “National Action Plan for the Protection of Endangered and threatened Animal Species” and the “National Action Plan for the Protection of Natural Plant Species”.</td></tr>
<tr><td colspan="2">Goal 4: The national programs on conservation of rare and endangered animal and plant species is fully implemented.</td></tr>
<tr><td>Objective 8</td><td>Develop and implement a program on integrated conservation of rare and endangered species.</td></tr>
<tr><td>Outputs</td><td>• By 2016, mid-term evaluation over the implementation of national programme on conservation of rare and endangered species is performed.
• By 2018, planning inter-sectoral coordination on the development of infrastructure for biodiversity, especially migratory species is strengthened.
• By 2019, based on programme evaluation, research reports and analysis of legal documents, an integrated national programme on conservation of rare and endangered animal and plant species is adopted and a stable funding structure for its implementation is introduced.
• By 2022, international cooperation with other countries to allow free migratory routes in transboundary areas for endangered and threatened animal species is improved.</td></tr>
<tr><td>Objective 9</td><td>Carry out research on alien species spreading in Mongolia and undertake measures to prevent the spread of invasive species.</td></tr>
<tr><td>Outputs</td><td>• By 2018, a database for registering alien animal and plant species is created.
• By 2020, the monitoring structure and legal environment for the preventing of spread of invasive species is improved.
• By 2025, implementation of a plan for preventing the introduction and spread of alien species is kicked-off.</td></tr>
<tr><td colspan="2">Goal 5: At least 30% of each representative of main ecosystems, all patch and vulnerable to climate change ecosystems are included in to the National Protected Area network and their management is improved.
Indicators:
• Percentage of total area under protected area system
• Management efficiency of protected areas
• Total area of ecosystems that are unique or vulnerable to climate change</td></tr>
</table>

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

A consolidated National Protected Area Network was first established in 1991, with the adoption of the "Bylaw on Protected Areas", which identified a network of protected areas, regime of protection, and classification of protected areas with four categories. A legal framework was established with the adoption of the "Law on Protected Areas of Mongolia" (1995) and "Law on Buffer Zones of Protected Area " (1997) and the passing of the "Common and Special Regimes for Strictly Protected Areas and National Parks" by the Government in 1995, and ratifying the "National Program on Protected Areas" by the State Great Khural (Parliament of Mongolia) in 1998.

Mongolia has developed major environmental policy documents, including the National Security Concept (2010) and the National development Policy based on the Millennium development goals, and the Green Development Concept (2014). The government has taken a special consideration on the conservation and sustainable use of biological diversity, developing the "National Biodiversity Action Plan" (2006), "National Action Plan for the Protection of Endangered and Threatened Animal Species" (2011), and the "National Program on Water". These plans have been encouraging the expansion of the National Protected Area network and the improvement of conservation management.

Mongolia is expanding the protected areas' network from year to year. It is now 99 PAs occupying 27.2 million ha area which is 17.38% of total territory (MEGD, 2014). Besides state protected areas, there are 911 locally protected areas covering 10.3% of total territory (Report on GIS finding with inclusion of local protected areas, Agency of Land Affairs and Geodesy, WWF, 2008).

In terms of ecosystems, the PA network covers 11.1 - 40.7% of high mountain, 9.9 - 31.1% of forest, 4.2 - 7.6% of steppe, 13.9 - 79% of wetlands, 13.9 - 74.1% of desert and semi-desert and 9 - 79.3% of patch ecosystems of unique ecosystems have been incorporated into the National Protected Area network. Mongolia contains many water-poor, unique ecosystems including intermittent rivers, dry riverbeds, endorheic lakes, reservoirs, dry lakes, sand dunes, and glaciers (WWF Mongolia, 2010. Filling the Gaps to protect the Biodiversity of Mongolia, Ulaanbaatar, 134 pp.). A classic example of these ecosystems, oases in the Gobi desert, is a vital habitat to small mammals, reptiles, and birds as well as an important source to nomadic herders and their livestock. They also serve as an important food resource to large desert mammals (Heiner M., and others, 2013, Mongolia-Southern Gobi regional environmental assessment Ulaanbaatar, 121 pp.). While a certain amount of research is done to identify the requirements of areas that are to be designated as protected areas, regions important for their ecosystems and biodiversity are not always protected due to the issues of mining, infrastructure and land use being put at the forefront (Filling the Gaps to protect the Biodiversity of Mongolia, WWF Mongolia, 2010).

To maintain the continuity of ecosystem conservation efforts, the Mongol Daguur (Russia, Mongolia, and China, 1994) and Uvs Lake Basin (Russia and Mongolia, 2011) transboundary protected areas were established. While cooperation plans are formulated each year for the conservation of these regions, insufficient funding and human resources makes actual implementation inadequate.

Three sites were prescribed into UNESCO World heritage list, 11 places were indicated as RAMSAR sites, six places were listed as UNESCO Man and Biosphere Reserves and 70 places were included into a framework of Important Bird Areas; nonetheless, protection management is not fully ensured.

The overall management for PAs is guided by Protected Area Administration under the MEGD through its administrations throughout the country. Poor development of infrastructure in PAs, insufficient participation of stakeholders, lack of human resource capacity, and inadequate land planning, coupled with unsustainable tourism and traditional husbandry further exacerbate negative impacts on biodiversity (Chimed-Ochir et al., 2010).

Though protected area administrations are funded through the state budget, the amount provided is far from sufficient for conservation management. In addition, while legislation dictates that aimag and local authorities should be responsible for the protection of the Natural Reserve and National monuments, conservation efforts are practically absent due to lack of financial and human resources. Therefore, the current legal framework should be amended to create collaborative management and sutainable financial mechanism (Agency of Land Affairs and Geodesy, WWF, 2008).

Goal 5: At least 30% of representatives from each main ecosystem and all patch and vulnerable to climate change ecosystems are included in to the National Protected Area network and their management is ensured.

Objective 10	Expand and strengthen PA network through integrating ecosystem representative areas into national and local land use management plans.
Outputs	• By 2016, the legislation on sustainability of financial resources and collaborative management in PAs is established. • By 2020, based on evaluation on implementation of national action plan for PAs, the program is revised and a mechanism is created to ensure representativeness of ecosystems, sustainable management and financial system. • By 2025, the PA network is expanded with inclusion of at least 30% of representative ecosystems.
Objective 11	Improve management and capacity of PAs in cooperation of all interested parties.
Outputs	• By 2018, an official document is in place to build capacity of PA administration staff. • By 2020, the infrastructure and professional capacity of PA administrations is improved. • By 2025, the land use planning and management relevant to natural carrying capacity of PAs, and with economic incentive mechanism is improved and implemented. • By 2025, the conservation management of the transboundary PAs and those listed in the international conventions, treaties and agreements is improved.

Objective 12	Develop and implement conservation plan on ecosystems that are patch or vulnerable to climate change.
Outputs	• By 2017, a database of ecosystems that are unique patch or vulnerable to climate change is identified and created. • By 2020, a conservation and sustainable use plan supporting the restoration of ecosystems that are ecologically, socially and economically important or that is patch and vulnerable to climate change is developed. • By 2025, the conservation plan with the cooperation of stakeholders is implemented.

Goal 6: Protect soil and water resources from chemical and nutrient pollution.

Indicators:

- Percentage of protected water run-off
- Amount of fertilizer and pesticides used in a unit area
- Percentage of budget allocated to reducing Ulaanbaatar and other urban pollution
- Amount (in hectares) of soil and water that is prevented from degradation and productivity loss agricultural crop and pastoral land area

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

In an area where agriculture is being practiced in an climatically risky environment, the proper usage of fertilizers and pesticides can significantly increase soil fertility. Crop yields have an increase of 560 kg/ha in wet years, 310 kg/ha in normal years, and 210 kg/ha in dry or drought years when using fertilizers (www.mofa.gov.mn). However, the study titled “Risk Assessment on the quality, safety, and health risks of widely used imported food products in Mongolia” confirmed that pesticide remnants having higher levels than permissible can cause health problems. Eight types of pesticide remnants with a higher concentration than permitted and having health risks were found in 55.6% (20 products) of total evaluated products, or 27.6% of samples (42 samples) (www.mofa.gov.mn). In terms of biodiversity, chemical products including pesticides are also hazardous to birds and some insect species. For example, after bees and wasps get poisoned in areas affected by pecticides, plants pollinized by these insects can be a source of contamination to humans and livestock, through foodstuffs such as honey (World Bank, 2012).

Mentioning the usage of chemical substances, and pollution from leather processing and mining is also important. Nationwide, there are 35 leather processing plants and 178 manufacting plants of various sizes. From a total of 10.3 million rawhides being prepared yearly, 25.8 percent is bought by national manufacturers, while the remaining 74.2 is exported to China either raw or after basic processing.

In 2008, following Government Resolution No.127 of 2008, neutralization of soil polluted by mining activities has been carried out by transporting 92956 m^3 or 139410 tonns of slime accumulated in 130 locations from 21 soums in 6 aimags and by performing soil removal on an area of 78965 m^2 (National Statistical Office, 2013).

In 2010, the State Great Khural passed the "Law on Prohibition of Surveying, Mining and Using Mineral Resources in the protection zone of waterbodies and forest resource areas". The 15th Target of the Millenium Development Goals (MDG) states that by 2015, 80% of water run-off should be under protection, and there should be at least 1000 river and spring headwater areas fenced and under protection.

It has been determined that in order to further the goals outlined in the plan, water run-off areas should be included into the state protected area network and implement an integrated policy for water management (5th Report MDGs, 2013).

In order to reduce chemical and nutrient pollution to safe levels to the ecosystem and biodiversity, it is important to increase protection of water bodies and implementation of protection regimens, institute the monitored usage of chemical compounds and reduce chemical pollution.

Goal 6: Protect soil and water resources from chemical and nutrient pollution	
Objective 13	Enable cooperation with government and the general public in the monitoring of legal enforvement of laws regarding chemical pollution from urbanization, mining and manufacturing.
Outputs	• By 2018, implement integrated management of water resources, and particularly improve protection of areas with water resources and ensure enforcement of rules and procedures that follow. • By 2020, ensure governmental and public cooperation in implementation monitoring of legislation concerning protection from urbanization, mining, and manufacturing related pollution. • By 2023, implement and include economic incentives to reduce and prevent urbanization related pollution that is having a negative effect on biodiversity in city planning policies. • By 2020, perform water treatment on 100% of industrial and mining related wastewater and increase usage of grey water in non-food and non-sanitary sectors by 30% using social and economic incentives.
Objective 14	Increase public awareness on direct and indirect effects on biodiversity by chemical substances used in agriculture.
Outputs	• By 2018, improve management of water supply for rural household use and pastureland. • By 2020, increase herders and farmers' awareness and users' knowledge on the direct and indirect effects on biodiversity by chemical substances used in agriculture. • By 2025, create infrastructure for monitoring the safety of chemical substances used in agriculture in rural areas and border points and provide with relevant staff. • By 2025, reuse at least 80% of water used for industry and mineral processing sectors through introducing effective legal and economic incentive mechanism; and increase by 30% of use of grey water in various sectors other than food and health sectors.
Objective 15	Create a monitoring mechanism for sustainable use of plant pesticides and fertilizers.

Outputs	• By 2018, develop the best options on using government subsidies in agricultural sector • By 2017, utilize agriculture subsidies as an incentive for soil protection and limiting chemical substance use. • By 2025, ensure governmental and public cooperation in the monitoring of sustainable use of chemical substances used in agriculture.

Goal 7: Increase forest cover to 9% by 2025 through the improvement of forest management, and thereby protect forest biodiversity.

Indicators:

- Forest cover of Mongolia
- Amount of forest area with protection status
- Amount of forest area with cooperative management
- Amount of forest area affected by fire, insect invasion, or that are disease epicenters
- Amount of forested area in agricultural crop production territory

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

Policies and action plans containing goals and implementation provisions for the protection, sustainable use, and restoration of forests and which are under implementation are as follows: “State Policy for Ecology” (1997), “National Biodiversity Action Plan” (1996), “National Development Policy based on Mongolia’s Millennium development goals” (2005), “National Action Plan for the Recovery of the forestry industry and Releasement of Employment and social issues in villages built to serve the forestry industry” (2010), “National Program on Forests” (2001)" and National Program “Green Wall” (2005).

The local administrative revenue from the use of natural resources are mainly generated by fees collected from utilization of forest, water, natural plant and animal use. The revenue from the fees of using forest resources occupies tidy amount. The total area of forested land is about 18592.4 thousand hectares of which 17677.6 thousand ha are by forest and 914.8 thousand ha are non-forest lands. Comparing 12552.9 thousand ha of forested land to the total land area of the country the forest cover is estimated to 8.03% (MEGD, 2012). In total 29 per cents of forested land is included into the protected area network (Filling the Gaps to protect the Biodiversity of Mongolia, WWF Mongolia, 2010).

About 5% of forests is degraded each year. The annual timber production amounts 600 thousand cubic meter and considerable territory of forests affected by fire resulting deterioration of forest ecosystems. In addition, mining activities, increase of livestock and impact of urbanization threaten the forests. The forest degradation directly impacts wildlife habitat and forest ecosystem services, e.g. drying up of headwaters, increased deficiency in food and firewood supply, which are indirectly influencing human development (National human development report of Mongolia, 2011). The timber produced from the forest is mainly used for heating and construction, and due to inconsistency of wood processing technology, only 27% of timber is efficiently utilized. The forest cover change dynamics showed that within last 12 years 289.2 thousand ha of forest totally lost. The non-forested land in forest land fund consists of 3476.7 ha of sparse forest stands, 1196.8 thousand ha of burnt forest, 124.1 thousand ha of cut forest, 95.7 thousand ha of forest affected by pest insect, 0.9 thousand ha of impacted by natural hazards and 3.7 thousand ha of degraded forests due to human activity (MEGD, 2012).

The Ministry of Environment and Green Development is responsible and implementing state policy on protection, sustainable use and restoration of degraded forests. The Ministry of Industry and Agriculture is implementing policies related to timber production, the Ministry of Education and Science is managing forest related research works, the State Inspection Agency is monitoring compliance of forest related legislations and the National Emergency Management Agency is responsible for fire management. The amendment made in Law on Forest of Mongolia provided citizens with rights to protect and ensure sustainable use of forest resources as result of which 1062 communities and 382 economic entities have possessed 2,310,663 ha and 677,737 ha of forested land on contract basis, respectively (MEGD, 2012).

The annual budget allocated to forestry sector is approximately 12.5 billion tugrugs but the income generated from the use of forest by-products is 3 times higher. 10% of total budget in forestry sector spent for salaries and honorariums and 90% expended for forest protection and restoration activities. During 2008-2012 the financing of forestry sector have increased; however it is still 5 times less from the budget necessary to sustain forest management measures (Forest sector financing flows and economic values in Mongolia, UN-REDD Programme, 2013). This become a main factor for diminishing forest management capability.

Goal 7: Increase total forest cover to 9% by 2025 through the improvement of forest management and protect its biodiversity.

Objective 16	Ensure intersectoral cooperation on the national policy on forest and its implementation plans
Outputs	• By 2016, an integrated national policy on forest and program of action is developed and approved. • By 2019, the implementation of action program on forest protection and sustainable use is enabled with participation of relevant stakeholders. • By 2025, make progress on restoration, sustainable use, and reduction of threats regarding forest ecosystems with the cooperation of stakeholders.

STRATEGY 3. SUSTAINABLE USE OF BIODIVERSITY

Goal 8: Introduce management techniques for the sustainable use and conservation of natural resources, especially game animal resources, by mean of utilizing the creation of partnerships between government, local citizens, and private sector.

Indicators:

- The number of local community groups contracted to implement sustainable use and conservation of natural resources
- Amount of land under the protection of contracted local community groups
- The number of animal within game reserves with certified hunting management plans

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

In a sparsely populated country such as Mongolia, the cooperation of local community is vital to conservation efforts. The Environmental Protection Law of Mongolia has codified the rights and duties of citizens, cooperatives, enterprises, and organizations to participate in environmental protection. In addition, laws including the Civil Law, Law on Land, Law on Forest, Law on Fauna, and the Law on Protected Areas, as well as related by-laws have outlined the rights and obligations of citizens and cooperatives who have made agreements to protect natural resources.

Environmental conservation projects and programs implemented in Mongolia have been an important milestone in organizing and training communities; creating and assisting the activites of cooperatives. However, diversity of state-private sector partnership is underdeveloped.

The current laws dictate that local citizens in charge of natural resources are obligated to create environment conservation and forest cooperatives or herder communities. Forest cooperatives are required to sign three contracts to implement an integrated, sustainable management solution for natural resources. As of 2014, there are 1179 forest cooperatives comprising of 26,862 individuals that possess 3,074,744 ha of forest areas. This is 45.8% of increase in numbers of forest cooperatives compared with 2010 and 43% of increase in the size of collectively possessed and managed forest areas, which is in turn shows interest of local communities to possess the forest resources by mean of contract. There are 566 forest cooperatives out of 1179 that have conducted the forest management survey, and have approved the management plan and there are 485 that have already granted with official certification of forest cooperatives (MEGDT, 2015).

Before the amendment on the Law on Fauna was approved, 80% of the country's total area was used for hunting activities, however now only specified hunting or game areas are designated for hunting, and management of these areas have been delegated to communities and private enterprises. Specifically, between 2012 and 2014 only, the hunting management plan was developed by the relevant professional organizations for 62 hunting or game areas with proper boundaries in 49 soums of 13 aimags and accordingly appropriate aimag and soum Citizens' representatives khural issued relevant permissions. In other words, now only in these game areas harvesting of wild animals for both household and special purposes are allowed. In 2012-2014, 25 communities, seven local NGOs, and 11 other entities were working in the 62 game areas with delegation to manage the areas. Of which, the following types of cooperation being proposed and contracted trilaterally – with Aimag Governor and Aimag Environment Agency: nine game areas are to be managed by a community and entity, 15 areas are to be managed by seven local NGOs, 25 game areas are to be managed by 11 entities and 13 areas are to be managed by 14 communities. In practice, there are four existing types of cooperation for hunting management:

- Local government-community based organization-private sector
- Local government-association of community based organizations-community based organization
- Local government-community based organization
- Local government-private sector

27.5% of Argali range area (50,215.4 km^2) is covered by the national Protected area network and 52.7% is included into 37 hunting or game areas (26,496 km^2), as of Siberian ibex, 24.6 % of the range area is under the state protection and only 7% is covered by 17 hunting areas (3421 km^2). 3.7% of Red deer range is included into 7 hunting or game areas with aim to protect and sustainably use of the species. Management plans being developed for 3.5% or 3370 km^2 area for 7 hunting or game areas out of 97,808 km^2 area of distribution range of Wild boar and 2.6% or 2887km^2 area for nine game areas.

According to a study of illegal wildlife trade in Mongolia, at least 100 million USD of profits were made in 2004 just from hunting activities. Since 1990, hunting has risen to dangerous levels. For example, the red deer population decreased from 130000 to 10000, while the Mongolian marmot population dropped from 40 million to 5 million.

Fishing has been carried out since 1950 in Dood Tsagaan Lake in Khuvsgul Aimag's Darkhat Depression, Buir Lake in Dornod Aimag, Ugii Lake in Arkhangai Aimag, and since 1980 in Achit and Tolbo Lakes in Bayan-Ulgii Aimag. National enterprises have entered the fishing industry with help from local fishermen since 1990. However, fishing has been temporarily banned in 21 lakes of eight aimags where fishing was carried out extensively, due to decrease in fish reserves and changes in protection status. Nonetheless, illegal fishing and overfishing from the permitted amount is leading to disaster in lakes.

Since 1962 onwards, some threatened species have been allowed to hunt and catch in order to increase the state budget, but in special circumstances after the required payments were made. In the past, in average 50-70 Argali (in some years up to 150) and 300 Ibex were harvested by foreign hunters, with proceeds going to the national budget. In 2012, 50 argali, 102 Ibex, three red deer, 44 Mongolian gazelle, 13 roe deer, seven grey wolves, 150 saker falcon, and 545 birds of prey were hunted by foreign hunters, and 260 foreign sport fishermen were received, with a total of 3.5 billion tugriks going to the national budget from payments.

Goal 8: Introduce management techniques for the sustainable use and conservation of natural resources, namely game animal resources by mean of creating partnerships between government, local community and private sectors.

Objective 17	Create a legal environment enabling local community partnerships to be responsible for surrounding natural resources in an integrated way including pasture, wildlife and forests.
Outputs	• By 2017, a legal environment enabling local community partnerships to be responsible for surrounding natural resources in an integrated way including pasture, wildlife and forest is created. • By 2020, local community partnerships and other parties' about the concept of integrated management of natural resources is fully understood. • By 2025, integrated management of natural resources is introduced to 20% of total herders by local communities and other parties .
Objective 18	Implement hunting management in all game reserve areas
Outputs	• By 2016, responsibility for hunting reserve management to local community partnerships and private enterprises is fully handed over. • By 2020, a legal environment for imposing customs tax of game species and natural plant exports is created. • By 2025, economic benefits from hunting reserve management are securely earned by local communities.

Goal 9: Taking into account grazing capacity and livestock population size, utilize legislative and economic leverages to reduce pasture degradation by up to 70% and increase quality of existing pastures.

Indicators:

- Area by percentage of degraded pastures
- The number of local community based organizations that utilize scheduled grazing of livestock and the area covered by these groups
- Amount of land restored from soil degradation

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

Among 150 countries with high extent of population living on degraded lands, Mongolia is ranked 12th (National Human Development Report, 2011, UNDP). This shows to which extent the human population of Mongolia is exposed to risk.

According to the land fund classification, 73.8% of land is allocated for agriculture, 9.1% of total land is under the forest and 15.9% is considered as land for special utilization (National statistical bulletin, 2013). Lands under the urban, roads and other communication lines occupy in total 0.7% of land and area of water bodies is estimated to 0.4%. In 2013, the land area used for pasture and hay making was 112.7 million hectares which is 97.7% of total agricultural land. Statistical data for 2013 demonstare that in total 9 million hectare land is degraded of which 97.7% is pasture and hay making land, 0.43% is croplands, 1.7% is forest lands and 0.12% of land is degraded due to road construction and mining operations (National statistical bulletin, 2013). The socio-economic transformation started since 1990 in Mongolia have changed livelihood of rural population which in fact has an effect on environment. One of the consequences of this change is continuously growing number of a livestock and increase of number of goat in herd structure. Researchers concluded that in 2000s only 20% of total pasture land were degraded, whilst in 2010 this number increased to 70% of total pastureland (IFAD-GEF project Mongolia: Mongolia Livestock Sector Adaptation Project, 2010).

There is no policy that aims to limit the growth of livestock number, which is impacting land degradation. Instead, there is an increase of the number of economic instruments (compensation for wool producers, subsidies for cashmere makers etc.) which is in turn has reverse effect on land. The populist decisions made during the election period to get more support from herders leading to increase the number of livestock and thus raise economic interest of herders (Mongolian livestock sector survey, World bank, 2008).

Since 2000s, a number of reports and recommendations draw attention into the advantages of establishing pasture users' groups to support herders use sustainably grazing lands; however, due to influence and interest of limited group of people like mining and owners of high number of livestock, the concept of community based grazing land management still remains on a paper. The land degradation and desertification in Mongolia is highly influenced by climate change, thus is very susceptible (Desertification atlas, 2010). On the other hand, if there is a suitable policy in livestock sector and will be implemented, it is possible to increase carbon capture in grasslands and decrease carbon emission deriving from land degradation.

Therefore, such policy for decreasing of the carbon emission from the livestock sector may create a possibility to lower the impact of climate change (Carbon finance feasibility study for sustainable range management and livestock development in Mongolia. Andreas Wilkes and Timm Tennigkeit, 2010).

For Mongolia, therefore, it is necessary to mitigate ecosystem deterioration and increase capability of carbon capture through implementing an appropriate management policy for pasturelands which occupy 72.1% of total land area.

Goal 9: Taking into account grazing capacity and livestock population size, utilize legislative and economic leverages in order to reduce pasture degradation by up to 70% and increase quality of existing pastures	
Objective 19	Reflect in Pasture law and in other relevant legislations the suitable economic instrument which regulates livestock breeding in accordance with its natural carrying capacity.
Outputs	• By 2018, fauna species to the pasture ecosystem in pasture capacity assessment methodology is included. • By 2020, the legislation on pasture regulation is established. • By 2023, the government led economic mechanism that ensures livestock number and herd structure in accordance with pasture carrying capacity is in place.
Objective 20	Create a stable financial framework for the restoration of degraded soil, protection of soil vulnerable to climate change and prevention of soil degradation.
Outputs	• By 2017, economic incentives for the restoration of degraded soil, protection of soil vulnerable to climate change, and prevention of soil degradation is included in the policies and legislation of related sectors such as agriculture and mining infrastructure. • By 2020, restoration of degraded soil, protection of soil vulnerable to climate change, and prevention of soil degradation in areas important to biodiversity is implemented. • By 2023, a prevention of soil degradation is improved.
Goal 10: Modernize industrial farming techniques and activities to meet requirements for food safety and conservation of biodiversity in the environment's agricultural ecosystem. **Indicators:** • Amount of farmland evaluated by an detailed environmental impact assessment • Government resolutions on change of categories of comprehensive land database	
Applicable Aichi Biodiversity Targets: 	

Assessment of current state and justification

The majority of Mongolia's area has unsuitable and risky environment for farming. According to land usage statistics, 73.8 percent of Mongolia's total area is used for agriculture, however only 0.5 percent of that (or 600,000 thousand hectares) is farmed. Compared to the 1990s, where almost 1.2 million hectares of land was used with crop rotation, total farmed land has almost halved, the main reason being the shift to the market economy leading to the breaking up of farming collectives. This has led to fragmented utilization of farmland, soil deterioration, loss of soil fertility and fallowing of farmlands. As of 2013, about 40 thousand hectares of farmland are deemed to be degraded (National Statistical Yearbook, 2013).

State loans and subsidies have had a significant impact in supporting the farming industry, with 4.7% of total subsidies going to the agriculture industry (wheat and meat industry) during the period 2007-2013, according to statistics. These state policies have led to investment in farming increasing year-by-year, for example nitrogen fertilizer imports have increased in the last three years by about 10 thousand tons on average (National Statistical Yearbook, 2013).

According to some researchers, the unregulated usage of fertilizers and pesticides has increased the amount of harmful chemical compounds in soil to unsafe levels (http://nud.mn/news/?p=13086).

Agricultural programs and policies introduced since 2000 have mainly focused on increasing crop yields, with state subsidies not taking into account ecological balance, soil fertility and usage of water resources. Therefore soil, water, and biodiversity, the main foundations of the farming industry, are in danger of deterioration.

Goal 10: Modernize industrial farming techniques and activities to meet requirements for food safety and conservation of biodiversity in the environment's agricultural ecosystem.

Objective 21	Integrate agriculture sector land use with environmental protection policies.
Outputs	• By 2018, the detailed environmental impact assessments is implemented during the investigation of land for use under the irrigated agriculture and hay making; legislation is created to release of land important to biodiversity. • By 2020, based on results of detailed environmental impact assessments land important for biological diversity is released from mining and agriculture land use and taken under the protection. • By 2022, fallowed lands for restoration is identified and restoration activities of biodiversity important area is started.

STRATEGY 4. IMPROVE POLICIES AND LEGAL ENVIRONMENT FOR CONSERVATION AND USE OF BIOLOGICAL DIVERSITY AND ECOLOGICAL SERVICES.

Goal 11: The biodiversity related indicators are reflected in the national evaluation system to monitor the implementation of project and programmes of relevant sectors.

Indicators:

- Results of monitoring and assessment of indicators for biological diversity that have been added into the national account system.
- Number of sectoral policies, plans, and projects that utilize indicators for biological diversity.

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

The environmental degradation due to human activities have increased during the last decade and become a concern worth attention. Unregulated licensing for exploration and exploitation of mineral resources, inadequate rehabilitation by some mining companies, and road construction that heavily erodes land, coupled with the increase of livestock continue to deteriorate grassland. Besides, such land use type related pressures coupled by the poverty and unemployment lead to increase use of natural resource and become factor of environmental degradation (Achieving the millennium development goals. Fifth national progress report, 2013).

To deal with environmental problems imposed by above mentioned factors, the Mongolian Government has developed many legislative and policy documents, e.g. in 2007 only, 32 laws, 150 regulations and about 30 policy documents were developed and approved in the environmental sector (NCSA Final report, 2007). The notion that environmental protection and sustainable use of natural resources is only environmental sector problem was foundation for incoherency of the actions taken by government organizations and the Ministry of Environment, which was indeed mentioned by "The environmental governance in Mongolia" project implemented by UNDP. It was recommended to increase status of the Ministry of Environment in the Government structure and reflect environmental issues in any development related policy, plans and programmes (Institutional structure for environmental management in Mongolia. Philip Tortell, Adiyasuren Ts. Erdenesaikhan N., 2008).

The Government Strategy Documents developed since 2000s, especially, in National Development Strategy based on Millennium Development Goals, have reflected planning steps like Government strategic planning, management and coordination of economic policy, and strategic development planning. Important measures are being undertaken in order to validate numbers and information used to evaluate the implementation, and agree upon common principles for developing baseline indicators, trend analysis and methods for measuring poverty and environment related indicators (Achieving the millennium development goals. Fifth national progress report, 2013).

The Green Development Concept approved by the Parliament in 2014 indicated that it has to have Medium term programme for green development. The second strategic objective that spells out "creating sustainable financing mechanisms to preserve ecosystem balance through intensification of environmental protection and restoration activities and reducing environmental pollution and degradation and ensure citizens to live in healthy and safe environment" was a direct reflection of the new concept on sustainable use of biological resources and ecosystems taking into account its benefits provided for society and economy.

Goal 11. The biodiversity related indicators are reflected in the national accounting system to monitor the implementation project and programmes of relevant sectors.	
Objective 22	Define biodiversity related indicators based on comprehensive research and integrate it into national accounting system.
Outputs	• By 2017, the biodiversity indicators are included into the green development indicators. • By 2020, feasibility study is conducted to account the contribution from environmental sector to the social and economic development into the national accounting system and recommendations are issued accordingly. • By 2025, the contribution from environmental sector to the social and economic development is accounted into the national accounting system.
Objective 23	Integrate protection and sustainable use of biodiversity into policies and programs of related sectors.
Outputs	• By 2016, national biodiversity program implementation with the activities of the Mid-term programs for green development and other programs is integrated. • By 2018, human resources capacity is strengthened to implement and reflect biodiversity indicators in the national accounting system. • By 2020, biodiversity indicators that are outlined in the national accounting system are included in the program and project implementation, oversight, and monitoring mechanisms of related sectors.

Goal 12. Create a legal environment where subsidies or financial assistance are prohibited for use in agriculture, mineral resource extraction, infrastructure, energy, light industry, food manufacturing, and service industry projects and actions deemed to be harmful to or potentially harmful to biological diversity in accordance with environmental strategy evaluations.

Indicators:

- Number of subsidies and financial aid programs negatively affecting biodiversity.

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

The last seven-year statistics of Government budget expenditure shows that subsidy provided to government agencies is decreased from year to year and if in 2007 the amount of subsidies was 16.9%, it has decreased to about 9% from 2010 onwards. At the same time, the agricultural subsidies (for wheat production and meat processing) occupy 4.7% of all supports, which is 5 times greater than the budget spent for reforestation and environmental protection (National statistical bulletin, 2010, 2013). Also, in accordance to the law on income tax from the economic entities, the remission of 50% of total tax from the revenue of selling the particular product obtained by the economic entity at the end of crop production, vegetable growing, and planting fruits and fodder is not related with improvement and protection of cropland and grazing lands may impose negative consequences.

The other pressure that directly impact biodiversity was the revenues from the fees on granting hunting license and other natural resource use fees were included to the local government's annual budget self-fund (Silent steppe: The illegal wildlife trade crisis, 2006). Though the Law on Fauna that was adopted in 2012 has created a legal environment to rectify this issue, differing opinions, lack of organization and other business interests among local communities and the government has led to insufficient implementation of the law.

Moreover, with priorities given to the mining sectors, the flow of foreign investment has drastically increased, e.g. between 2010-2013, the half (41.6-61.9%) of total foreign investment was made into mining sector (National statistical bulletin, 2013). Unfortunately, mining companies rarely implement restoration measures, run away selling their licenses when the resources are diminished or sometimes intentionally intrude illegal miners to their lands, thereby bringing irreversible damage to biodiversity. The State of the Environment report (The State of the Environment report for the period of 2006-2007, 2007) highlighted the exploration activities as the main factor of erosion and recommended to eliminate negative impact of contamination and erosion through improving the legislation on extraction and production of mineral resources and introducing of "polluter pays, user restores" concept in the environmental policy.

Goal 12. Create a legal environment where subsidies or financial assistance are prohibited for use in agriculture, mineral resource, infrastructure, energy, light industry, food manufacturing, and service industry projects and actions deemed to be harmful to or potentially harmful to biological diversity in accordance with environmental strategy evaluations.

Objective 24	Define and implement actions to reduce economic instruments that threaten biodiversity.

Outputs	• By 2017, awareness raised and capacity built of stakeholders that take part in the strategic environmental assessment • By 2020, strategic environmental assessment in main economic sectors like agriculture, mineral resource extraction and processing, infrastructure is conducted. • By 2020, the negative and positive sides of subsidies in such economic sectors like agriculture, mineral resource extraction and processing, infrastructure on biodiversity and society is assessed and the ways to reduce negative subsidies are defined.
Objective 25	Define and establish economic incentives to conserve and sustainably use biodiversity.
Outputs	• By 2018, the economic instruments supporting the conservation and sustainable use of biodiversity is defined. • By 2020, the economic instruments supporting the conservation and sustainable use of biodiversity is reflected in policies and legislations of the relevant economic sectors. • By 2025, incentive mechanism is created for manufacturing, production and services that protect and use biodiversity sustainably within the framework of Green Development Policy.

Goal 13: Taking into account the value and importance of pasture, water resources and forest ecosystem services, develop and implement a framework for sustainable use and conservation of natural resources in which social and economic benefits of these resources are appropriately protected.

Indicators:

- Use intensity of pasture, water resources, and forest ecosystems
- Amount of payment for ecosystem services (PES)

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

Recent improvements to the legal environment undertaken by the Mongolian Government has led to the development of laws regarding PES schemes and the recruitment of local citizens and NGOs to participate in environmental protection activities, while changes to the Law on Environmental Protection made in 2005 have made it possible for the general public to be more active in environmental protection efforts. These changes were made to encourage citizens living near forests and other natural resources to utilize these resources sustainably, and improve conservation. The Law on the Government also serves as a base for the ecological service legal environment by including provisions regarding the delegation of state responsibilities to contracted non governmental organizations and increasing funding by transferring duties.

Ecosystem services are the benefits that people obtain from ecosystems. These include provisioning services such as food, water, timber, and fiber; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling. (Ecosystems and Human Well-being Synthesis: A Report of the Millennium Ecosystem Assessment. World Resources Institute, Island Press, Washington, DC: http://www.maweb.org/en/Global.aspx.).

Most ecosystem resources and services help to increase incomes and industrial output, expand production of commercial products, and decrease expenses and losses. In reality, payment for ecosystem services (PES) tend to be limited to economically valuable services, related to specific forms of land and natural resource uses.

Of these, pasture, water, and forest ecosystem services occur most frequently in Mongolia, and studies have begun to research the possibility of using PES as a direct incentive for environmental protection. In order to raise awareness of the economic benefits of the ecosystem, a study "Economic value of the Tuul River headwater area ecosystem" was made in 2009, which concluded that land and other resources in the Tuul River headwater ecosystem, together with tourism, herding, and forest related industries generate about 28 billion tugriks in revenue each year. Conversely, continued degradation of the ecosystem and loss of biodiversity is obvious to have a costly effect due to the loss of water and other ecosystem services ("Economic value of the Tuul River headwater area ecosystem", Emerton L. et al., 2009).

On the other hand, it is very important to prevent unequal distribution of land and natural resource utilization when introducing ecosystem service and payments, a problem that is still very prevalent. The budget allocated to the protected area administration is not enough to cover day-to-day costs and people living in ecologically important regions are usually poor, with scant opportunities for employment and increasing income. These factors combine to become yet another danger to the environmental protection and stability of ecosystem services (MNET and World Bank, 2011).

Therefore, in order to introduce PES to Mongolia, awareness on the value of ecosystems, and its economic benefits should be raised among the public, and a new protection and sustainable use mechanism should be developed that further deepens cooperation with local communities, who are the custodians of their own lands.

Goal 13: Taking into account the value and importance of pasture, water resources, and forest ecosystem services, develop and implement a framework for sustainable use and conservation of natural resources in which social and economic benefits of these resources are appropriately protected.

Objective 26	Improve legal environment for proper value and assessment of ecosystem services.
Outputs	• By 2016, assessment of the current legal environment is performed. • By 2020, a legal environment is created. • By 2024, law on value of ecosystem services is started to be enforced.
Objective 27	Develop and implement program to introduce payment for ecosystem services (PES).
Outputs	• By 2018, PES indicators for sectors that support biodiversity are identified. • By 2020, PES program is developed by performing economic assessments of PES in accordance with environmental zones and improving the indicators. • By 2025, program to introduce PES is fully implemented.

Goal 14: Identify potential sources of funding that are needed to implement the national biodiversity program and create a framework for efficient use of these funds.

Indicators:

- Percentage of expenditure that derived from utilization of natural resources and resource-based service.
- Percentage of budget used for benefit of the environment.
- Percentage of funds used for conservation and sustainable use of biological diversity within the environmental sector in general.

Applicable Aichi Biodiversity Targets:

Assessment of current state and justification

According to the IMF's medium-term forecast, Mongolia's economy, which has undergone intensive growth in the past decade, remain promising, mainly due to exploitation of natural resources (IMF Country Report No.14/64, 2014), with mining becoming the largest sector in the economy, comprising 18.5 % (with agriculture holding 14.4%) of GDP in 2013 (National Statistical Office 2013). Unfortunately, according to budget use statistics, only a small amount of this revenue gained from non-renewable resources is being used for the protection of the environment and biodiversity. The budget allotted to the Ministry of Environment and Green Development (formerly the Ministry of Environment; Ministry of Environment and Tourism) during the period 2007-2013 was about 1% of the total national budget, with 2011's 1.84% being the highest. Just 10% of this budget is used for protected area management, with the remaining 90% used for employee compensation and administrative costs, showing the general state of finance for conservation biodiversity (WWF Mongolia, 2010).

The Law on Natural resource use payments, passed in 2012, was a good step in improving the legal environment by prescribing the transfer of natural resource usage payments to local budgets, however differing opinions among residents and decision makers, and economic interests taking a front seat has led to insufficient implementation.

In an age where the concept of responsible mining is being adopted around the world, creating a mechanism to transparently utilize income generated from mining for environmental protection efforts can be a huge boost to conservation of biodiversity. However, an incomplete mechanism may run the risk of having the whole effort becoming a "Green washing" technique for enterprises utilizing natural resources.

The "Green Development Concept" passed by the State Great Khural in 2014, states that in order to rectify the lack of investment in environmental restoration and protection of untouched natural environment from the natural resource based economy, investment and financing for environmental protection, clean technologies, and human development should be increased, and legal regulations should be advanced to help promoting the green economy.

Goal 14: Identify potential sources of funding needed to implement the national biodiversity program and create a framework for efficient use of these funds.

Objective 28	Include environment-related indicators into all special government funds that affect directly and indirectly the biodiversity
Outputs	• By 2019, assessment is made and conclusion is drawn on special government funds that directly and indirectly affect biodiversity. • By 2019, environment-related indicators are included into the rules and regulations of special government funds that directly and indirectly affect biodiversity. • By 2021, a legal environment is created for environmental auditing of special government funds.
Objective 29	Identify and implement funding sources such as PES and biodiversity offset for protection of biodiversity.
Outputs	• By 2018, create a legal environment enabling environmental offset activities. • By 2021, the expenditure of income from the use of natural resources is improved. • By 2022, resolve the issue of income from natural resource usage, and services based on natural resources independently and separately from the national budget.

FIVE. STAKEHOLDERS FOR THE IMPLEMENTATION OF THE NATIONAL PROGRAM

The National program can only be implemented by the joint efforts of governmental, international, and public organizations, together with citizens and the private sector. Methods of cooperation with these stakeholders have been included in detail in the Appendices, tied together with outcomes of the action plan. A more concise summary has been included in this section.

At the national level, the State Great Khural (the Parliament of Mongolia), line ministries of the government, sectoral ministries departments, especially those who are directly or indirectly related to agriculture, mining, energy, and light industry and their respective agencies; the Ministry of Education and Science and its agencies, who are at the forefront for changing civic understanding and convictions on important topic, are vitally important to successfully implement the program. If government organizations can begin including biodiversity conservation at the policy level, and making policy changes regarding protection and sustainable development, a long-term, stable, positive environment can be cultivated.

Multilateral, bilateral and international organizations including United Nations' specialized programmes and agencies, the World Bank, the Asian Development Bank and other various international organizations advocating environmental conservation can act as important partners in providing guidance and policy recommendations, introduction of new techniques and technologies and funding, while the proper management and intercoordination of projects and programs being implemented by these organizations can have a positive effect on the implementation of the National Biodiversity Program.
At the local level, aimag, soum, and local citizens' representative khurals, local governments, protected areas and river basin administrations are the most important stakeholders for action plan implementation and cooperative improvement.

Integrated protection of biodiversity, ecological integrity over a huge expanse of land, and protection of migratory species can be effectively achieved in partnership with neighboring countries at the national and regional level.

The real effort of protecting and maintaining sustainable use of the environment's biodiversity in sparsely populated Mongolia falls on local citizens, who have inherited the country's natural resources. Residents who got used to a globalized, free market economy need to protect and sustainably use the environment's biodiversity when endeavoring upon their enterprises, as well as impress upon future generations the importance of doing so. In addition, the participation of civil organizations and individuals who understand their social responsibilities shall be the main force that advocate implementation of laws and promote issues to decision makers. Making cooperation and dissemination of accurate information to these groups is an important part in the action plan.

The private sector will be an important local partner in the protection and sustainable use of biodiversity, and supporter for sustainable development and the green economy. Protection and sustainable use of biodiversity should be reflected in their activities.

SIX. EVALUATION OF IMPLEMENTATION

Monitoring, evaluation of the implementation of goals, objectives and outputs in the National Biodiversity Program shall be undertaken by the following stages:

- Stage I: Initial evaluation on the implementation of the National Biodiversity Program is to be undertaken in 2020 and draw changes accordingly;
- Stage II: Final evaluation on the implementation of National Biodiversity Program is to be made in 2025 and start development of the 3rd National biodiversity program;

SEVEN. REPORTING AND MONITORING

Report on the National Biodiversity Program implementation shall be submitted by the government entity responsible for affairs of environment once every three years to the Mongolian Government and every five years to the Secretariat of the Convention on Biological Diversity.

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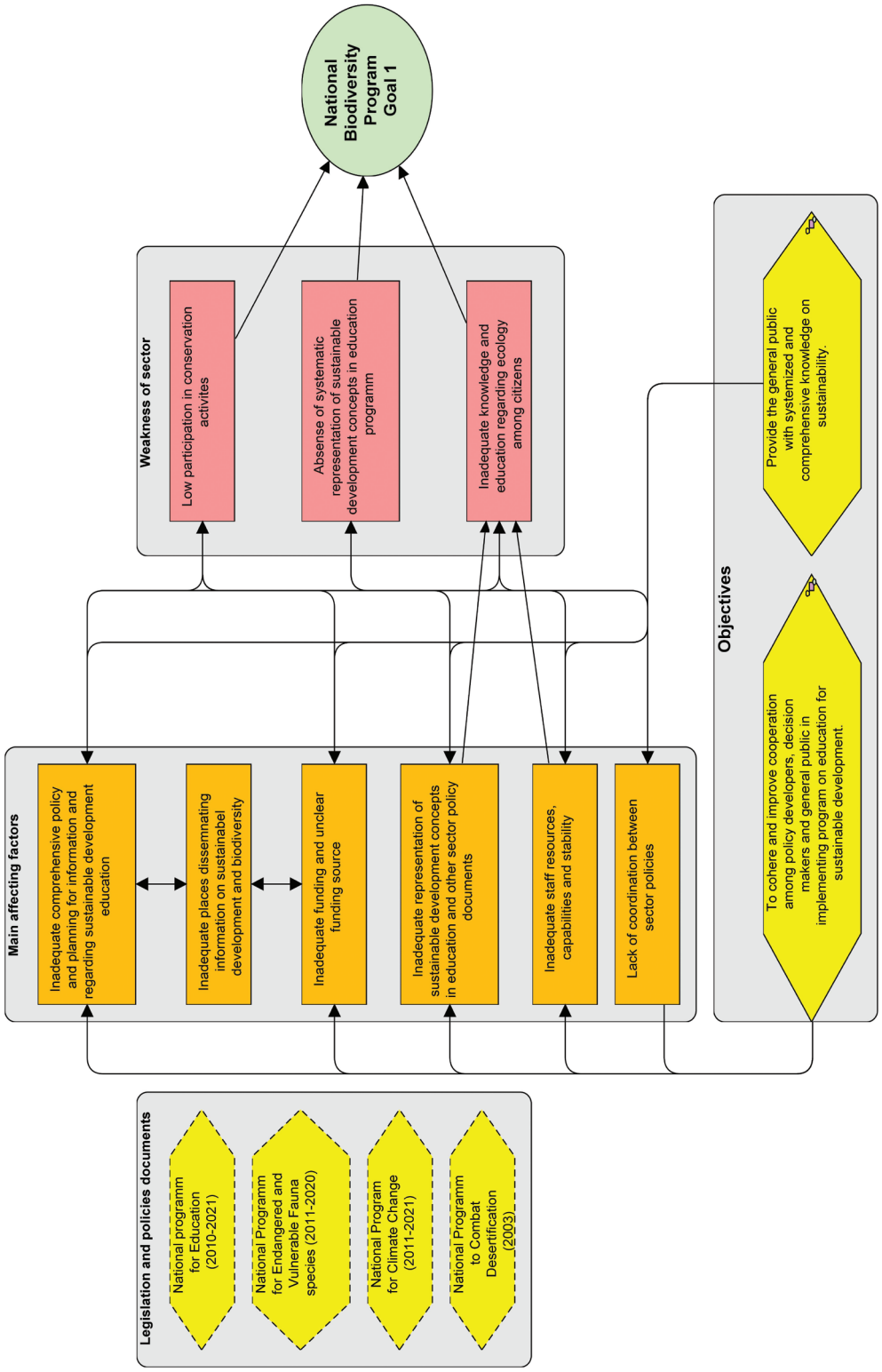
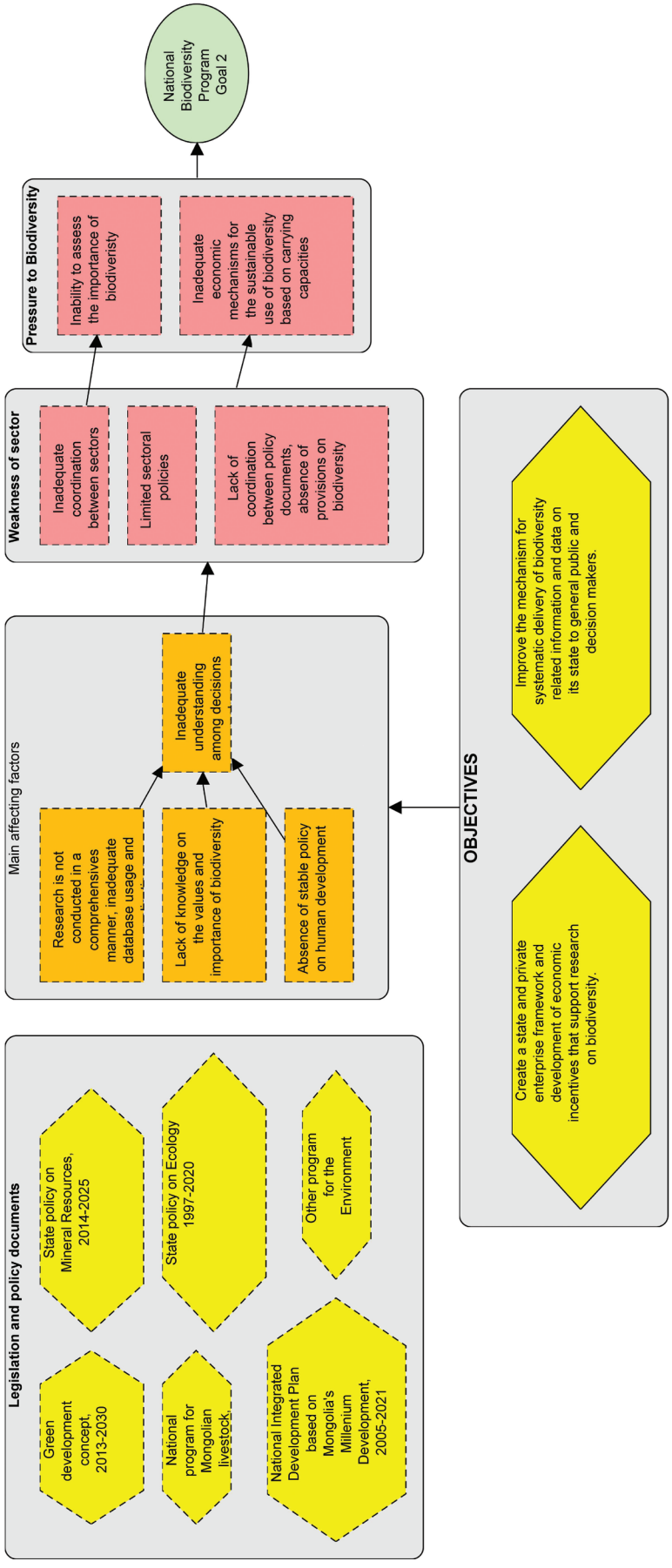
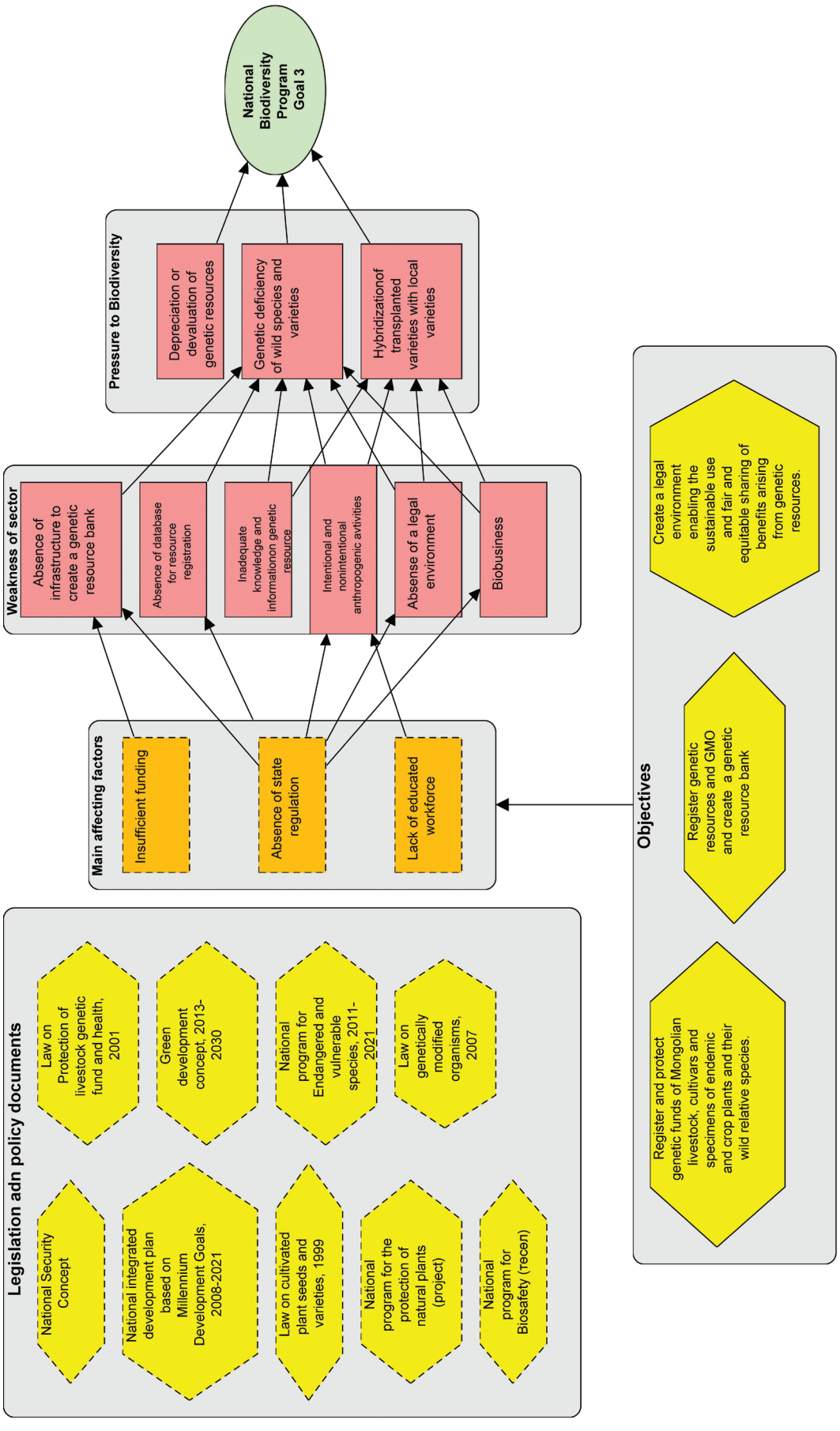
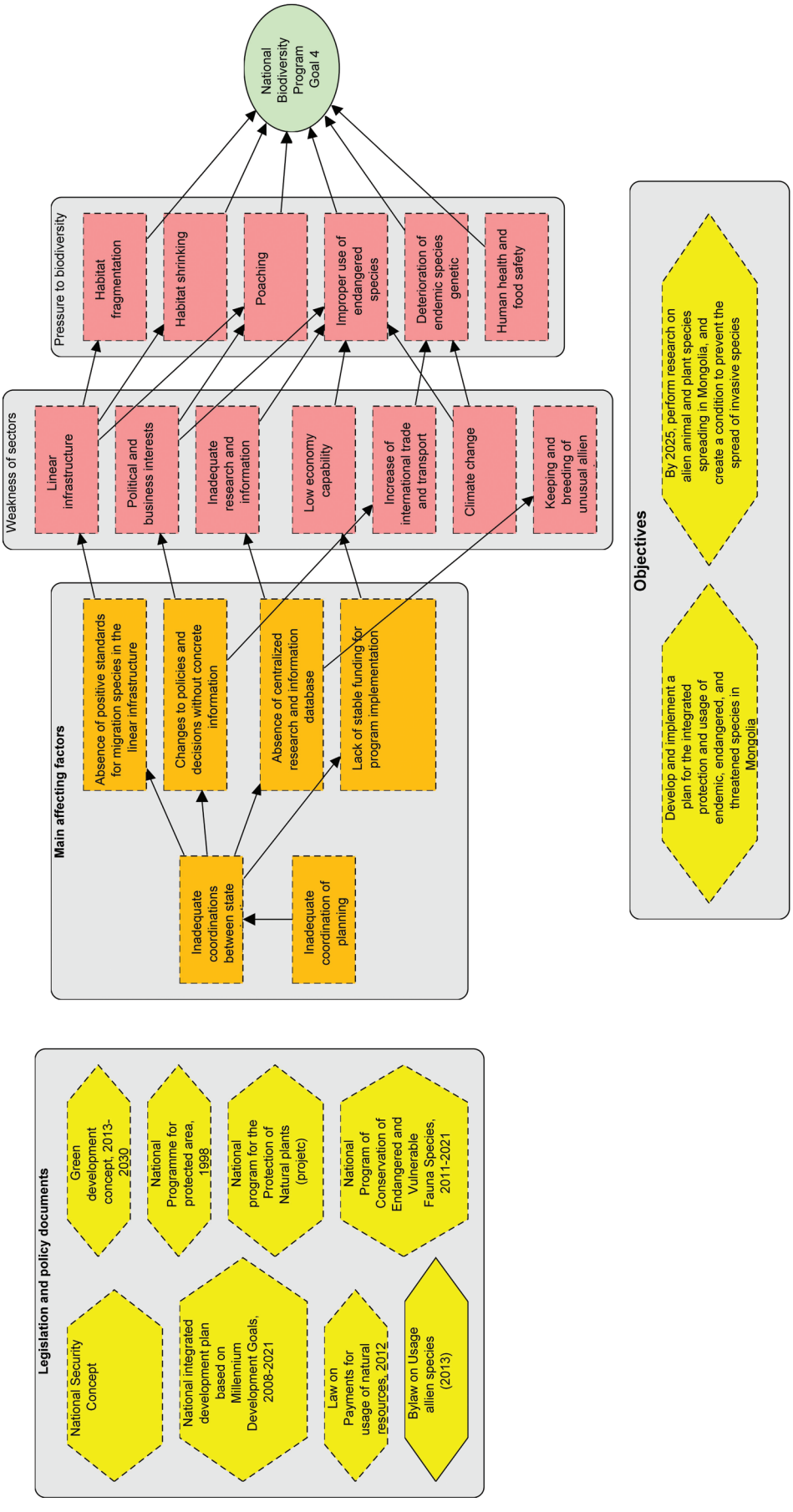
Appendix 1.

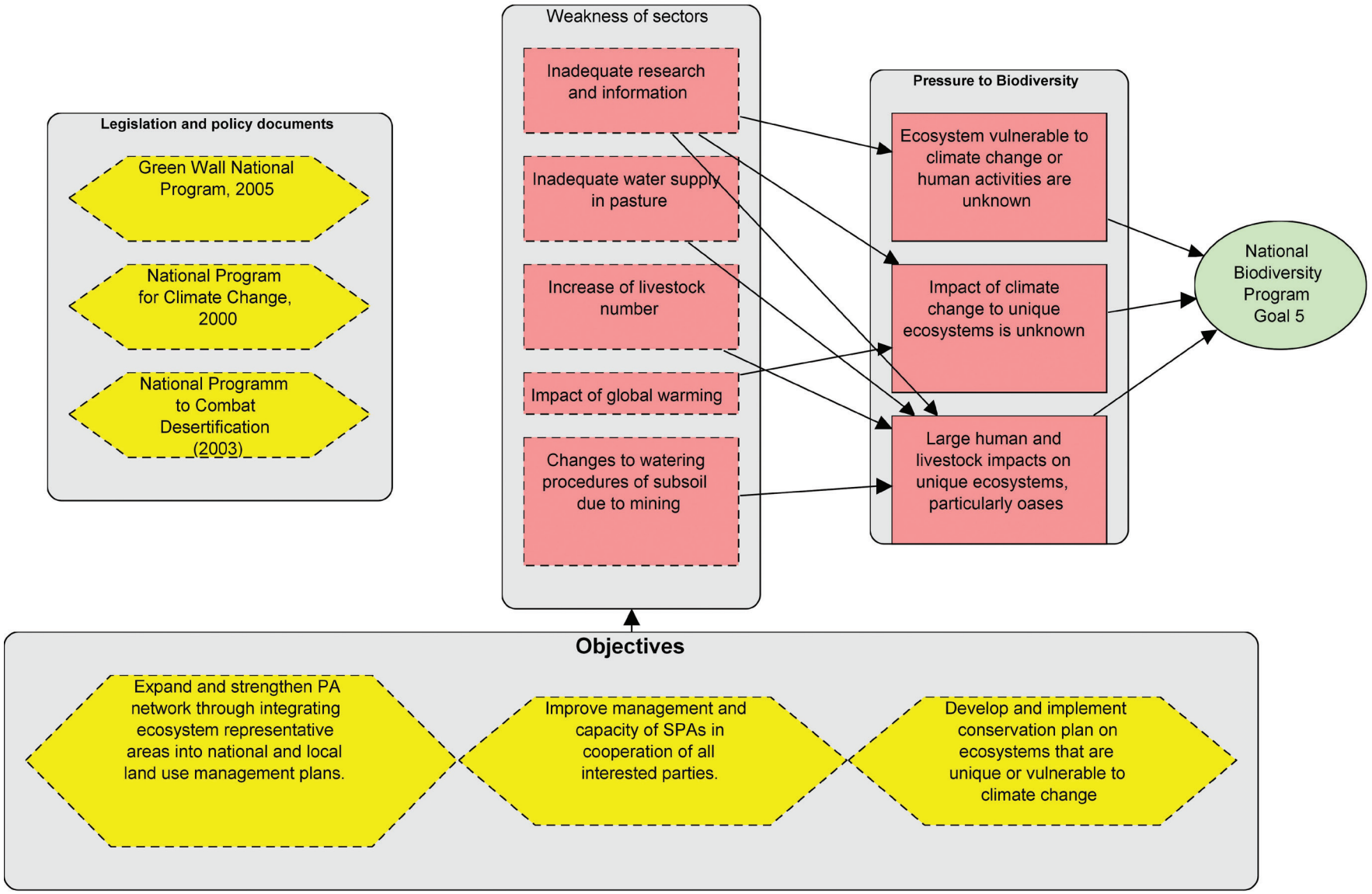
Interrelationships between biodiversity targets, pressures, sources of pressure, and implementation activities

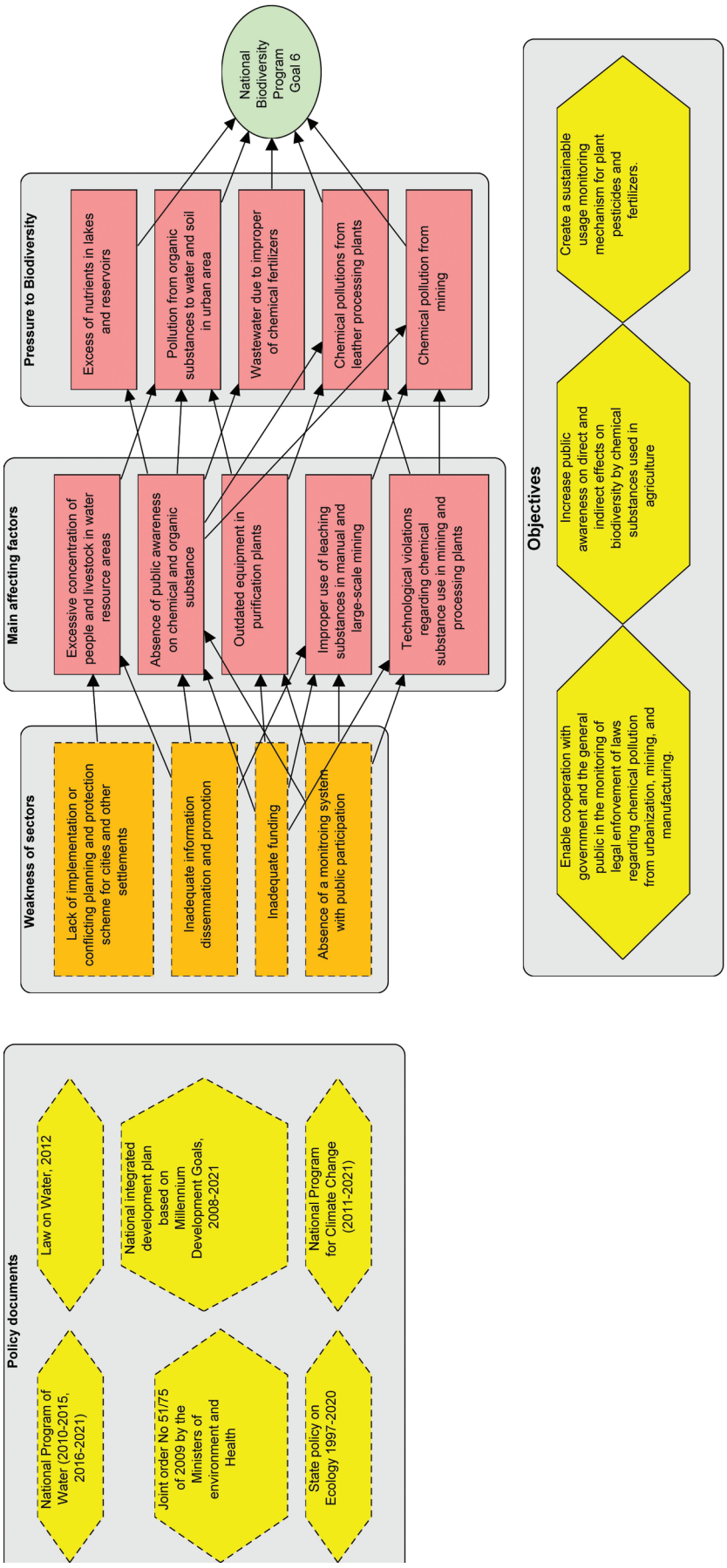


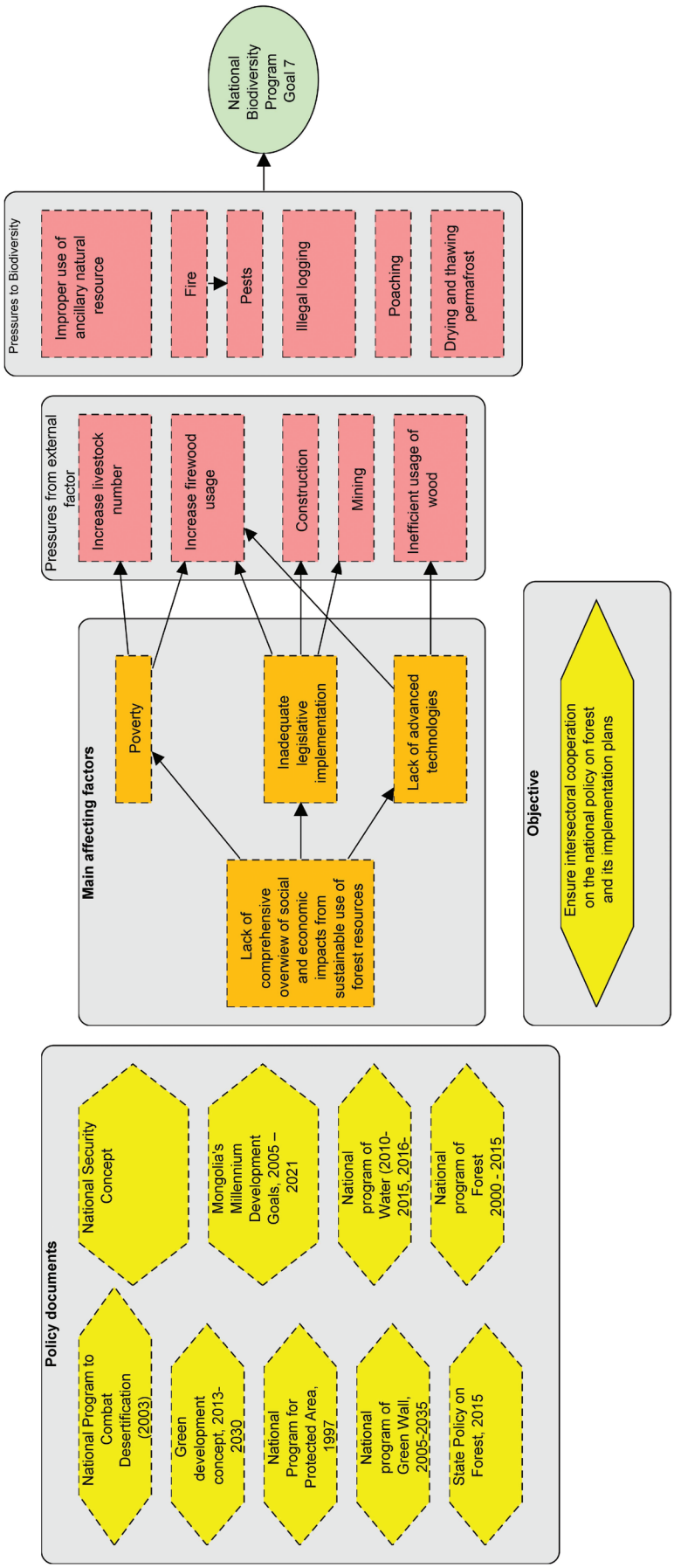

National Biodiversity Program Goal 2
Pressure to Biodiversity
Inability to assess the importance of biodiversity
Inadequate economic mechanisms for the sustainable use of biodiversity based on carrying capacities
Weakness of sector
Inadequate coordination between sectors
Limited sectoral policies
Lack of coordination between policy documents, absence of provisions on biodiversity
Main affecting factors
Inadequate understanding among decisions
Research is not conducted in a comprehensives manner, inadequate database usage and
Lack of knowledge on the values and importance of biodiversity
Absence of stable policy on human development
OBJECTIVES
Improve the mechanism for systematic delivery of biodiversity related information and data on its state to general public and decision makers.
Create a state and private enterprise framework and development of economic incentives that support research on biodiversity.
Legislation and policy documents
State policy on Mineral Resources, 2014-2025
State policy on Ecology 1997-2020
Other program for the Environment
Green development concept, 2013-2030
National program for Mongolian livestock
National Integrated Development Plan based on Mongolia's Millenium Development, 2005-2021

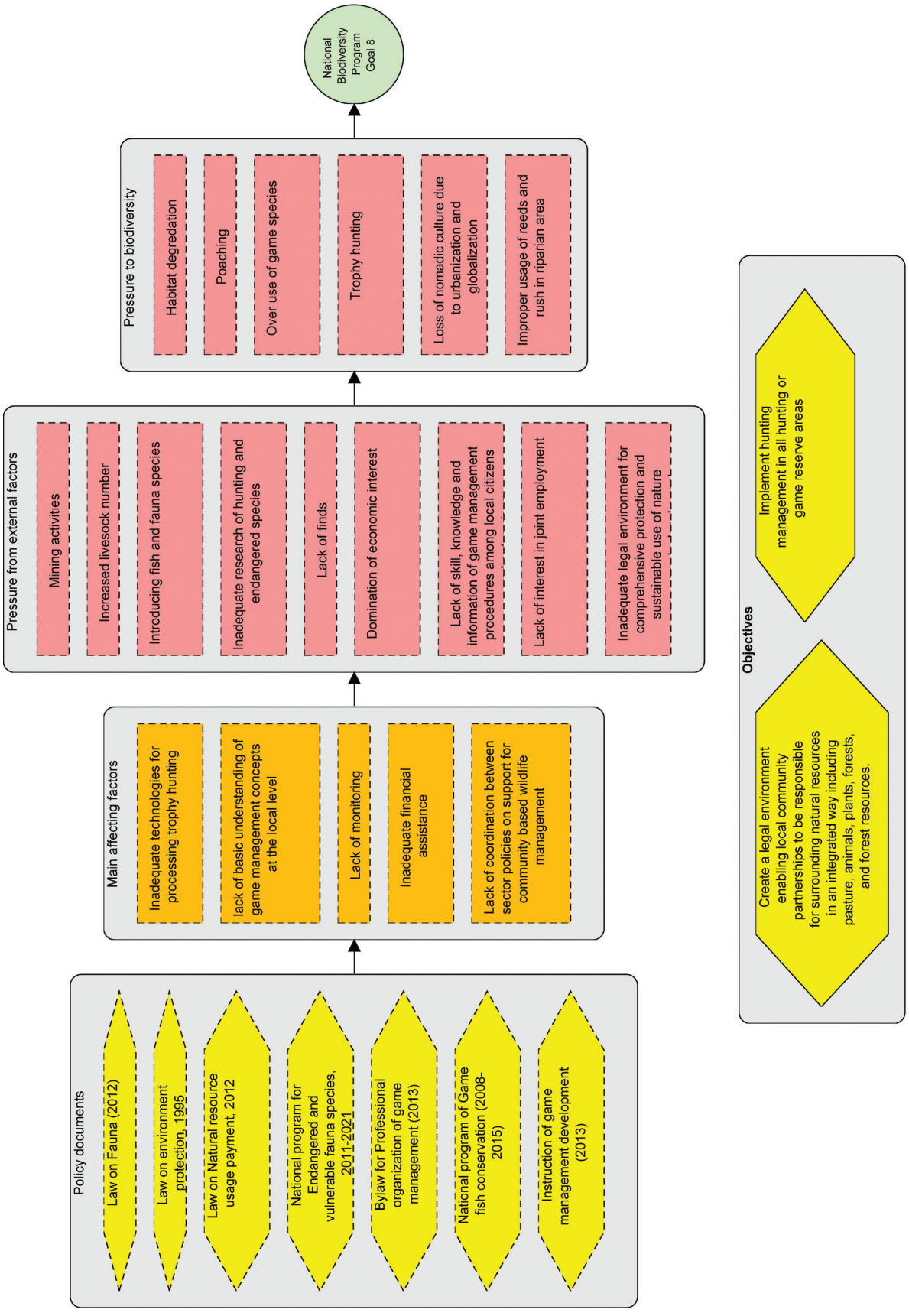

National Biodiversity Program Goal 3
Pressure to Biodiversity
Depreciation or devaluation of genetic resources
Genetic deficiency of wild species and varieties
Hybridizationof transplanted varieties with local varieties
Weakness of sector
Absence of infrastructure to create a genetic resource bank
Absence of database for resource registration
Inadequate knowledge and informationon genetic resource
Intentional and nonintentional anthropogenic avtivities
Absense of a legal environment
Biobusiness
Main affecting factors
Insufficient funding
Absence of state regulation
Lack of educated workforce
Objectives
Create a legal environment enabling the sustainable use and fair and equitable sharing of benefits arising from genetic resources.
Register genetic resources and GMO and create a genetic resource bank
Register and protect genetic funds of Mongolian livestock, cultivars and specimens of endemic and crop plants and their wild relative species.
Legislation adn policy documents
Law on Protection of livestock genetic fund and health, 2001
Green development concept, 2013-2030
National program for Endangered and vulnerable species, 2011-2021
Law on genetically modified organisms, 2007
National Security Concept
National integrated development plan based on Millennium Development Goals, 2008-2021
Law on cultivated plant seeds and varieties, 1999
National program for the protection of natural plants (project)
National program for Biosafety (recen)

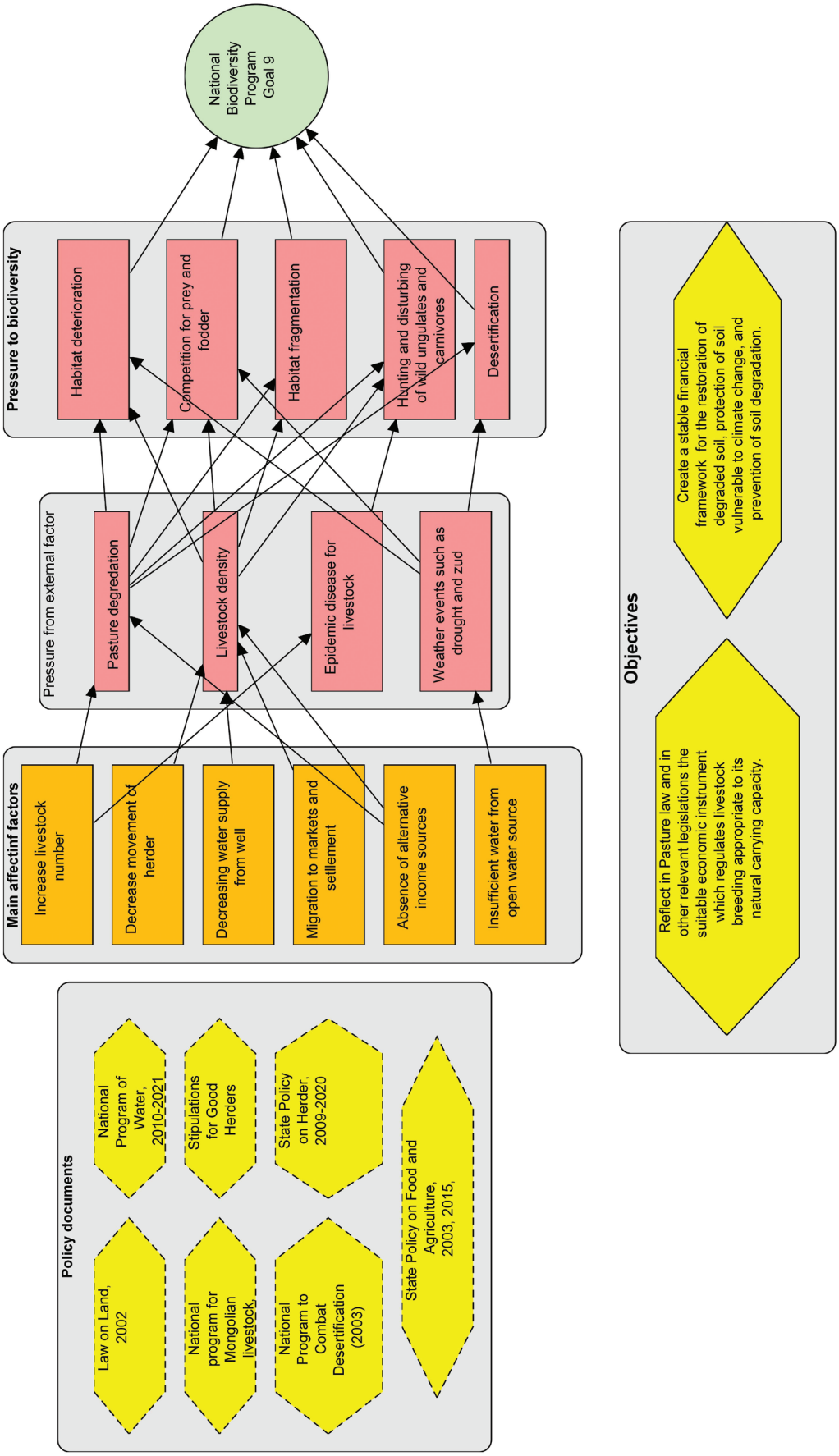

National Biodiversity Program Goal 4
Pressure to biodiversity
Habitat fragmentation
Habitat shrinking
Poaching
Improper use of endangered species
Deterioration of endemic species genetic
Human health and food safety
Weakness of sectors
Linear infrastructure
Political and business interests
Inadequate research and information
Low economy capability
Increase of international trade and transport
Climate change
Keeping and breeding of unusual allien
Main affecting factors
Absence of positive standards for migration species in the linear infrastructure
Changes to policies and decisions without concrete information
Absence of centralized research and information database
Lack of stable funding for program implementation
Inadequate coordinations between state
Inadequate coordination of planning
Objectives
By 2025, perform research on alien animal and plant species spreading in Mongolia, and create a condition to prevent the spread of invasive species
Develop and implement a plan for the integrated protection and usage of endemic, endangered, and threatened species in Mongolia
Legislation and policy documents
Green development concept, 2013-2030
National Programme for protected area, 1998
National program for the Protection of Natural plants (projetc)
National Program of Conservation of Endangered and Vulnerable Fauna Species, 2011-2021
National Security Concept
National integrated development plan based on Millennium Development Goals, 2008-2021
Law on Payments for usage of natural resources, 2012
Bylaw on Usage allien species (2013)

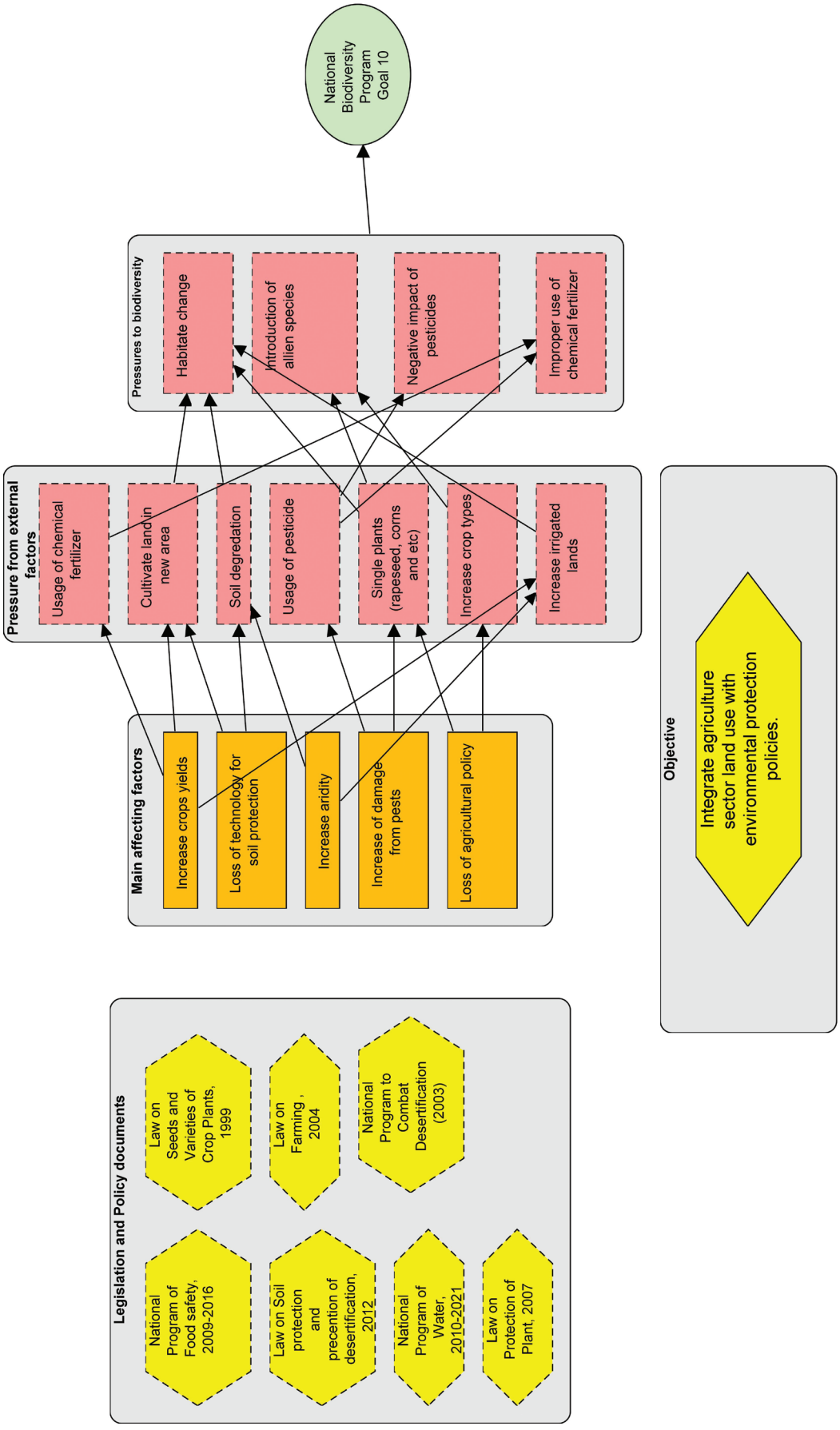

Legislation and policy documents
Green Wall National Program, 2005
National Program for Climate Change, 2000
National Programm to Combat Desertification (2003)
Weakness of sectors
Inadequate research and information
Inadequate water supply in pasture
Increase of livestock number
Impact of global warming
Changes to watering procedures of subsoil due to mining
Pressure to Biodiversity
Ecosystem vulnerable to climate change or human activities are unknown
Impact of climate change to unique ecosystems is unknown
Large human and livestock impacts on unique ecosystems, particularly oases
National Biodiversity Program Goal 5
Objectives
Expand and strengthen PA network through integrating ecosystem representative areas into national and local land use management plans.
Improve management and capacity of SPAs in cooperation of all interested parties.
Develop and implement conservation plan on ecosystems that are unique or vulnerable to climate change

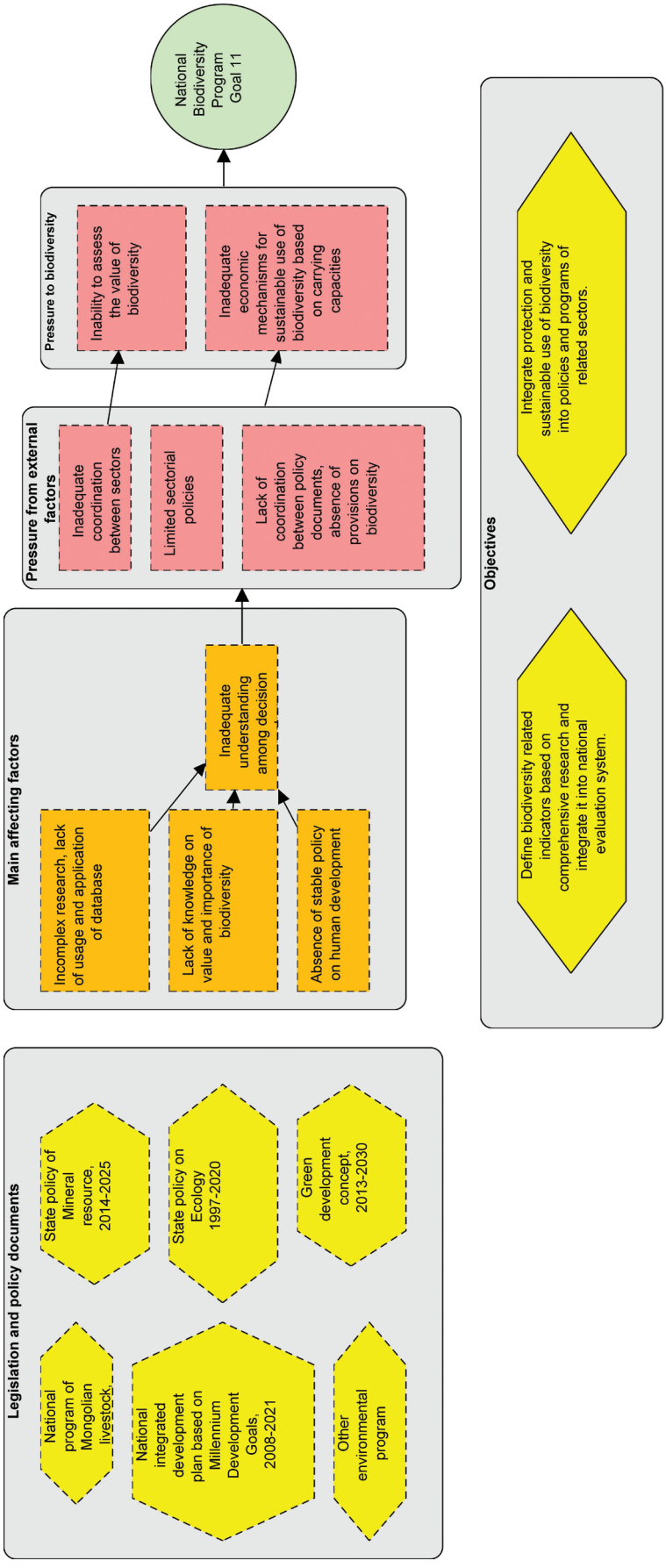

National Biodiversity Program Goal 6
Pressure to Biodiversity
Excess of nutrients in lakes and reservoirs
Pollution from organic substances to water and soil in urban area
Wastewater due to improper of chemical fertilizers
Chemical pollutions from leather processing plants
Chemical pollution from mining
Main affecting factors
Excessive concentration of people and livestock in water resource areas
Absence of public awareness on chemical and organic substance
Outdated equipment in purification plants
Improper use of leaching substances in manual and large-scale mining
Technological violations regarding chemical substance use in mining and processing plants
Weakness of sectors
Lack of implementation or conflicting planning and protection scheme for cities and other settlements
Inadequate information dissemnation and promotion
Inadequate funding
Absence of a monitroing system with public participation
Objectives
Create a sustainable usage monitoring mechanism for plant pesticides and fertilizers.
Increase public awareness on direct and indirect effects on biodiversity by chemical substances used in agriculture
Enable cooperation with government and the general public in the monitoring of legal enforvement of laws regarding chemical pollution from urbanization, mining, and manufacturing.
Policy documents
Law on Water, 2012
National integrated development plan based on Millennium Development Goals, 2008-2021
National Program for Climate Change (2011-2021)
National Program of Water (2010-2015, 2016-2021)
Joint order No 51/75 of 2009 by the Ministers of environment and Health
State policy on Ecology 1997-2020

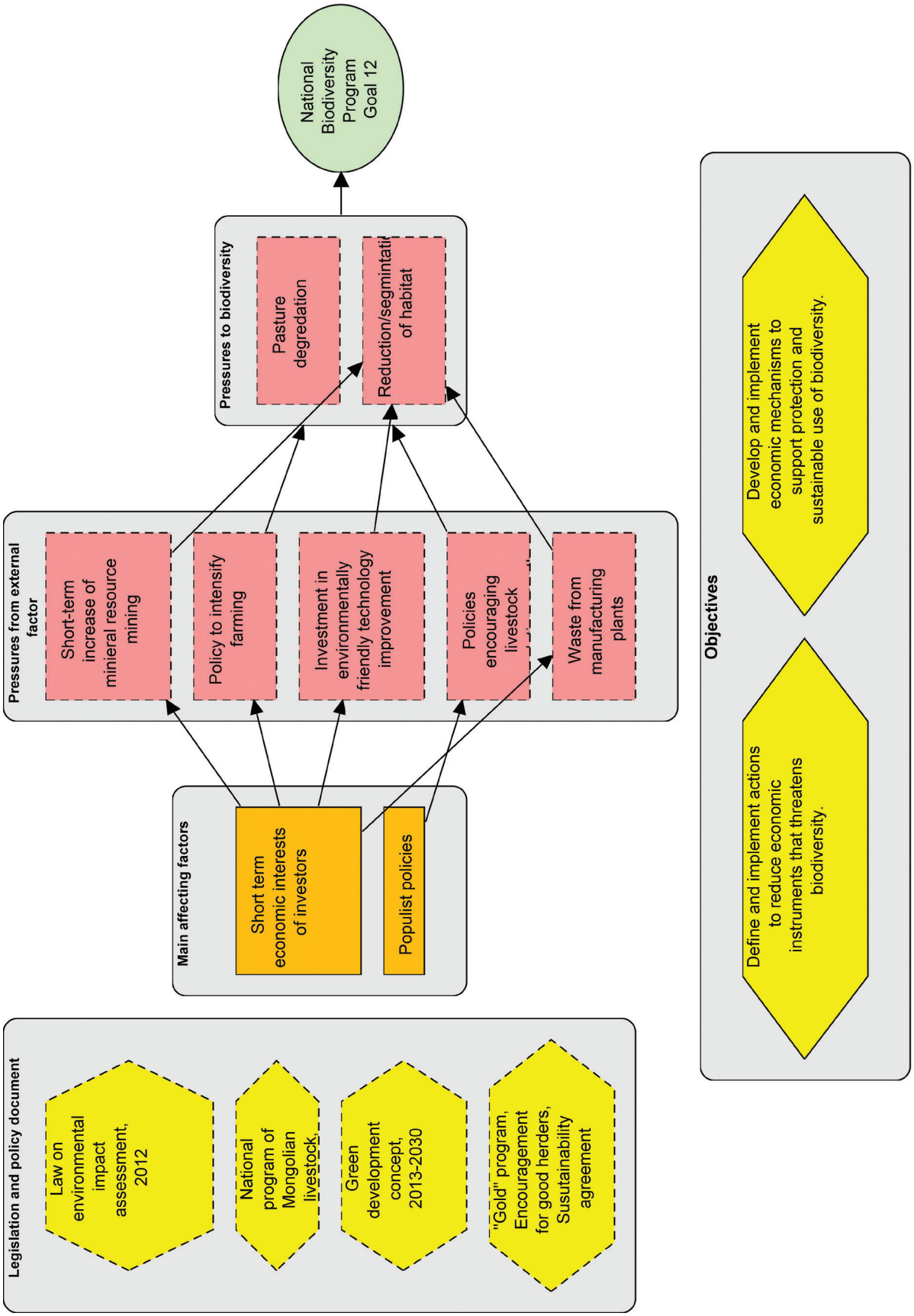

National Biodiversity Program Goal 7
Pressures to Biodiversity
Improper use of ancillary natural resource
Fire
Pests
Illegal logging
Poaching
Drying and thawing permafrost
Pressures from external factor
Increase livestock number
Increase firewood usage
Construction
Mining
Inefficient usage of wood
Main affecting factors
Poverty
Inadequate legislative implementation
Lack of advanced technologies
Lack of comprehensive overwiew of social and economic impacts from sustainable use of forest resources
Objective
Ensure intersectoral cooperation on the national policy on forest and its implementation plans
Policy documents
National Security Concept
Mongolia's Millennium Development Goals, 2005 – 2021
National program of Water (2010-2015, 2016-
National program of Forest 2000 - 2015
National Program to Combat Desertification (2003)
Green development concept, 2013-2030
National Program for Protected Area, 1997
National program of Green Wall, 2005-2035
State Policy on Forest, 2015

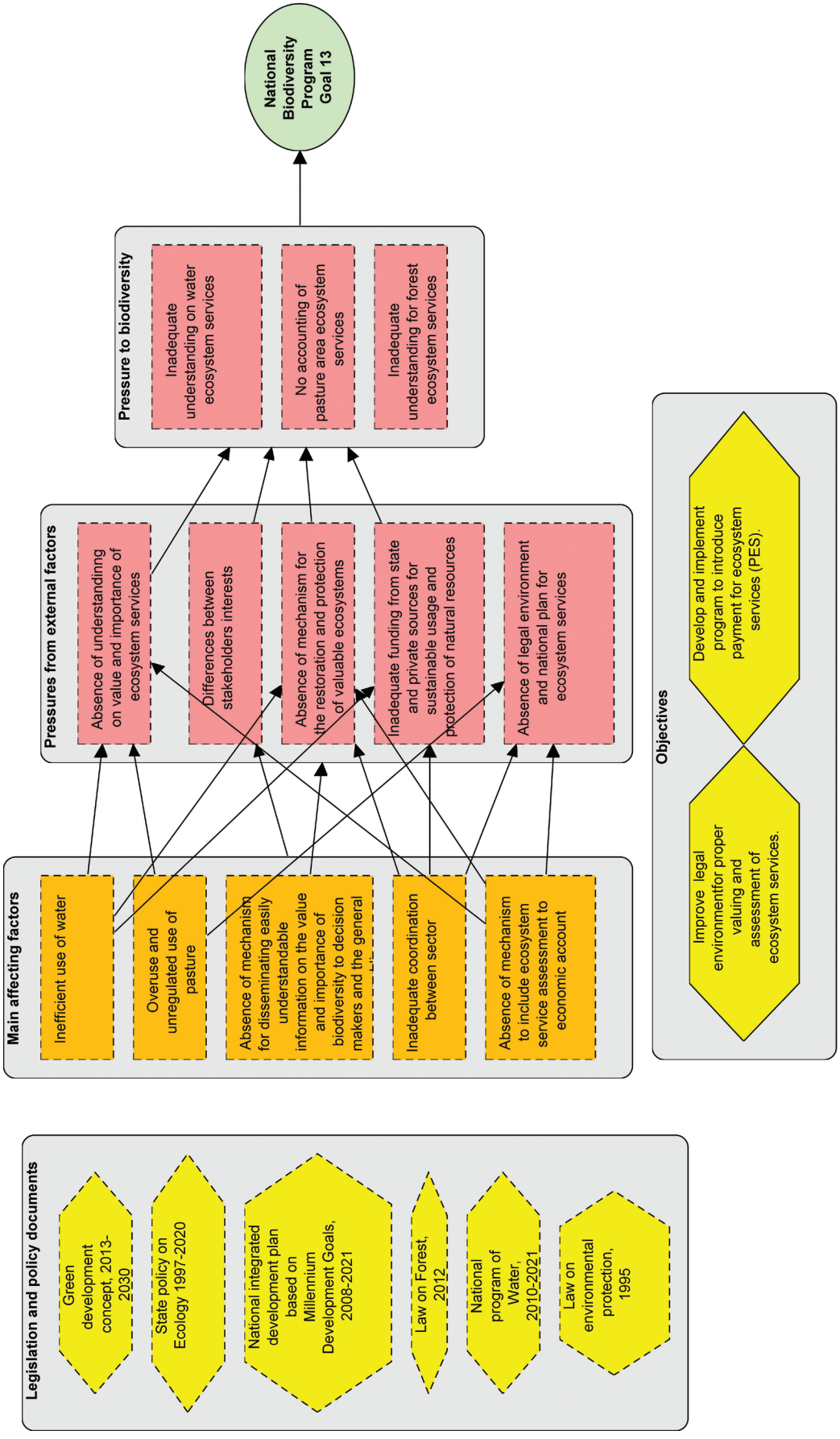

National Biodiversity Program Goal 8
Pressure to biodiversity
Habitat degredation
Poaching
Over use of game species
Trophy hunting
Loss of nomadic culture due to urbanization and globalization
Improper usage of reeds and rush in riparian area
Pressure from external factors
Mining activities
Increased livesock number
Introducing fish and fauna species
Inadequate research of hunting and endangered species
Lack of finds
Domination of economic interest
Lack of skill, knowledge and information of game management procedures among local citizens
Lack of interest in joint employment
Inadequate legal environment for comprehensive protection and sustainable use of nature
Main affecting factors
Inadequate technologies for processing trophy hunting
lack of basic understanding of game management concepts at the local level
Lack of monitoring
Inadequate financial assistance
Lack of coordination between sector policies on support for community based wildlife management
Policy documents
Law on Fauna (2012)
Law on environment protection, 1995
Law on Natural resource usage payment, 2012
National program for Endangered and vulnerable fauna species, 2011-2021
Bylaw for Professional organization of game management (2013)
National program of Game fish conservation (2008-2015)
Instruction of game management development (2013)
Objectives
Implement hunting management in all hunting or game reserve areas
Create a legal environment enabling local community partnerships to be responsible for surrounding natural resources in an integrated way including pasture, animals, plants, forests, and forest resources.

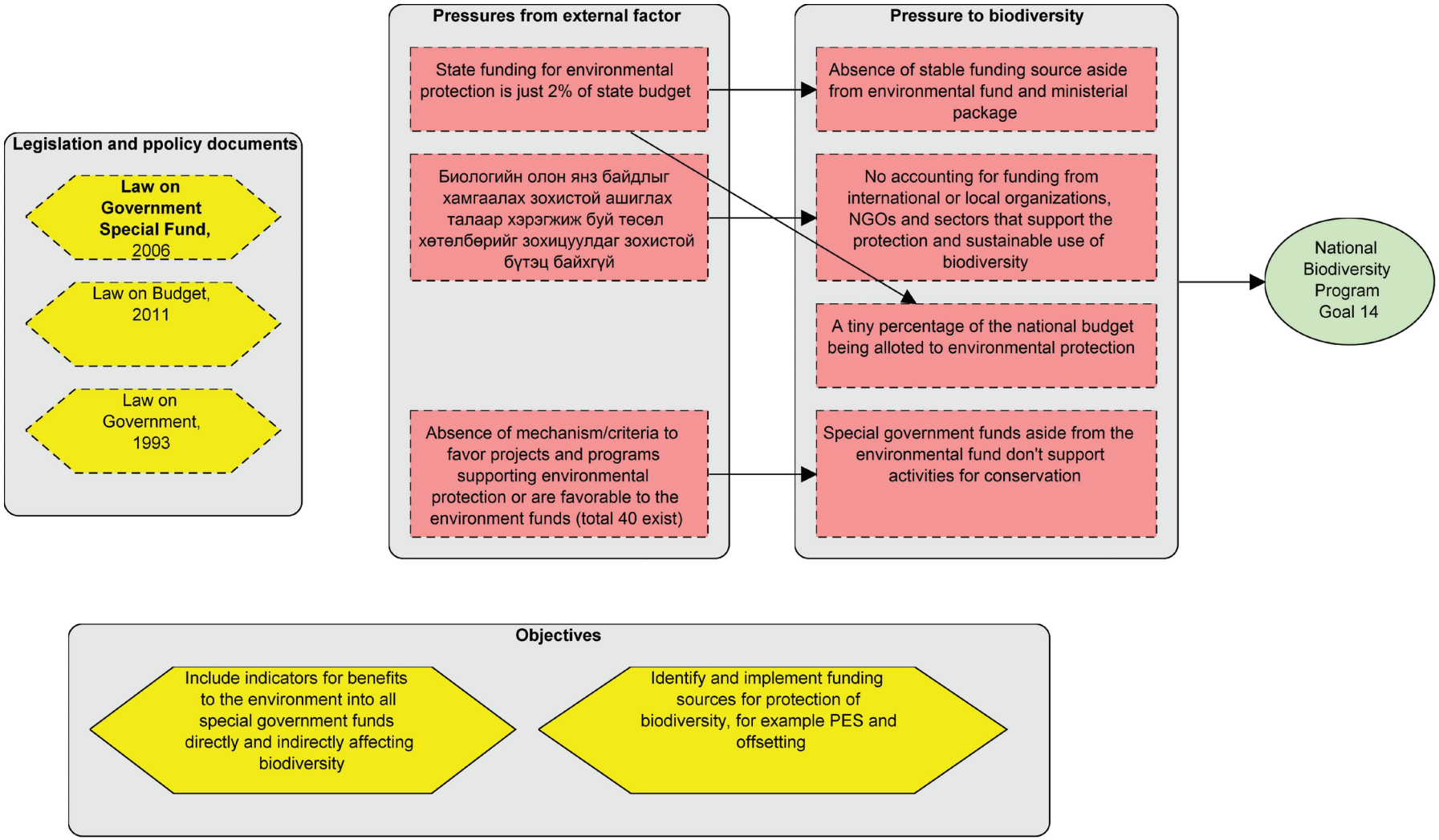

National Biodiversity Program Goal 9
Pressure to biodiversity
Habitat deterioration
Competition for prey and fodder
Habitat fragmentation
Hunting and disturbing of wild ungulates and carnivores
Desertification
Pressure from external factor
Pasture degredation
Livestock density
Epidemic disease for livestock
Weather events such as drought and zud
Main affectinf factors
Increase livestock number
Decrease movement of herder
Decreasing water supply from well
Migration to markets and setllement
Absence of alternative income sources
Insufficient water from open water source
Policy documents
National Program of Water, 2010-2021
Stipulations for Good Herders
State Policy on Herder, 2009-2020
State Policy on Food and Agriculture, 2003, 2015,
Law on Land, 2002
National program for Mongolian livestock
National Program to Combat Desertification (2003)
Objectives
Create a stable financial framework for the restoration of degraded soil, protection of soil vulnerable to climate change, and prevention of soil degradation.
Reflect in Pasture law and in other relevant legislations the suitable economic instrument which regulates livestock breeding appropriate to its natural carrying capacity.


National Biodiversity Program Goal 10
Pressures to biodiversity
Habitate change
Introduction of allien species
Negative impact of pesticides
Improper use of chemical fertilizer
Pressure from external factors
Usage of chemical fertilizer
Cultivate land in new area
Soil degredation
Usage of pesticide
Single plants (rapeseed, corns and etc)
Increase crop types
Increase irrigated lands
Main affecting factors
Increase crops yields
Loss of technology for soil protection
Increase aridity
Increase of damage from pests
Loss of agricultural policy
Objective
Integrate agriculture sector land use with environmental protection policies.
Legislation and Policy documents
Law on Seeds and Varieties of Crop Plants, 1999
Law on Farming , 2004
National Program to Combat Desertification (2003)
National Program of Food safety, 2009-2016
Law on Soil protection and precention of desertification, 2012
National Program of Water, 2010-2021
Law on Protection of Plant, 2007


National Biodiversity Program Goal 11
Pressure to biodiversity
Inability to assess the value of biodiversity
Inadequate economic mechanisms for sustainable use of biodiversity based on carrying capacities
Pressure from external factors
Inadequate coordination between sectors
Limited sectorial policies
Lack of coordination between policy documents, absence of provisions on biodiversity
Main affecting factors
Incomplex research, lack of usage and application of database
Lack of knowledge on value and importance of biodiversity
Absence of stable policy on human development
Inadequate understanding among decision
Legislation and policy documents
State policy of Mineral resource, 2014-2025
State policy on Ecology 1997-2020
Green development concept, 2013-2030
National program of Mongolian livestock
National integrated development plan based on Millennium Development Goals, 2008-2021
Other environmental program
Objectives
Integrate protection and sustainable use of biodiversity into policies and programs of related sectors.
Define biodiversity related indicators based on comprehensive research and integrate it into national evaluation system.


National Biodiversity Program Goal 12
Pressures to biodiversity
Pasture degredation
Reduction/segmintati of habitat
Pressures from external factor
Short-term increase of minieral resource mining
Policy to intensify farming
Investment in environmentally friendly technology improvement
Policies encouraging livestock
Waste from manufacturing plants
Main affecting factors
Short term economic interests of investors
Populist policies
Legislation and policy document
Law on environmental impact assessment, 2012
National program of Mongolian livestock,
Green development concept, 2013-2030
"Gold" program, Encouragement for good herders, Susutainability agreement
Objectives
Develop and implement economic mechanisms to support protection and sustainable use of biodiversity.
Define and implement actions to reduce economic instruments that threatens biodiversity.


National Biodiversity Program Goal 13
Pressure to biodiversity
Inadequate understanding on water ecosystem services
No accounting of pasture area ecosystem services
Inadequate understanding for forest ecosystem services
Pressures from external factors
Absence of understandinng on value and importance of ecosystem services
Differences between stakeholders interests
Absence of mechanism for the restoration and protection of valuable ecosystems
Inadequate funding from state and private sources for sustainable usage and protection of natural resources
Absence of legal environment and national plan for ecosystem services
Main affecting factors
Inefficient use of water
Overuse and unregulated use of pasture
Absence of mechanism for disseminating easily understandable information on the value and importance of biodiversity to decision makers and the general
Inadequate coordination between sector
Absence of mechanism to include ecosystem service assessment to economic account
Objectives
Develop and implement program to introduce payment for ecosystem services (PES).
Improve legal environmentfor proper valuing and assessment of ecosystem services.
Legislation and policy documents
Green development concept, 2013-2030
State policy on Ecology 1997-2020
National integrated development plan based on Millennium Development Goals, 2008-2021
Law on Forest, 2012
National program of Water, 2010-2021
Law on environmental protection, 1995


Legislation and ppolicy documents
Law on Government Special Fund, 2006
Law on Budget, 2011
Law on Government, 1993
Pressures from external factor
State funding for environmental protection is just 2% of state budget
Биологийн олон янз байдлыг хамгаалах зохистой ашиглах талаар хэрэгжиж буй төсөл хөтөлберийг зохицуулдаг зохистой бүтэц байхгүй
Absence of mechanism/criteria to favor projects and programs supporting environmental protection or are favorable to the environment funds (total 40 exist)
Pressure to biodiversity
Absence of stable funding source aside from environmental fund and ministerial package
No accounting for funding from international or local organizations, NGOs and sectors that support the protection and sustainable use of biodiversity
A tiny percentage of the national budget being alloted to environmental protection
Special government funds aside from the environmental fund don't support activities for conservation
National Biodiversity Program Goal 14
Objectives
Include indicators for benefits to the environment into all special government funds directly and indirectly affecting biodiversity
Identify and implement funding sources for protection of biodiversity, for example PES and offsetting

Appendix 2.

References (in English)

Adiya, Ya. Enkhbileg, D. and Ariunbayar B. 2010. Assessment and Recommendations of National Programme on Conservation of Biodiversity Mongolia. "*Community-based Conservation of Biodiversity in the Mountain Landscape of Mongolia's Altai Sayan Eco-Region Project*" (MON/04/G/41 39250)funded by the Nederlands Government and executed by the Ministry of Nature Environment and Tourism Mongolia and for which the UNDP serves as the international implementing agency. Ulaanbaatar.

Andreas Wilkes and TimmTennigkeit, 2010.Carbon finance feasibility study for sustainable range management and livestock development in Mongolia. Study report for Federal Department of Foreign Affairs (FDFA), Swiss Agency for Development and Cooperation, Berne, Switzerland

Annual Progress Report 2013 of the UN-REDD Programme Fund. www.un-redd.org

Batbold, D. and Laurie, A. W. 2002. Evaluation of National Pragramme on Conservation of Biodiversity Mongolia. Ulaanbaatar.

Chimed-Ochir B., Hertzman T., Batsaikhan N., Batbold D., Sanjmyatav D., Onon Yo. and Munkhchuluun B. 2010. Filling the Gaps to Protect the Biodiversity of Mongolia. Admon Printing, Ulaanbaatar.

IUCN. 2001. IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission. IUCN, Gland and Cambridge. ii + 26 pp. (in English)

Mongolia Livestock Adaptation Project (Project for Market and Pasture Management Development) Ministry of Food, Livestock and Light Industry

MONGOLIA: Livestock Sector Study, VOLUME I – SYNTHESIS REPORT. Sustainable Development Department, East Asia and Pacific Region. Document of the World Bank. 2008

Mongolia's National Capacity Self-Assessment for Global Environmental Management and Action Plan Final Report. 2007. Ministry of Nature and Environment. pp 43. Ulaanbaatar.

Mongolian Statistical Year Book. 2013. National Statistical Office of Mongolia. Mongolia, Ulaanbaatar.

Philip Tortell, Adiyasuren Ts. Erdenesaikhan N, 2008. Institutional structures for environmental management in Mongolia. Assessment report for UNDP project "Strengthening Environmental Governance in Mongolia" (Project: Mon/07/104).

Shiirevdamba, Ts. Adiya, Ya. Ganbold, E. and Tserenkhan, G. (eds.) 2013. Mongolian Red Book. Ministry of Environment and Green Development, Admon Printing, Ulaanbaatar. (In Mongolian with English summaries).

The Conservation Measures Partnership. 2013. Open Standards for the Practice of Conservation, Version 3.0. www.conservationmeasures.org

Urgamal, M. Oyuntsetseg, B. Nyambayar, D. and Dulamsuren, Ch. 2014. Conspectus of the vascular plants of Mongolia. (Editors: Sanchir, Ch. And Jamsran, Ts.) Ulaanbaatar, Mongolia. "Admon" Press. 282 (A4) pp.

Wingard J.R. and P. Zahler. 2006. *Silent Steppe: The Illegal Wildlife Trade Crisis in Mongolia*. Mongolia Discussion Papers, East Asia and Pacifi c Environment and Social Development Department. Washington D.C.: World Bank.

WWF. 2014. *Living Planet Report 2014: species and spaces, people and places*. [McLellan, R., Iyengar, L., Jeffries, B. and N.Oerlemans (Eds)]. WWF, Gland, Switzerland.

References (in Mongolian)

Агнуурын загас хамгаалах, өсгөн үржүүлэх үндэсний хөтөлбөр, 2008. Монгол улсын засгийн газрын 267 дугаар тогтоол. Улаанбаатар хот.

Амар, Э. Энхчулуун, Ж. 2011. “Генетик нөөцийн тухай” Монгол улсын хуулийн төсөл боловсруулсан багийн ажлын тайлан. Байгаль орчин, аялал жуулчлалын яам, Нидерландын вант улсын элчин сайдын яам, Дэлхийн банк. Монгол улс, Улаанбаатар.
Амьтны тухай хууль. 2012. Улаанбаатар хот.

Аргаль хонийг хамгаалах үндэсний хөтөлбөр, 2002. Монгол улсын засгийн газрын 269 дугаар тогтоол. Улаанбаатар хот.

Байгалийн нөөц ашигласны төлбөрийн тухай хууль. 2012. Улаанбаатар хот.

Байгалийн ургамлыг хамгаалах үндэсний хөтөлбөр, 2013. Улаанбаатар хот.

Байгалийн ургамлын тухай хууль. 1995. Улаанбаатар хот.

Байгаль орчин, аялал жуулчлалын яам, 2011. Улсын гадаргын усны тооллогын нэгдсэн мэдээ.

Байгаль орчин, ногоон хөгжлийн яам. Байгаль орчны төлөв байдлын өөрчлөлт (2008-2013).

Байгаль орчин, ногоон хөгжил, аялал жуулчлалын яам. Байгаль орчны төлөв байдлын өөрчлөлт (2008-2014).

Байгаль орчны мэдээллийн сан. Ус цаг уур, орчны судалгаа, мэдээллийн хүрээлэн. Байгаль орчин, ногоон хөгжил, аялал жуулчлалын яам, www.eic.mn

Боловсрол үндэсний хөтөлбөр, 2010. Монгол улсын Засгийн газрын 31 дугаар тогтоол.

Бүх нийтийн экологийн боловсрол үндэсний хөтөлбөр, 1997. Монгол улсын Засгийн газрын 255 дугаар тогтоол.

Ганчимэг, Н. Д.Пунсагцогвоо, П. Түмэнцэцэг, Ш. Уламбаяр, Б. Эрдэнэчимэг. 2013. Монголын хэвлэл мэдээлэл өнөөдөр. Хэвлэлийн хүрээлэн. Мэдээлэл судалгааны алба.

Гэрэлжаргал Б. 2009-2012. Монголын хүн амын өргөн хэрэглээний импортын хүнсний зарим бүтээгдэхүүний чанар аюулгүй байдал, эрүүл мэндэд нөлөөлөх эрсдэлийн үнэлгээний тайлан. Улаанбаатар хот.

Иргэний хууль. 2002. Улаанбаатар хот.

Монгол бөхөн хамгаалах үндэсний хөтөлбөр, 2007. Улаанбаатар хот.

Монгол орны байгаль орчны төлөв байдлын 2006-2007 оны тайлан. Байгаль орчны яам. Улаанбаатар хот.

Монгол орны идлэг шонхрыг хамгаалах үндэсний хөтөлбөр, 2003. Монгол улсын засгийн газрын 121 дүгээр тогтоол. Улаанбаатар хот.
Монгол орны ховор ургамлыг хамгаалах, зохистой ашиглах үйл ажиллагааны үндэсний хөтөлбөр, 2002. Монгол улсын засгийн газрын 105 дугаар тогтоол. Улаанбаатар хот.

Монгол орны цоохор ирвэс хамгаалах үндэсний хөтөлбөр, 2005. Байгаль орчны сайдын 195 дугаар тушаал. Улаанбаатар хот.

Монгол улсын Мянганы хөгжлийн зорилтод суурилсан үндэсний хөгжлийн цогц бодлого. 2008. Монгол улсын их хурлын 12 дугаар тогтоол. Улаанбаатар хот.

Монгол улсын Мянганы хөгжлийн зорилтуулын хэрэгжилтийн Үндэсний 5 дахь илтгэл 2013. Эдийн засгийн хөгжлийн яам. Улаанбаатар, Монгол улс.

Монгол улсын үндэсний аюулгүй байдлын үзэл баримтлал. Улаанбаатар хот.

Монгол улсын хүний хөгжлийн илтгэл, 2011. Эмзэг байдлаас тогтвортой хөгжил рүү: Байгаль орчин, хүний хөгжил. Монгол улс, Улаанбаатар.

Монголын биологийн төрөл зүйлийг хамгаалах үйл ажиллагааны үндэсний хөтөлбөр, 1996. Монгол улсын засгийн газрын 163 дугаар тогтоол. Улаанбаатар хот.

Ногоон хөгжлийн бодлого. 2014. Монгол Улсын Их Хурлын 43 дугаар тогтоол. Улаанбаатар хот.
Ногоон хэрэм үндэсний хөтөлбөр. 2005. Монгол улсын Засгийн газрын 44 дүгээр тогтоол. Улаанбаатар хот.

Нэн ховор, ховор амьтдыг хамгаалах үндэсний хөтөлбөр, 2011. Монгол улсын Засгийн газрын 277 дугаар тогтоол.

Ой, мод боловсруулах салбарын үйлдвэрлэлийг сэргээх, тухайн чиглэлээр байгуулагдсан тосгоны хүн амын хөдөлмөр эрхлэлт, нийгмийн асуудлыг шийдвэрлэх арга хэмжээний хөтөлбөр. 2000. Монгол Улсын Их Хурлын 30 дугаар тогтоол. Улаанбаатар хот.

Ойн тухай үндэсний хөтөлбөр. 2001. Монгол улсын Засгийн газрын 248 дугаар тогтоол. Улаанбаатар хот.

Ойн тухай хууль. 2012. Улаанбаатар хот.

Орон нутгийн тусгай хамгаалалттай газар нутгийн мэдээллийг газарзүйн мэдээллийн системд нэгтгэсэн тайлан. 2008. Газрын харилцаа, Геодези, Зургүйн газар, Дэлхийн байгаль хамгаалах сан (WWF)-гийн Монгол дахь хөтөлбөрийн газар. Улаанбаатар хот.

Тул загас хамгаалах үндэсний хөтөлбөр, 2007. Улаанбаатар хот.

Тусгай хамгаалалттай газар нутгийн тухай хууль. 1994. Улаанбаатар хот.

Тусгай хамгаалалттай газар нутгийн үндэсний хөтөлбөр, 1998. Монгол улсын их хурлын 29 дүгээр тогтоол. Улаанбаатар хот.

Тусгай хамгаалалттай газрын орчны бүсийн тухай хууль. 1997. Улаанбаатар хот.
Ургамал хамгааллын тухай хууль. 2007. Улаанбаатар хот.
Ус үндэсний хөтөлбөр. 2010. Монгол Улсын Их Хурлын 24 дүгээр тогтоол. Улаанбаатар хот.

Уур амьсгалын өөрчлөлтийн үндэсний хөтөлбөр, 2000. Монгол улсын Засгийн газрын 120 дугаар тогтоол.

Хайнер, М. Баяржаргал, Ю. Жосеф, К, Галбадрах, Д. Мөнхзул, Г. Одончимэг, И. Энхтуяа, О. Дочин, Э. Хэнрих, У. Ричард, Р. Керк, О. Родни, Ж. Жеффрэй, Э. Брюс М. Жэймэс, О. ба Кэй, С. 2013. Экологийн бүс нутгийн үнэлгээний тайлан. Монгол орны өмнийн говийн бүс нутагт хөгжлийг байгаль орчинд нөлөө багатай төлөвлөх нь. Улаанбаатар хот.

Халиун бугын үндэсний хөтөлбөр, 2000. Монгол улсын их хурлын 31 дүгээр тогтоол. Улаанбаатар хот.

Харь амьтныг ашиглах журам, 2013. Монгол улсын байгаль орчин, ногоон хөгжлийн сайдын А-333 дугаар тушаал. Улаанбаатар хот.

Хүнс, хөдөө аж ахуйн яамны цахим хуудас. http://www.mofa.gov.mn/new/

Цогтбаатар, Ж. Хөдөлмөр, С. Монгол орны цөлжилтийн атлас. 2013. Геоэкологийн хүрээлэн, Swiss Agency for Development and Cooperation SDC, Байгаль Орчны Мэдээллийн Төв. Улаанбаатар хот.

Цөлжилттэй тэмцэх үндэсний хөтөлбөр, 2003, 2010. Монгол улсын Засгийн газрын 90, 141 дүгээр тогтоол.

Эмертон, Н. Эрдэнэсайхан, Б. де Вээн, Д. Цогоо, Л. Жанчивдорж, П. Сувд, Б. Энхцэцэг, Г. Гандолгор, Ч. Доржсүрэн, Д. Сайнбаяр, А.Энхбаатар. 2009. Туул голын эхийн экосистемийн эдийн засгийн үнэ цэнэ. Монгол Улс, Хэлэлцүүлгийн баримт бичиг. Зүүн Ази, Номхон далайн бүс нутгийн Тогтвортой хөгжлийн Хэлтэс. Вашингтон, хот: Дэлхийн Банк.