



MINISTRY OF ENVIRONMENT  
AND GREEN DEVELOPMENT



ADAPTATION FUND



Empowered lives.  
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# STRATEGIC PRIORITIES TO IMPLEMENT ECOSYSTEM BASED ADAPTATION MEASURES

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ALTAI MOUNTAIN AND GREAT LAKES DEPRESSION  
EASTERN STEPPE AND MONGOL DAGUUR

2014







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EASTERN STEPPE AND MONGOL DAGUUR**

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## CONTENT

<b>ONE. EXECUTIVE SUMMARY .....</b>	<b>8-10</b>
<b>TWO. OUTLINE OF CONCEPTUAL FRAMEWORK.....</b>	<b>11-12</b>
2.1. Human-Natural coupled systems.....	13
2.2. Nutag thinking .....	14
2.3. Ecosystem's goods and services .....	15
2.4. Ecosystem based adaptation (EBA) .....	16
2.5. Principles of ecosystems-based adaptation measures .....	17-20
<b>THREE. METHODOLOGY FOR THE DEVELOPMENT OF THE ECOSYSTEM BASED ADAPTATION</b>	
<b>STRATEGIC PRIORITIES .....</b>	<b>21-22</b>
3.1. Linking knowledge and action through participation research .....	23
A. Participatory workshop.....	23
B. Worldcafe discussion.....	24
C. Key informant interview (KII) and focus group discussion (FGD) .....	25
D. Joint assessment and reflection .....	25-26
E. Policy and legal environment reviews for the ecosystem based adaptation implementation .....	27-28
<b>FOUR. ALTAI AND GREAT LAKES DEPRESSION STRATEGIC PRIORITIES TO IMPLEMENT</b>	
<b>ECOSYSTEM BASED ADAPTATION MEASURES.....</b>	<b>29-30</b>
4.1. Proposed activities to be implemented within the scope of ecosystem based adaptation framework.....	31
4.2. Ecosystem based adaptation strategic priorities and objectives .....	32
Strategic priority 1: Support and increase Social-Ecological goods and services from water resources .....	32-33
Strategic priority 2: Support and increase Social-Ecological goods and services from rangeland ecosystem.....	34-35
Strategic priority 3: Improve Social-Ecological goods and services derived from the forest ecosystems.....	36-38
Strategic priority 4: Protect Social-Ecological goods and services derived from the riparian ecosystems .....	39-40
Strategic priority 5: Disseminate appropriate knowledge, approach and practices to conserve Inherited cultural and educational ecosystem services .....	41-42
Strategic priority 6: Maintain and conserve capacity of ecosystems to generate goods and services, so it will continue producing multiple social and economic benefits for wellbeing of the current future generation .....	43-47
Strategic priority 7: Strengthen sustainable ecosystem management and conservation and Institutions environment.....	49-50

<b>FIVE. EASTERN STEPPE AND MONGOL DAGUUR STRATEGIC PRIORITIES TO IMPLEMENT ECOSYSTEM BASED ADAPTATION MEASURES .....</b>	<b>51-52</b>
5.1. Proposed activities to be implemented within the scope of ecosystem based adaptation framework .....	53
5.2. Ecosystem based adaptation strategy priorities and objectives.....	54
Strategic priority 1: Support and increase Social-Ecological goods and services from water resources .....	54-55
Strategic priority 2: Support and increase Social-Ecological goods and services from rangeland ecosystem.....	56-57
Strategic priority 3: Improve Social-Ecological goods and services derived from the forest ecosystems .....	58-59
Strategic priority 4: Protect Social-Ecological goods and services derived from the riparian ecosystems .....	60-61
Strategic priority 5: Disseminate appropriate knowledge, approach and practices to conserve Inherited cultural and educational ecosystem services .....	62-63
Strategic priority 6: Maintain and conserve capacity of ecosystems to generate goods and services, so it will continue producing multiple social and economic benefits for wellbeing of the current future generation .....	64-67
Strategic priority 7: Strengthen sustainable ecosystem management and conservation and Institutions environment .....	68-70
<b>SIX. CONCLUSION / RECOMMENDATION .....</b>	<b>71-73</b>
<b>APPENDIX .....</b>	<b>74-78</b>
<b>REFERENCE LIST .....</b>	<b>79-80</b>

#### LIST OF ABBREVIATIONS

EBA	Ecosystem based adaptation
UNDP	United Nation's Development programme
NGO	Non Government organization





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## CHAPTER ONE

## EXECUTIVE SUMMARY



## 1. EXECUTIVE SUMMARY

Due to the climate change, every country starts work on developing an adaptation policy and program featuring their development stages, moreover it closely relates to further country development. Climate changes have a great impact on the ecosystem that directly impacts on livelihood security, health, social relations and labor freedom.

Therefore, UNDP and Ministry of Environment and Green Development of Mongolia implement “Ecosystem – based Adaptation approach to Maintain Water security in critical water catchments in Mongolia” (MOH/12/301) project addressing the principles of Ecosystem - based adaptation appropriate to Mongolian geographical condition, climate and population demographics. The national consulting company “Nutag Partners” implemented the project activities. This research work develops actions and principles of the ecosystem based adaptation approach focused on two Eco regions as Mongol Daguur, Dornod region and Altai Mountain, Great lakes depression region. Ecosystem based adaptation approach corresponds to the regional development policy and is important for sustainable development in the region.

The ecosystem based adaptation approach used an assessment approach by reviewing national relevant policies and programs, then analyzed their coherence and coordination. In addition, we reviewed the aimag and soum Governor’s action plan,

sectoral subprograms, Government decrees and other working documents to point out specific characteristics and comparative advantages of regional geographic locations, climate changes, population demographics and socioeconomic conditions. Also, reviewed and analyzed the ecological and socioeconomic researches, risk and vulnerability evaluation approaches and regional economic analysis between 2012 and 2013. We conducted several focus group discussions and key informant interviews with officers and specialists of soum and aimag Governor’s office. They discussed opportunities and points for integration of agriculture, land management, health and education sectors to ecosystem-based adaptation framework, which used for analysis and development of activities.

The ecosystem based adaptation approaches developed to address and build ecosystem resilience, which underpin the *capacity of an ecosystem* to maintain the benefits of *goods and services*, ensure to maintain the environment for current and future generations and increase human well-being. In addition to, as a theoretical lens it used nutag (homeland) framework to understand couple human-natural systems, social-ecological resilience building to climate change and linking knowledge to action, the participatory learning approach. As a result, information on the areas important for ecosystem based adaptation approach at the national and international levels.



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**T**he ecosystem based adaptation approach aims to maintain benefits from multiple economic, social, environmental and cultural co-benefits providing support, methodologies and techniques for societal adaptation to climate change for further conservation and restoration of regional ecosystem to preserve for current and future generations.

Ecosystem based adaptation identified the following seven (7) strategic priorities to be implemented between 2014 and 2021.

- Support social and ecological goods and services derived from water systems
- Support conservation and provision of social and ecological goods and services derived from rangeland ecosystems
- Support conservation and provision of social and ecological goods and services derived from forest ecosystems
- Support conservation and provision of social and ecological goods and services de-

rived from riparian ecosystems

- Disseminate knowledge, approach and practices to conserve cultural and educational goods and services
- Maintain multiple social and economic benefits derived from ecosystems to support sustainability of current and future generation
- Strengthen policy and institutions for sustainable ecosystem management and conservation

Each approach divides into a number of sub objectives and the list of each objective covers a vast range of activities in accordance with the Ecosystem based adaptation approach that is available for direct implementation activities in each soum and appropriate for regions. The analyses and results of public opinions, financial source and human resource reflects to the approaches and activities.





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## CHAPTER TWO



## OUTLINE OF CONCEPTUAL FRAMEWORK





## OUTLINE OF CONCEPTUAL FRAMEWORK

According to the Millennium Ecosystem Assessment it was reported that being integral part of ecosystems humans are fully dependent on the services they provide and over the past 50 years, humans have changed these ecosystems diminishing its long-term benefits (MA 2005). Findings, conclusions and recommendation of this assessment concludes that ecosystem goods and services are fundamentals for human well-being of current and future generation and therefore, ecosystem conservation policy and programs should be justified and informed by comprehensive scientific theories and approaches.

## 2.1. HUMAN-NATURAL COUPLED SYSTEMS

An ecological system can be understood as an ecosystem, which is made up of biotic (plant, animal) and abiotic components such as water, air, nutrients, etc. (Resilience Alliance 2007). Ecosystems could be of various forms, some maybe intact boreal forest, some could be slightly disturbed systems and others could be totally transformed by human influence such as croplands.

Ecosystems and human societies are co-evolutionary, in which ecosystems are the results of human interventions over millennia. Natural systems and social systems are considered as complex coupled human and natural systems, where people and nature interact reciprocally and form complex feedback loops (Liu *et al.*, 2007). Any decisions made by human societies have direct influence to the ecosystem and in turn goods and services derived from ecosystems provide basis for human wellbeing and sustainable livelihoods development Figure 1, (Stafford Smith *et al.*, 2007).

Social systems as well as ecosystems are affected by external factors that cause their transformation and adaptation. Studies on coupled human-natural systems provide academic justifications to all countries on causes of transformations, and thus providing scientific basis for integrating environmental objectives into socio-economic policies that will lead to sustainable development of the country.

Efficient implementation of the regional scale ecosystem conservation and management policy depends on understanding and reflecting characteristics of the human-natural coupled systems. As market price fluctuations and political reforms have a direct impact on the society, various types of ecological risks, such as global warming, drought, dzud (heavy snowfall), flood and fire influence the ecosystem as well. In the face of such combined effects of socio-ecological changes, solutions to maintain social-ecological resilience for sustainable development for current and future generation still exists as the main challenges that Mongolians need to address.

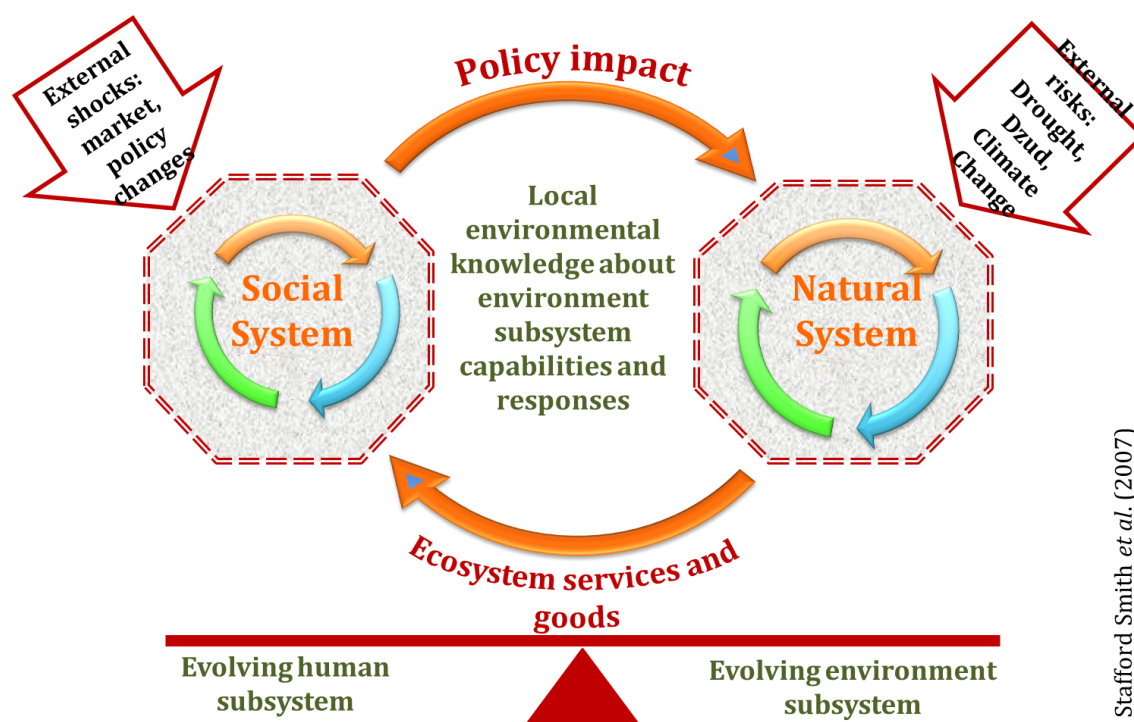
## 2.2. NUTAG THINKING

From the ancient times Mongolian pastoralists valued the wisdom of protecting “the birth cord connection of nature and humans” that determined their communal lifestyles and supported their livelihoods. Their livelihoods were tied to their Nutag (homeland) and controlled by their mountains and waters. The pastoralists’ wisdom and practices of preserving and safeguarding of mother nature’s wealth still have a lot to contribute in addressing many social and ecological issues that we face nowadays.

According to the most recent studies, traditional nutag knowledge or nutag framework was suggested as playing a critical role in building resilience of coupled human-natural systems (Batkishig 2012). Findings of this study inform that nutag is a traditional concept that refers Mongolia as a whole country and it also is understood as one’s birth place and bathed water and it carries a holistic meaning that transcend dimensional boundaries of space and time. According to this study, issues related to coupled human-natural systems is not a simple phenomenon that could be explained only by ecological sciences,

but also it requires social, anthropological, ethnographic, animal, educational and other scientific approaches to provide comprehensive explanation and justification. This notion was discussed previously by other Mongolian scientists, who elaborated more on human-nature-livestock triple relationship and explained interactions and interrelations that drive this triplet thinking (Erdenetsogt, 1998; Avarzed & Sodnoi, 2008; Bazargur 2005).

Meaningful integration and application of diverse types of information and knowledge systems (scientific knowledge, nutag knowledge, innovative technology, etc.) contributes in producing new, locally adapted and culturally salient knowledge that enhances communities’ adaptive capacity (Batkishig & Fernandez-Gimenez, 2012). Integrating such progressive traditional thinking with scientific concepts, we made an effort to design a regional scale policy framework to implement ecosystem based adaptation measures that reflect specific local context and needs and potentials of individuals, households, communities and soums.



Stafford Smith *et al.* (2007)

Figure 1. Interactions between the human and environmental components of the land systems

## 2.3. ECOSYSTEMS GOODS AND SERVICES

Ecosystem is a complex of living organisms (biotic) and their non-living surroundings (abiotic). Ecosystems provide a range of services to humans and these services are both direct and indirect goods and services, some easily recognized and others more subtle. Over the past 50 years, have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber and fuel (MA, 2005).

Though ecosystems' goods and services have contributed to substantial net gains in human well-being and economic development, these gains have been achieved at growing costs in the form of degradation of many ecosystem services. For example, degradation of riparian rangeland caused by intensive grazing results in losses of numerous goods and service derived from this ecosystem, such as losing its capacity to function as a buffet due to soil erosion, declined productivity, reduced water quality, diminished habitat for

fish and other aquatic organisms.

Ecosystems provide a range of services to humans, including provisioning, regulating, supporting and cultural (Figure 1).

**Ecosystem provisioning services** encompass the products obtained from ecosystems, including food, freshwater, timber and fuel wood, fibers and genetic resources. Ecosystem regulation services include the benefit to be derived from the role of the environment climate regulation, flood alleviation, water purification and disease regulation. Non-material benefits obtained from ecosystems comprise cultural services, including recreation, transport, ecotourism, spiritual, religious and aesthetic uses, education, cultural heritage. Supporting services underlie the sustainability of all the above-noted services including nutrient cycling, soil formation, photosynthesis and primary production.

Provisioning	Regulating	Cultural
<ul style="list-style-type: none"> <li>♦ Livestock</li> <li>♦ Crops</li> <li>♦ Fiber</li> <li>♦ Timber</li> <li>♦ Fresh water</li> <li>♦ Wood fuel</li> <li>♦ Wild plant and animals</li> <li>♦ Biochemicals, natural medicines, and pharmaceuticals</li> <li>♦ Genetic materials</li> <li>♦ Construction materials</li> </ul>	<ul style="list-style-type: none"> <li>♦ Climate regulation</li> <li>♦ Water purification</li> <li>♦ Waste treatment</li> <li>♦ Disease regulation</li> <li>♦ Air quality regulation</li> <li>♦ Soil water infiltration</li> <li>♦ Hydrologic energy potentials</li> <li>♦ Solar energy potentials</li> <li>♦ Wind energy potentials</li> </ul>	<ul style="list-style-type: none"> <li>♦ Views and scenes</li> <li>♦ Cultural and spiritual resources</li> <li>♦ Historical/Archeological sites</li> <li>♦ Scientifically significant sites</li> <li>♦ Recreation and tourism</li> <li>♦ Educational and learning resources</li> <li>♦ Ceremonial resources</li> </ul>
Supporting services		
Soil formation, production, photosynthesis		

Figure 1. Ecosystem goods and services (MA, 2005)



## 2.4. ECOSYSTEM BASED ADAPTATION (EBA)

Ecosystem-based adaptation (EBA) is an emerging approach that helps people to adapt to the adverse impacts of climate change. Adaptation occurs in both natural and socio-economic systems. All species of plant and animal life are adapted and adapting to climate, and may be expected to respond adaptively to future climate change to the extent that time allows (Burton *et al.*, 1998). In terms of social systems, it also adapts in the face of environment, socio-economic and political changes by policy adjustments and legal reforms. For example, Green Development Concept, which is being pursued by the Ministry of Nature and Green Development of Mongolia is one of policy adaptation measures that creates favorable legal framework for multisectoral and comprehensive adaptation. Another current example of adaptation is implementation of the regional scale Ecosystem-Based Adaptation UNDP project that focuses on maintaining ecosystem integrity and water security in two ecoregions in Mongolia.

Ecosystem-based adaptation (EBA) is the use of nature's goods and services to help people

adapt to the expected impacts of climate change and it is a comprehensive action directed to maintain socio-economic benefits derived from the ecosystems to cover needs of current and future generations. Ecosystems services and goods are critical resources needed for human well-being and it requires context specific and appropriate set of EBA actions for the management, conservation and restoration of ecosystems in order to reduce the vulnerability and increase the resilience of human communities in the face of climate change.

National scale EBA policy framework will play an important role in creating an enabling legal condition to implement range of actions at regional, aimag and soum levels by introducing appropriate knowledge, technology and solutions to prevent from degradation and build resilience of the ecosystems services and goods. It is vital to consider how EBA actions could be grounded at unit level, such as at household, community, bag and soum levels, and make it relevant and meaningful to the local context and demands.

.....  
EVERYDAY BEHAVIOR AND DECISIONS  
WILL BE CHanneled  
TOWARD A FUTURE IN WHICH NATURE  
IS NO LONGER SEEN AS A LUXURY  
WE CANNOT AFFORD, BUT AS SOME-  
THING ESSENTIAL FOR SUSTAINING  
AND IMPROVING HUMAN WELL-BEING  
EVERYWHERE (DAILY ET AL., 2009).  
.....

## 2.5. PRINCIPLES OF ECOSYSTEM-BASED ADAPTATION MEASURES

As a guiding principle for EBA policy development UNEP proposed a set principles and guidelines for best practice or effectiveness that were used to develop EBA implementation priorities in Altai Mountain and Great Lakes Basis (Table 1).

**1. Promote resilient ecosystems:** Resilience has been defined as the capacity of a system to withstand or absorb disturbance and to reorganize while undergoing change, but retain its essential function, structure, identity, and feedbacks (Holling 2001, Walker *et al.*, 2004). Policy targeted to support ecosystems resilience is recommended to take a holistic approach by considering particular systems potential, degradation level and projected condition.

**2. Maintain ecosystem services:** Maintaining of ecosystem services depends on multiple social aspects to identify options for managing ecosystem or managing its use. It is vital to involve local communities and users in adaptation measures. Degradation of ecosystem services could vary, some services and goods could be severely degraded and some are not. For example, riparian vegetation could be degraded in the terms of species composition and biomass as a result of prolonged grazing, but soil properties could remain unchanged. Therefore, in order to prevent soil from further erosion it is important to maintain and restore water holding capacity of the soil, maintain infil-

tration and protect the soil surface from heating by altering grazing season, reducing stocking intensity and resting or grazing removal

**3. Support sectoral adaptation:** Within the scope of the implementation of EBA new opportunities are opening up for cross-sectoral partnerships. Different sectoral development plans will be influenced by EBA action and as a result coordination of the sectors will be required to include

**4. Reduce risks and disasters:** It is important to consider risk preparedness by facilitating individuals and organizations to enhance their capacity and accumulate necessary resources as part of disaster preparedness operation. EBA policy addresses risk prevention and protection of herders and farmers by building their resilience to potential risks

**5. Complement infrastructure:** Dam re-engineering and reservoirs construction will support maintaining ecological flows in rivers and protection of breakage of river banks. Introduce energy efficient smart technology and infrastructure.

**6. Avoid mal-adaptation:** Some technological solutions can have significant negative impacts to natural systems or some adaptation measures do not increase resilience and adaptive capacity. So it is important to prevent this in the planning stages - before engineered solutions are designed and implemented.

ALL SOCIAL-ECOLOGICAL SYSTEMS ARE VULNERABLE TO RECENT AND PROJECTED CHANGES BUT HAVE SOURCES OF ADAPTIVE CAPACITY AND RESILIENCE THAT CAN SUSTAIN ECOSYSTEM SERVICES AND HUMAN WELL-BEING THROUGH ACTIVE ECOSYSTEM STEWARDSHIP (CHAPIN ET AL., 2009).

Table 1. Guiding principles used to design regional scale ecosystem-based adaptation framework and objectives

Guiding principles of EBA strategic priorities and objectives		Guiding principles of practices and activities	
1.	Promote resilient ecosystems	1.	People-centered,
2.	Maintain ecosystem services	2.	Multisectoral,
3.	Support sectoral adaptation	3.	Comprehensive,
4.	Reduce risks and disasters	4.	Context-specific, and
5.	Complement infrastructure	5.	Prevention-oriented
6.	Avoid mal-adaptation		

Travers *et al.*, 2012

UN Human Security Unit, 2009

EBA activities will be implemented at unit levels, at household, community, soum and aimag, and therefore, proposed list of activities should contribute to enhancement of human security, we designed these activities to meet the following human security principles of

- 1) being people-centered,
- 2) multisectoral,
- 3) comprehensive,
- 4) context-specific,
- 5) prevention-oriented

EBA strategic directions should meet the basic requirements of the human security as it is the main indicator for the human development and sustainability.

### 1. People-centered:

The EBA practices should address needs and be based on demands of the people to support their livelihoods, provide them opportunities and raise their integrity. It is assumed that with sufficient information and shared experiences, people can often develop strategies that help them adapt to climate change. The process should motivate individuals and communities in defining their needs and vulnerabilities and empower them to act as active agents of change. Communities should collectively determine which EBA measures and activities to implement and identify the available resources.

### 2. Multisectoral:

Considering specific characteristics of the ecoregion, it is efficient to aim for multi-sectorality rather than pursuing a sectoral approach. It is impossible to conserve ecosystem good and services by emphasizing one sector, but by promoting dialogue among key actors from different fields. As it is said there is no harm for collective consultation, everyone contributes to creating a problem as well as solving the problem, which means to ensure coherence and coordination across traditionally separate sectors. EBA activities will be a joint cross-sectoral venture including government, individuals, communities, researchers and volunteers

### 3. Comprehensive:

Within the scope of implementing EBA measures, it is envisaged to address the wide spectrum of threats, vulnerabilities and capacities. In addition to implementing environmental policy agenda, EBA activities should have holistic approach addressing agricultural, land management and other socio-economic issues as well. Since larger ecosystems support functions of smaller scale systems, ecosystem goods and services are also utilized simultaneously by different sectors. Therefore, EBA measures implemented in one ecosystem should support and enhance goods and services derived from other ecosystems. Regional ecosystems comprise from various smaller ecosystems, such as rangeland, forest and riparian ecosystems and EBA activities should be designed in a way that includes all sectors and actors by developing multisectoral and multi-actor responses (Figure 2).

### 4. Context-specific:

Requires in-depth analysis of the targeted situation to develop appropriate EBA technologies and practices.

*Appropriate technology innovations:* technologies appropriate for particular eco-region will be developed by introducing innovative one in parallel with integrating them with traditional practices.

*Matching with local people demands, initiatives and potentials:* Consider current institutional context and organizational capacity of local people. Identify what kind of specific challenges they face to implement EBA activities, develop appropriate knowledge and capacity of community-based organizations without delay.

*Capacity and knowledge:* Increase expertise and knowledge of local government and agency officers by changing their attitude and creating a favorable learning environment to build their capacity that match current coordination and communication demand.

##### 5. Prevention-oriented:

By implementing EBA activities communities will learn more about how to identify potential risks, threats and hazards, and devise appropriate solution to addresses their root causes. Soum and aimag government will need to focuses on preventative responses through a protection and empowerment framework.

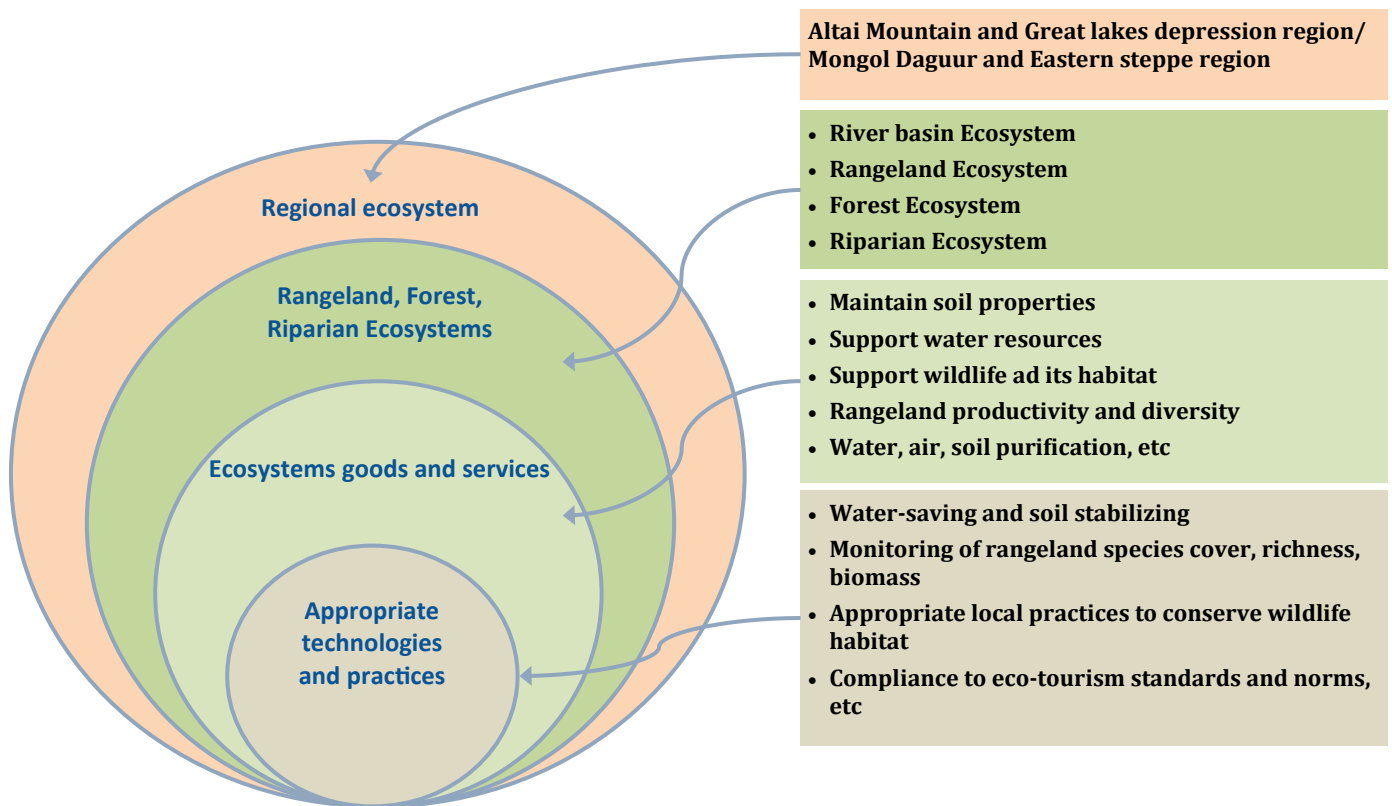
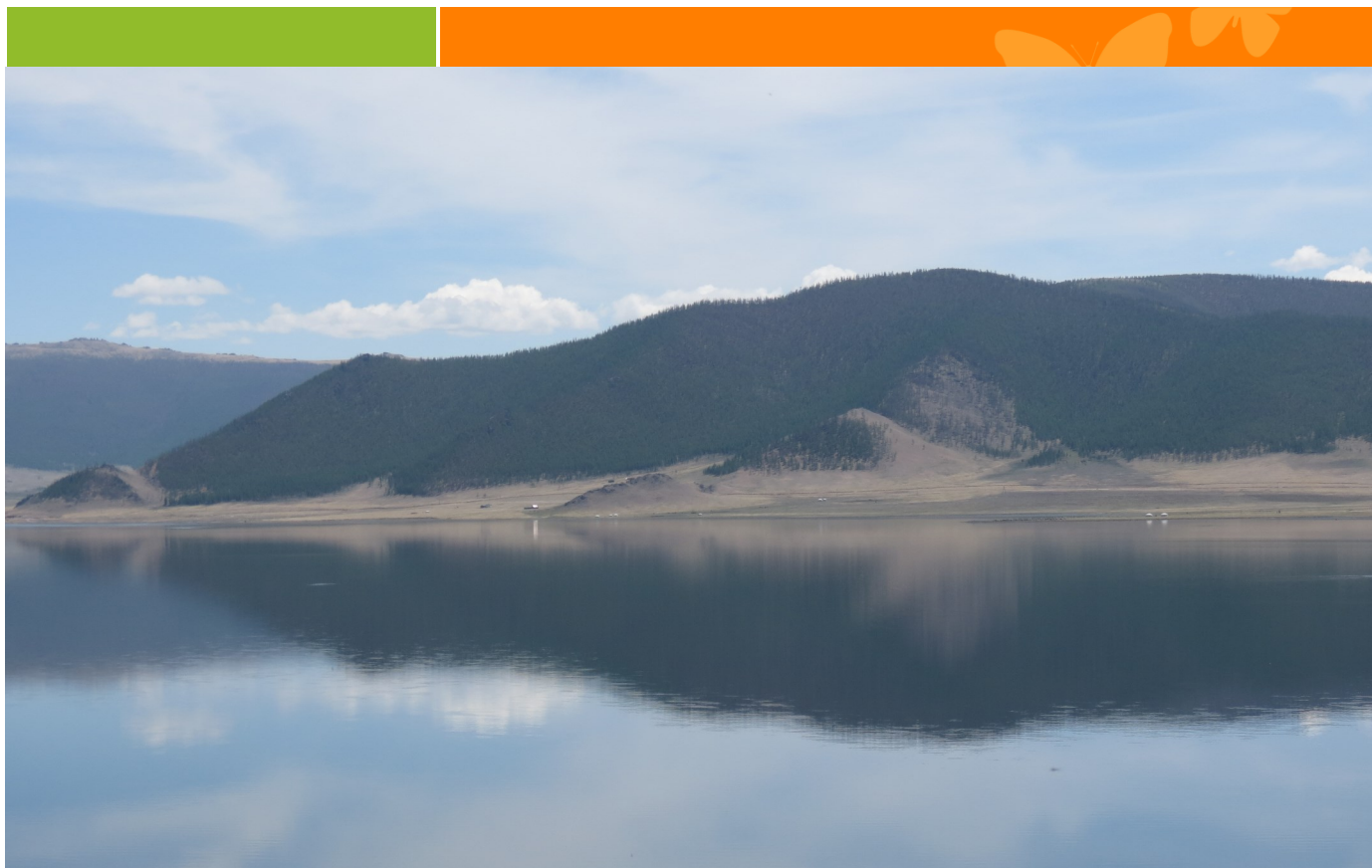


Figure 2. Comprehensive approach to ecosystem goods and services





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## **CHAPTER THREE**

### **METHODOLOGY USED TO DEVELOP THE ECOSYSTEM BASED ADAPTATION STRA- TEGIC PRIORITIES**

### 3. METHODOLOGY FOR THE DEVELOPMENT OF THE ECOSYSTEM BASED ADAPTATION STRATEGIC PRIORITIES

In the previous chapter, we highlighted that environmental issues cannot be resolved alone so that we need to use the complex interrelated process. In this sense, natural resource management is increasingly getting dependent on the participation and collaboration of all stakeholders involved (such as policy makers, scientists and community members), to make potentially better, more informed and creative decisions (Newig *et al.*, 2008). Considering this concept we selected the Linking knowledge and action through participatory research methodology for determining the EBA strategic priorities. Participatory research is part of the collaborative resource management and it is getting more attention as an effective mean to understand uncertainties and complexities of human and natural systems. Since social-ecological systems are complex it demands greater level of integration, participation and negotiation between all components within the system.

#### 3.1. LINKING KNOWLEDGE AND ACTION THROUGH PARTICIPATORY RESEARCH

Linking knowledge and action through participatory research methodology is widely used globally for studying the issues that related to the natural resource management. It requires a researcher to become the member of the community (must be shifted from that of an objective collector and analyzer of data to that of a facilitator of cooperative learning focused on applied problem-solving) and requires a community to interact as intellectual peers with academic researchers (Wilmsen, 2008).

We made efforts to develop regional scale EBA strategic directions in partnership with different sectors decision makers, herders, policy implementers, private sectors, NGO throughout our consultancy research work. Because of diverse participants, this EBA strategic priorities based on the collective ideas which is more informative, more effective and considers the specific community needs.

We used the following tools to collect existing knowledge and information from the participants: workshops, world café discussion, key informant interviews and focus group discussion, joint policy and program implementation assessment and review.

##### A. PARTICIPATORY WORKSHOP

##### B. WORLDCAFE DISCUSSION

##### C. KEY INFORMANT INTERVIEW (KII) AND FOCUS GROUP DISCUSSION (FGD)

##### D. JOINT ASSESSMENT AND REFLECTION:

##### E. POLICY AND LEGAL ENVIRONMENT REVIEWS FOR THE EBA IMPLEMENTATION

#### A. PARTICIPATORY WORKSHOP

To encourage the active participation and effective discussion by providing a common understanding about EBA, we organized the training in Ulaan-gom of Uvs, Undurkhaan of Khentii and Choibalsan of Dornod provinces in collaboration with Provincial Environment and Green Development Department. A purpose of the workshop was to increase understanding about Ecosystem-based adaptation objectives and principles, and the following themes were covered:

- Project introduction, current activities and plan in the future
- Ecosystem, ecosystem services and goods
- Climate Change Adaptation
- International practices on EBA strategy
- EBA principles highlighted from the Ministry of Environment and Green Development
- Needs, goals and objectives for developing the EBA strategic priorities in the water basin area
- A guidance for the worldcafe discussion

As a result of the systematic information, participants had a fundamental understanding about EBA, science basics and methodology. Also they got familiar with EBA guiding principles both at National and International levels and the best practices around the world.



## Themes discussed were the following :

- ① Water resources and water quality
- ② Pastoral livestock, small and medium enterprises
- ③ Agriculture, food and soil
- ④ Forest, hunting, riparian areas, wildlife and its habitat
- ⑤ Health, water and sanitation
- ⑥ Education
- ⑦ Tourism
- ⑧ Mining and underground
- ⑨ Infrastructure, energy and urban development

clearly identified and participants themselves determined the appropriate activities and mechanisms for the implementation.

A decision for the sector specialists to lead the discussion benefited them to see their sector through ecological lenses and it helped them to understand to know where they are and to realize the possibilities for integration with other sectors in the areas of EBA. All the sectors divided into nine different cafes and a discussion at each cafe continued for a half an hour. It provided the opportunity to each participant to visit all nine cafes for his or her open inputs and discussions regarding the EBA priorities.

We developed a matrix that has nine differ-

## B. WORLDCAFE DISCUSSION

A main goal of the discussion was to find out the appropriate EBA strategic priorities, which are based on the community needs by inputting the ideas from the local people and different organizations. As a result of it, all the needs related to the environmental issues are

ent questions for identifying the community needs and interests, resources and challenges for making a SWOR analysis. It included: activity, its needs, mechanism for implementation considered such as who, when, where, financial resources also the encouragement and accountability mechanism, monitoring and evaluation, challenges and difficulties etc.

Before the discussion, we met with sector specialists in advance and provided them with guidance for leading the discussion and it's tool how to collect information from the participants. A discussion based on the principles that encouraged the openness, no stupid or wrong information or question so that each participant to respect and welcome each other's ideas. Because of these agreed principles for discussion, we collected new ideas, additional information and critics very well.

A café leader was encouraged to make an analysis focused on the ideas, which can help to resolve the issues instead of focusing only collecting the information. For it, they trained in the new skills for bringing out the theory to run affective discussion, to clarify, to explain, to collect additional information from participants. At the end, they filled the matrix according to its guidance and submitted them to the consultant team.

Discussions organized in three provinces (Khentii, Dornod and Uvs) and 124 representatives from 17 different soums, river basin area administration office, over ten sectors, government workers at soum and province levels, NGO's and private sectors. 63% of the total participants were from the project target soums.

Table 2. World café discussion participants

	Participants	Date	Total	Aimag	Soum
1	<b>Khentii:</b> Kherlen, Norovlin, Batnorov, Bayan-Adarga	06/09/2013	23	13	10
2	<b>Dornod:</b> Bayandun, Bayan-Uul, Choibalsan, Chuluunkhoroot, Dashbalbar, Gurvanzagal	11/09/2013	50	19	31
3	<b>Uvs:</b> Ulaangom, Tarialan, Sagil, Bukhmurun, Naranbulag, Turgen, Khovd	24/09/2013	51	13	35
	<b>Total participants</b>		<b>124</b>	<b>45</b>	<b>76</b>

### C. KEY INFORMANT INTERVIEW (KII) AND FOCUS GROUP DISCUSSION (FGD):

To clarify some of the informations and inputs we arranged the different KII's and FGD's with specific individuals and teams.

#### Key informant interview (KII) and focus group discussion (FGD) participants:

- \* Soum government officials
- \* Provincial government officials
- \* Provincial Environment sector specialists
- \* Provincial meteorology, hydrology and environment department technicians
- \* Development and policy department heads and officers
- \* Protected Area Management administration officer
- \* River basin administration team
- \* Protected area management administration
- \* Provincial government office specialists
- \* Soum government representatives

### D. JOINT ASSESSMENT AND REFLECTION:

At the end of each discussion at aimag level, we evaluated and conducted joint assessment with specialists who led the world cafe discussion on this new methodology 'Linking knowledge and action through participatory research. During the discussion, people or sectors not only learned from each other but they also looked the opportunities how to partner and identified the relations to one another. They also exchanged knowledge, negotiated shared meanings, and built theories shaped by the contributions of local people and events.

This discussion targeted for driving the participants to focus on the reflective thoughts and ideas, which can lead into the later progress instead of trying to resolve the final decisions. Finally, the key benefit of the discussion was to learn from one another and exchange the knowledge and good practices. Because of these benefits sector specialists highlighted that they will adapt this tool for continuing the similar discussions in the future.

#### BOX 1 SELECTED COMMENTS FROM LOCAL STAKEHOLDERS PARTICIPATED IN THE STUDY

##### What was most helpful?

Interaction with representatives from diverse sectors to look at rural and environmental issues from different angles

*"These sectors had worked separately in the past, but during this discussion we realized that we can work together. Before we thought there is no relation between sectors, but now we are able to see the interrelations and integration opportunities with one another."*

*"Before we've been in many discussions, but the benefit of this tool is welcoming everyone's inputs and ideas openly. There was no wrong or stupid idea, everybody could express themselves."*

*"Every individual's or team's inputs are heard and added."*

##### What could you apply in the practice?

Use these methods for planning, monitoring and reporting to collect valid and reliable information and feedback

Pilot the innovative idea that promote ecosystem-based adaptation before the implementation and obtain some lessons to appropriate and customize the technology

*"A recommendation for piloting the idea before the implementation is very appropriate."*

*"Right tool to collect information and ideas from the different sectors."*

*"It makes participant opinions special, because of seeking to find out the community needs."*

### Workshop discussion in Khentii Aimag, 2013– September



Each participant's efforts to invest his or her comments and feedbacks made the discussion effective and successful.

As a result, we gathered the valuable comments and information that is contextualized and met the current needs of the region. It made the EBA strategic directions more relevant and accurate.

### Workshop discussion in Dornod Aimag, 2013– September



### Workshop discussion in Uvs Aimag, 2013– September





## E. POLICY AND LEGAL ENVIRONMENT REVIEWS FOR THE EBA IMPLEMENTATION

To make an analysis on the current legal and policy environment for implementing the EBA strategic priorities we worked on the key laws, policies and National programs. They were the fundamental documents, which helped us to set up

the strategic priorities for EBA and supported us to see and understand the context and interrelations between different areas. Please refer to the reference list on key programs and policies used for the policy review.

### Key programs and policies used for the policy review:

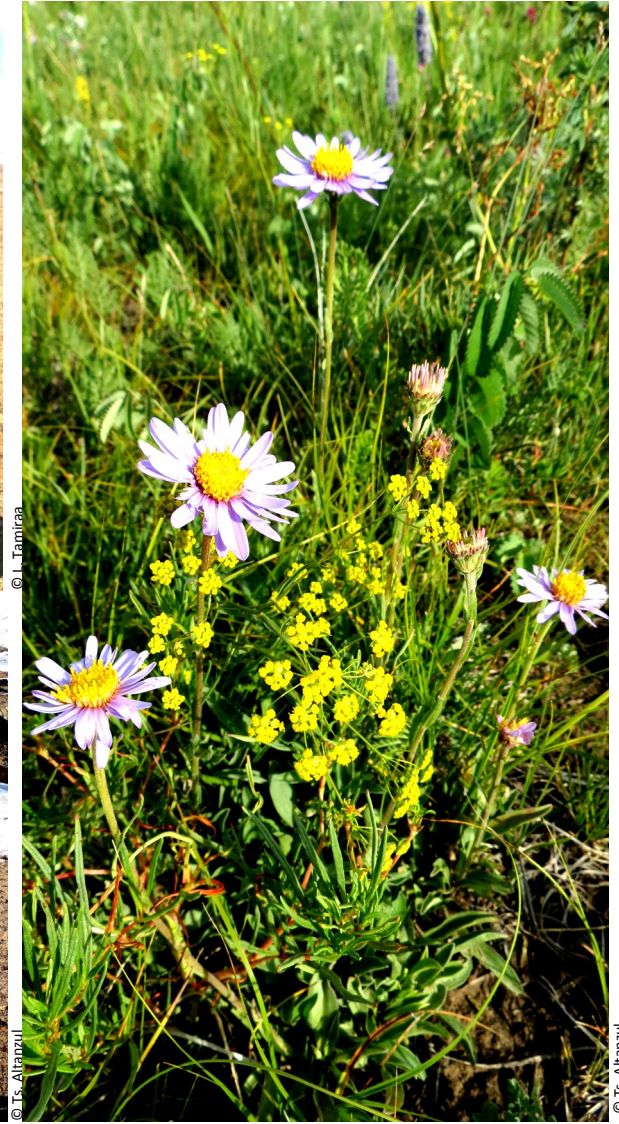
- National Green Development Concept. 2013
- National Green Development Concept and Mid-term Action Program. 2013
- Resolutions on Enterprise Development. Resolutions #125, 126 and 141. 2013
- A Mongolian with Job and Income National Program. Resolution #154, 2013
- National Program on Natural Plant Protection. 04.2013
- National Sub-Program on Community Based Disaster Risk Reduction. Resolution #35, Deputy Minister. 01.04.2013
- Protection and usage regime in forest resources. 2012
- A Project Guideline for the Local Budget Development. Ministry of Finance. 19.11.2012
- Implementation Policy for the Tourism Development. Resolution #37, 18.09.2012
- National plan of action to National enterprise support. Resolution #30, 2011
- Local Development Fund Establishment, Utilization and Monitoring Regulation. Resolution #134, 2011
- National Program on Endangered Animal Protection. 2011
- National Program on Prevention and Control of Communicable Diseases. Resolution #108, 06.04.2011



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- National Action Program on Climate Change. 06.01.2011
- Mongolian Livestock National Program. Resolution #23, 20.05.2010
- Water National Program. 20.05.2010
- A Policy on Government Position for the Herders. Resolution #39, 2009
- National Program on Safe Drinking Water Supply. Resolution #84, 2008
- Environmental Health National Program. 14.12.2005
- Environmental Health National Program. Resolution #245, 14.12.2005
- National Program on Endangered Plant Protection and Their Appropriate Utilization. Resolution #105, 2002
- National Forest Program. Resolution # 248, 31.10.2001
- National Program on Creating the Healthy Environment for the City, Soum, Bag, Office and School. Resolution #359, 1999
- National Program on Disaster Mitigation. Resolution #25, 1999
- National Program on Waste Reduction. Resolution #50, 1999
- National Program on Environment Awareness. Resolution #39, MoE. 1999
- The Mongolia's Action Plan for the 21<sup>st</sup> Century / MAP 21. Resolution 82, 1998
- Government Policy on Ecology. 1997
- National Program on Community Education on Ecological education to Public. Resolution #255, 24.12.1997
- Law on Environmental Protection, Restoration of Natural Resources. Article # 25. 1995
- Law on Environmental Protection, Environmental Audit. Article # 10.1. 1995
- Development strategy in province
- National Program on Small and Medium Enterprises Development
- Concept Paper for the Renewal of the Tourism Legislation
- River Basin Administration Regulation









## CHAPTER FOUR



## ALTAI MOUNTAINS AND GREAT LAKES DEPRESSION REGION STRATEGIC PRIORITIES TO IM- PLEMENT ECOSYSTEM BASED ADAPTATION

## 4.1. ECOSYSTEM-BASED ADAPTATION STRATEGIC PRIORITIES AND OBJECTIVES

### EBA IMPLEMENTATION OVERALL PURPOSE:

Sustain social, economic and cultural ecosystem goods and services by introducing and implementing climate adapted practices and

technologies that build ecosystems resilience of the region for current and future generation.

### EBA IMPLEMENTATION OBJECTIVES:

To achieve this purpose seven directions or objectives were identified and each is broken down into several sub-objectives and activities (Figure 3):

1.Support social and ecological goods and services derived from water systems

2.Support conservation and provision of social and ecological goods and services derived from rangeland ecosystems

3.Support conservation and provision of social and ecological goods and services derived from forest ecosystems

4.Support conservation and provision of social and ecological goods and services derived from riparian ecosystems

5.Disseminate knowledge, approach and practices to conserve cultural and educational goods and services

6.Maintain multiple social and economic benefits derived from ecosystems to support sustainability of current and future generation

7.Strengthen policy and institutions for sustainable ecosystem management and conservation

Each sub-objectives contains region-specific and locally implementable list of EBA practices and activities (please refer to Chapter 6). This comprehensive list of the measures was developed by integrating opinions and suggestion recommended by local communities, studying local financing opportunities and estimating human resources local.

To ensure that by implementing proposed list of activities contribute to enhancement of human security, we designed these activities to meet the human security principles of 1) being people-centered, 2) multisectoral, 3) comprehensive, 4) context-specific, and 5) prevention-oriented (please refer to page 9-10). It is designed as a practical working document, on which basis any particular soum or aimag without compromising EBA principles and direction can use the proposed activities as a guide to make detailed activities or expand to own demands and opportunities.

## 4.2. PROPOSED ACTIVITIES TO BE IMPLEMENTED WITHIN THE SCOPE OF EBA FRAMEWORK

### STRATEGIC PRIORITY 1: Support and increase Social – ecological GOODS AND services from water resources

To support and increase social–ecological goods and services from water resources

Objective: Introduce adaptive technologies and practices that promote sustainable use and

conservation of water resources that support its resilience, and self-purification capacity in Altai Mountains and Great lakes depressions region.

Sub-Objective 1.1: Implement efficient measures to increase quantity of water sources by supporting self-purification capacity of water resilience		Supporting activities Policy documents
1.1.1	Increase water flow of head waters, streams and natural springs through protection from trampling and other contamination (51 springs have been identified for this and are listed in Appendix 2).	
1.1.2	Establish additional appropriate water retention sources by building water reservoirs and ponds fed by rain water, flood waters and meltwater and support development community-based or cooperative tree nursery and crop and vegetable production. <ul style="list-style-type: none"><li>– Facilitate transfer of appropriate technology and methods, build capacity and skills to do cost-benefits analysis to appraise financial and economic benefits.</li><li>– Conduct feasibility study on building water reservoirs in 23 locations and identify local needs and available resources and implement the action plan</li><li>– Promote cooperation by improving networking capacity and mobilize financial and professional assistance</li></ul>	
1.1.3	Introduce a water metering system for individual water users (Chandmani, Ulaangom) <ul style="list-style-type: none"><li>– Improve collaboration between water users and water quality specialized organizations to provide them appropriate knowledge and extension on sustainable water use and maintenance of water quality</li><li>– Provide educational training, user manuals, and promote awareness</li></ul>	
Sub-Objective 1.2: Restore the self-purifying functions of water bodies in the region by protecting them from contamination and waste		
1.2.1	Establish permanent monitoring systems to monitor river, lake, spring water quantity and quality <ul style="list-style-type: none"><li>– Establish monitoring points in collaboration with the Meteorology and Hydrology Department (in Bukhmurun river)</li><li>– Undertake regular water quality analysis and create a water quality database</li><li>– Educate communities and water users about water quality and its importance for the protection of freshwater sources. Promote water-saving and water conservation habits and behaviors</li></ul>	<ul style="list-style-type: none"><li>• Water National Program Article 3.1.6 (20.05.2010)</li><li>• National Green Development Concept and Mid-term Action Program. Article 2.1.4</li><li>• (Under parliament consideration, 2013)</li><li>• Government Policy on Ecology, Article 3.7, (Resolution I # 106, 1997)</li><li>• Water National Program, Article 3.3.2, (20.05.2010)</li><li>• Mongolia's National Action Program on Climate Change, Article 3.2.4 (06.01.2011)</li><li>• National Green Development Concept and Mid-term Action Program. Article 2.1.3</li><li>• (Under parliament consideration, 2013)</li></ul>

### Sub-Objective 1.3: To re-use and conserve water by supporting the smart use of water resources

- 1.3.1 In order to conserve water, implement a water metering system for groundwater users:
  - Use recycled water to irrigate garden trees, grasses and green spots
- 1.3.2 Build irrigation systems, and introduce innovative water saving irrigation technologies
- 1.3.3 Encourage crop, vegetable and tree seedling producers to use drip irrigation technology for household and cooperative agricultural use
  - Institutionalize incentive mechanisms to encourage individuals, corporations, and collectives who developed and successfully introduce water saving technologies

### Sub-Objective 1.4: Adopt appropriate clean water technologies for public drinking water supplies in order to contribute to public health.

- 1.4.1 Place all fresh waters sources under national or local protection
- 1.4.2 Install high capacity filters to soften and purify drinking water in soum center water wells
- 1.4.3 Raise awareness on safety and hygiene of drinking water bottles, water storing and transporting tanks and set certain standardization schemes
  - Educate and raise public awareness about drinking water safety and quality



## STRATEGIC PRIORITY 2: Support and increase Social – ecological services and goods from rangeland ecosystem

Introduce appropriate management practices and technologies to restore soil quality, plant diversity and improve habitat and diversity of wildlife

Sub-Objective 2.1: Conserve grassland and rangeland soil and vegetation by improving its soil structure		Supporting activities Policy documents
2.1.1	Recover rangeland that have been degraded by heavy use through targeted management actions, and provide protection for those areas threatened by overuse through local government policies, and implement prescribed grazing.	• Law on Natural Plants(11.04.1995)
2.1.2	Conduct monitoring of plant composition, cover, species richness (at least once every two years) <ul style="list-style-type: none"> <li>– Determine monitoring objectives</li> <li>– Establish permanent monitoring points</li> <li>– Establish rangeland monitoring working group at soum level, comprising of relevant experts and train them in specific rangeland sampling and monitoring methods</li> <li>– Develop annual land-use and rangeland management implementation plan based on the monitoring results</li> </ul> Train herders in community-based rangeland monitoring methodology	• Law on Land (07.06. 2002)  • Law on Animals ( 12.05.2012)  • Law on Soil Protection (17.05.2012.5)
2.1.3	Implement rangeland management activities to prevent degradation by conserving and rehabilitating plant functional groups and thus increasing rangeland ecological and socio-economic values. <ul style="list-style-type: none"> <li>– Implement rangeland management that restores palatable perennial grass and forb species (Festuca, Cleistogenes, Poa, Allium, Kochiaspecies etc.)</li> <li>– Protect Achnaterum species rangelands from heavy grazing</li> <li>– Improve the growing condition of Artemisia and Ammodendron species etc. and other shrub species in Gobi-desert zone (control use of these species for fuel consumption)</li> <li>– Implement appropriate measures to control grazing and rehabilitate rangelands dominated by weeds and other increaser species (controlled burns of weed and harvest them before seeding)</li> </ul>	• National Action Program for Combating Desertification (14.04.2011)  • Mongolian Live-stock National Program (Resolution#23, 2010)
2.1.4	Protect medicinal, rare and extinct species <ul style="list-style-type: none"> <li>– Habitat of these plants should be protected by the local Government</li> <li>– Control and monitor the collection, harvesting and use of these plants</li> <li>– Protect the local rangeland native species gene bank by preventing degradation and seed collection for a seed bank</li> </ul>	• Mongolia's National Action Program on Climate Change, Article 3.2.23 (06.01.2011)
Sub-objective 2.2: To implement rangeland management that supports local wildlife habitat		
2.2.1	Protect wildlife habitat from human and livestock invasion, especially focusing on seasonal movement patterns and breeding season <ul style="list-style-type: none"> <li>– Conservation activities to protect habitat of wild boar, gazelle, Mongolian antelope, marmot etc.</li> <li>– Develop and implement conservation plans for forest and water bird habitat in collaboration with the Special Protected Area and River basin administrations</li> <li>– Conserve habitat for insects that are vital for pollination (bees, butterfly etc.)</li> </ul>	
2.2.2	Implement measures to protect water sources for wildlife and prevent livestock trampling	
2.2.3	Identify potential saltlick resources used by wildlife and initiate measures to seasonally rest these areas from human and livestock use	

Sub-Objective 2.3: Rangeland Management: Implement appropriate rangeland management to prevent degradation	Supporting activities Policy documents
<p>Implement pasture co-management for seasonal rotational use</p> <ul style="list-style-type: none"> <li>– Implement management practices that exclude grazing of warm season pasture during certain times, with support from the local Government</li> <li>– Rest cold season pasture during the plant growing season</li> <li>– Institutionalize a pasture use regulation system on the basis of estimating production and carrying capacity for the current year (based on monitoring results)</li> <li>– Obtain updates on annual pasture carrying capacity estimates from weather stations and disseminate this information to bag governors and herders</li> </ul> <p>Determine inter-soum, soum, bag otor reserve areas and take them under local government protection. Develop otor management policies and plans that suit the local context and herder movement patterns</p> <p>Improve collective management for hay areas:</p> <ul style="list-style-type: none"> <li>– Restore rotational use practices of hay harvesting reserve areas and if necessary take appropriate management actions to exclude these areas from grazing</li> <li>– Improve permanent hay cutting area production by harvesting snowmelt and rain water (Torguud boot), fertilize with manure and minerals to improve the soil quality, use other appropriate local techniques.</li> </ul> <p>Work with pasture management implementation, and degradation protection groups by establishing pasture usage agreements:</p> <ul style="list-style-type: none"> <li>– Establish pasture use agreements with herder communities and groups and increase their responsibility to undertake sustainable pasture management practices that prevent rangeland degradation</li> </ul>	<ul style="list-style-type: none"> <li>• National Program on Natural Plants Protection (04. 2013)</li> <li>• National Program on Rare (Endangered) Plants Protection and Their Appropriate Utilization (Resolution # 105, 2002)</li> </ul>
Sub-Objective 2.4: To advertise and adopt best practices, provide training, educate herders and communities on rangeland ecosystem services, goods and benefits	
<p>2.4.1 Institutionalize community-based natural resources management and organize and offer a package of integrated step-by-step training sessions to herders</p> <ul style="list-style-type: none"> <li>– Basic level training on sustainable pasture management</li> <li>– On-site plant identification and classroom training</li> <li>– Linkages between soum land use and rangeland management planning, incorporation of herders seasonal movement patterns into land use plans.</li> <li>– Collaborative implementation and monitoring of pasture management plans</li> <li>– Train herders in community-based rangeland monitoring methods that could be used on daily basis</li> <li>– Train herders in specific methods to improve hay area and pasture condition</li> <li>– Integrate animal husbandry with proper environmental resource use, traditional and modern conservation best practices</li> <li>– Organize regular community workshops and forums to enable knowledge exchange covering topics such as traditional herding knowledge associated with range and livestock management and possibilities to combine and integrate these methods for use in the evolving new environmental and economic context</li> </ul>	

### STRATEGIC PRIORITY 3: Improve social and ecological goods and services derived from the forest ecosystems

Implement innovative and appropriate technology directed to improve forest biological diversity and habitat and thus conserve socio-economic

and ecological services and goods derived from the forest ecosystems

Sub-Objective 3.1: To rehabilitate forest nurture, forest wildlife habitat, vegetation cover, corresponding supplemental resources		Supporting activities Policy documents
3.1.1	<p>Establish good nursery practices in the Altai region that produce native tree seedlings and planting materials and offer training in tree plantation and nursery management to farmers and local communities:</p> <ul style="list-style-type: none"> <li>– Determine areas for temporary and permanent local tree seed sources and select parent trees to harvest seeds from (Turgen Forest)</li> <li>– Propagate local tree seeds by establishing local tree nursery for each forested soum and prepare affordable and adapted saplings and supply local groups for forestation and plantation</li> <li>– Implement controlled forest thinning, and pruning for better sunlight in collaboration with Aimag Forest Agency</li> </ul>	<ul style="list-style-type: none"> <li>• Law on Forest (17.05.2007)</li> <li>• Law on Natural Resources and their Utilization (1995)</li> <li>• Mongolian Law on Fees for Use of Natural Resources (Resolution 34, 23.10.2012)</li> <li>• Law on Animal (17.05.2012)</li> <li>• Law on Fees for Timber and Fuel Wood</li> <li>• Law on Customs Tariff (amendment 07.01. 2005)</li> <li>• National Forest Program (Resolution # 248, 31.10.2001)</li> </ul>
3.1.2	<p>Forest vegetation cover rehabilitation</p> <ul style="list-style-type: none"> <li>– Undertake an assessment of plant species in the forest and identify their condition in collaboration with specialized agencies</li> <li>– Collect tree seeds and develop seed bank</li> <li>– Establish botanical garden in Ulaangom city by planting and propagating seeds of native and endemic plants, which have to adapted to the regional climate and soil and have a great potential for successful growth.</li> </ul>	
3.1.3	<p>Support operation of local communities in forest cleaning activities and link them to specialized agencies, provide them with necessary financial and technical support</p>	
3.1.4	<p>Conservation of forest wildlife habitat</p> <ul style="list-style-type: none"> <li>– Protect wildlife and allow them to freely migrate and reproduce</li> <li>– Rehabilitate wildlife in the former niche, in which they used to live</li> <li>– Protect and provide wildlife habitat for specific rare species such as Panthera pardus, Musk deer, rare Mountain sheep, Capra sibirica, Gazella subgutturosa guldenstaedt, Tetraogallus altaicus, orioles, Cervus elaphus, Felix lynx, Martes foina, Mongolian marmot</li> <li>– Prevent extinction of wildlife species from industrial and factory activities</li> <li>– Protect and provide wildlife with additional fodder and nutrition depending on the specific local area and climate hardship</li> <li>– Protect wildlife from illegal hunting through Soum Governor Protocol</li> <li>– Control illegal hunting and develop incentive mechanisms for information providers</li> </ul>	
3.1.5	<p>Conduct regular monitoring on condition and use of forest auxiliary resources such as wild berries, pine nuts, mushrooms, medicinal and edible plants, tree bark, birch juice, birch bark, wood tar and moss.</p> <ul style="list-style-type: none"> <li>– Develop a list of key resources that need to be urgently protected and control harvesting</li> <li>– Place sign and information boards to inform users on proper use and harvest of forest auxiliary resources</li> </ul>	

## Sub-Objective 3.2: Prevent illegal hunting and logging

- 3.2.1 Limit favorable condition for insect population growth by cleaning the forest litter  
Build trails for motorized vehicles to reach out deep in the forest and clean forest  
In Baruun Zalaа of Türgen soum  
In Ungiin Khotgor of Ulaangom soum
- 3.2.2 Block access to some forest roads to control illegal logging and timber transport (in Davst 2 km)
  - Involve volunteers, collectives and kids clubs by organizing forest protection, environmental and ecological discovery summer training, and horse tour-guards for certain time of period
- 3.2.3 Prevent insect damage by training specialists and organizations to monitor insects and their distributions
- 3.2.4 Develop some social and economic incentive mechanisms to encourage long-term forest restoration, insect control and fire prevention activities
- 3.2.5 Prevent from forest fire, and organize firefighting activities and develop incentives for early warning information, strengthen advertisement, supply hand tools and other fire fighting equipment
- 3.2.6 Construct fire watch towers
- 3.2.7 Build permanent control points to check for illegal timber removal and timber preparation and yo monitor vehicles for illegal logging
- 3.2.8 Restrict timber preparation in the vicinity of Ulaangom soum


## Objective 3.3: Organize public awareness building and advocacy programs and educate people on environmental and other related laws, regulations and relevant local Government protocols

- 3.3.1 Organize comprehensive initiatives to educate the public on environmental laws and regulations:
  - Build information boards and organize law advertisement days and activities and social media networks
  - Collect information about wildlife law breakers and develop incentives for informers to build nature-caring communities
  - Make information available about punishment for those who break wildlife laws

## Objective 3.4: Implement sustainable management to protect forest resources, and their proper usage, and restoration

- 3.4.1. Cooperate with and support local forestry community initiatives in forest resource conservation and restoration:
  - Provide technical advice and extension services to form community-based forest groups or enterprises that have ownership rights to implement forest management plans in collaboration with Aimag Forest Agency.
  - Support the development of community-based forest enterprises to implement community-scale economic activities based on wood and non-wood forest products and provision of ecosystem services, including ecotourism (18 communities)
  - Community-based forest enterprises will be responsible for undertaking sustainable forest management practices to do forest conservation, restoration and cleaning activities



- 
- 3.4.2 Support re-forestation initiatives by encouraging entities and individuals to plant trees and establish green corners or green spots in aimag and soum centers. Revise local payment tariff for 1m<sup>2</sup> forestation activity.
- Establish windbreaks in aimag and soum centers to slow wind and provide wind protection to dwellings and people (at least 200 m long with 5 rows of different tree species)
  - Establish green spots in settlements and provide incentives and prizes to entities and individual who successfully instituted such practices
  - Encourage people to do reforestation and if this project is successfully encourage them to claim ownership of that area ownership according to the Environment Law
- 3.4.3 Support wildlife diversity and wildlife habitat conservation by establishing windbreaks and forest restoration activities by involving local people and communities.
- Disseminate helpful information and training on restoration and reforestation activities and how the wider community can be involved and become a part of larger forest conservation programs.
  - Organize advocacy programs for preserving forest birds and animals whose habitat is threatened due to wood logging and pest infection and raise public concern to improve degraded lands, restore watersheds and expand forest cover in nature and settlements

## STRATEGIC PRIORITY 4: Protect social and ecological goods and services derived from the riparian ecosystems

Expand and improve riparian corridor by introducing a combination of appropriate adaptive practices and techniques that conserve socio-economic and ecological goods and services from riparian ecosystems

Sub-Objective 4.1: Improve soil quality, water holding and infiltration capacity through rotational grazing and restoring riparian meadow pasture, willow and shrub communities and perennial plant species.		Supporting activities Policy documents
4.1.1	If riparian vegetation is extensively trampled and degraded implement focused management of controlled grazing and resting during the growing season for consecutive years and include the area under the local government protection plan.	<ul style="list-style-type: none"><li>• Law on Land (07.06.2002)</li><li>• Law on Natural Plants (11.04.1995)</li><li>• Law on Animal (07.05. 2012)</li><li>• Law on Water (12.05. 2012)</li><li>• Law on Natural Plants (12.05.2012)</li><li>• National Forest Program (Resolution 248, 31.10.2001)</li></ul>
4.1.2	Implement riparian rangeland monitoring of species cover, richness, composition (see 2.1.2, 2.1.3, 2.1.4)	
4.1.3	Build plantation area for willow and other riparian fast growing shrubs and trees <ul style="list-style-type: none"><li>– Build nurseries for shrubs and trees along Bukhmurun, Khovd, Khundlun, Borshoon river</li><li>– Protect river basins with the help of soum government</li><li>– Reforest and support natural re-growth and rejuvenation of the riparian vegetation that includes native trees, shrubs, perennial grasses and forbs</li><li>– Control cultivation and logging along riversides and banks</li></ul>	
4.1.4	Regulate operation of individuals and entities that cuts willow for making gers and educate them on the importance of restoring riparian ecosystems. <ul style="list-style-type: none"><li>– Train the community to identify alternate income sources</li><li>– Grow shrubs and trees adapted to the particular ecosystem</li><li>– Stop and forbid cutting willows and other medicinal plants along the river</li></ul>	
Sub-Objective 4.2 Implement innovative and comprehensive management plans and policy following best practices to increase riparian vegetation, such as perennials cover, species richness, biomass and improve soil properties (water )		
4.2.1	Rest middle pasture/ riparian pasture to buy reducing grazing and trampling of banks, and controlling intensive use of herbaceous and woody plants.	
4.2.2	Enroll environmental officers and volunteer rangers in comprehensive training about management and monitoring of riparian buffer zones	
4.2.3	Provide rangers and environmental officers with essential equipment, such as GPS, binoculars and other equipment to implement riparian zone habitat management and monitoring. Use the information and data collected by rangers to review database and management plans	
4.2.4	Implement specific riparian rangeland management to support hay harvesting (see 2.3.1; 2.3.3).	

**Sub-Objective 4.3: To implement policies and methods, which sustain the wildlife, fish, water birds' habitat by cooperating with specialized agencies and scientific organizations**

- 4.3.1 To control fish growth development and involve volunteers
- Evaluate Bukhmurun, Khovd, Khundlun, Borshoon river fish resources, develop management plans
  - Promote community awareness about fish, and rare birds' habitat, wildlife species (such as wild boar and *Ondatra zibethicus*) suitable reproductive environment, by making calendars, and flyers for the community
  - Protect habitat and food for rare wildlife species such as Asian castor, *Sus scrofa* etc.
- 4.3.2 Protect and restore habitat for rare and endangered wildlife species in riparian buffer zones such as wild boar, roe deer, *Ondatra zibethicus*, and fish, bird habitat with the help of the local community
- 4.3.3 Expand cooperation with clubs and individuals who are involved in bird and fish conservation actions. Develop plans and agreement on conservation and tourism management.
- 4.3.4 To develop recreational areas along the river and close to aimag and soum centers for children and youth.  
Educate people about the value of protecting our environment and ecology.

**Sub-Objective 4.4: To control the use and harvesting of natural resources such as sand, gravel, rock and clay that abundant along the riverbanks**

- 4.4.1 To prevent riverbank erosion and land slides and sand movement, and in specially protected zones install signs about the following forbidden activities and inform and educate people about environmental laws:
- Building structures or buildings, land cultivation, causing explosions by using dynamite
  - Agriculture and mining
  - Cutting trees, *Phragmites communis* – reed species and controlling harvest of sand, gravel etc.
  - Cutting and removing vegetation for factory use
  - Livestock washing or building animal husbandry production points

**Sub-Objective 4.5: Provide training and adaptation mechanisms of the best practices and educate communities about economical and ecological benefits of protecting meadow ecosystems**

- 4.5.1 To organize community groups and build capacity for protecting biological diversity and conservation:
- Develop a plan to strengthen community groups and collectives
  - Provide training in the field of environmental conservation
- Provide necessary [equipment and tools](#)
- 4.5.2 To support community based natural resources management and organize step by step complex integrative training (see 2.4.1)
- 4.5.3 To educate people and inform them about the importance of protecting river, lake and meadow ecosystems and their economical benefits (increased production of hay, pasture and shrub, trees)



## STRATEGIC PRIORITY 5: Disseminate appropriate knowledge, approach and practices to conserve inherited cultural and educational ecosystem services

Disseminate and promote appropriate knowledge, multi-sector approach and practices to

conserve inherited cultural and educational ecosystem services specifically derived from the western region.

Sub-Objective 5.1: Improve access and quality of cultural ecosystem services by restoring local natural, historical places and traditional conservation rituals and techniques		Supporting activities Policy documents
5.1.1	Develop and inventory and conduct a participatory assessment of places with local natural heritage significance and their condition, and develop action plan how to conserve them	<ul style="list-style-type: none"> <li>• National Program on Community Education of the Ecology (Resolution # 255, 24.12. 1997)</li> <li>• National Program on Environmental Awareness (Resolution #39, MoE. 1999)</li> <li>• National Program on Public Education of the Environment (Resolution # 255, 24.12.1997)</li> </ul>
5.1.2	Disseminate results of the assessment to the local population using various communication types and social media channels.	
5.1.3	Develop recreational and ecotourism values by determining and mapping tourist sites and locations, and create campsites for overnight stays in the outdoors. Publish educational pamphlets and install information boards about local wildlife, vegetation, culture and tradition.	
5.1.4	Network and establish collaborations with interest groups who want to conserve ecosystem cultural services, including specialized organizations, scientists, artists, volunteers and youth clubs	
Sub-Objective 5.2 Increase educational and scientific benefits of ecosystem goods and services		
5.2.1	Participate in research projects undertaken in the respective project target soums and aimags by national and international organizations and scientists, and provide input and exchange knowledge and results	
5.2.2	Inform, advocate and educate the community about local cultural, historic and archeological sites with significant scientific and socio-cultural values, including local traditions, customs, sacred places, archaeological sites, folklore, etc.	
5.2.3	Disseminate and support the development of eco-friendly habits and thinking by collaborating with secondary schools and adult learning centers, and implement education programs on climate change adaptation and preservation of ecosystems goods and services. Integrate local knowledge with international best practices to suggest innovative and sustainable context-specific solutions. Test the ecological knowledge of different age groups and based on their needs implement educational programs	

- Organize training and demonstrations about appropriate methods and technology for tree logging, pruning, and planting
- Establish meaningful links between environmental educational programming, and secondary and primary school programs
- Train teachers, students and build environmental learning centers in each soum to organize different kinds of trainings and educate community and herders
- Organize “The value of water” promotional programs and events
- Establish curriculum for local schools classes to develop “Green school” habits, “Green work-camp”
- Establish “Eco-kindergarten” programs and educate children in learning about environmental processes, cycles and wildlife habitats
- Organize competitions for environmental essay writing, drawing, poetry writing, and sport events, offering prizes, encouragement and advertising
- Organize sustainable rangeland, water and wildlife conservation training and educational outreach programs to herders who live along the river bank and whose livestock graze on riparian pastures.
- Advertise and educate soum community members on water resources, hunting, waste management and other environmental conservation works through television and radio
- Establish “Altai” environmental club and carry out targeted training programs
- Use informal training modules for environmental educational programs and train informal trainers
- Organize multiple, repeated events on environmental protection and increase the number of celebration days for the environment
- Establish program guidelines and materials that encourage and award herders who take action on environment conservation

National Program on Mongolian Throat Singing (Resolution #159, 2007)

National Program on Community

#### Sub-Objective 5.3: Increase public understanding and awareness of the role of ecosystem goods and services in production and origination of cultural and traditional heritage

- 5.3.1 Conduct participatory studies and document how western Altai herder knowledge, herding practices and specific ger-educational practices are transforming and adapting to change, and identify the main drivers of change. Use findings and results of the research to inform, develop, and improve local government development policies and action plans.
- 5.3.2 Facilitate learning exchange and cross-fertilization between orally preserved traditional environmental knowledge and modern resource management plans and practices
- Disseminate and raise awareness of the importance and relevance of traditional environmental conservation knowledge and actions
  - Collaborate with knowledgeable elderly people and retrieve traditional knowledge of environmental management know-how.
  - Install signs, information-boards and posters informing the public about appropriate phrases and words that are well-accepted by communities, and which promote good daily habits and practices, such as “tree planting day”, “trash-free river month”
- 5.3.3 Celebrate and advocate human-nature links by using modern and traditional art and folk culture
- Tsuur, Khuumii (Mongolian throat singing)
  - Bii Bielgee (Mongolian folk dance)
  - Folk tales
  - Traditional songs, long song
  - Archery, wrestling and horse racing

## STRATEGIC PRIORITY 6: Maintain and conserve capacity of ecosystems to generate goods and services, so it will continue producing multiple social and economic benefits for wellbeing of the current and future generation

Support and provide incentives to small and medium enterprises that encourage them to implement and introduce into their business appropriate green-practices and technologies directed

to enhance and conserve capacity of ecosystems to generate goods and services for multiple social and economic benefits and support wellbeing of the current and future generation

Sub-objective 6.1: Introduce water-saving and soil-conserving technologies in crop production		Supporting activities Policy documents
6.1.1	<p>Introduce appropriate technologies and practices that reduce water consumption and promote soil conservation, such as planting windbreaks to reduce soil erosion and organized rotational crop production.</p> <ul style="list-style-type: none"> <li>– Introduce crop rotational methods advised by the Ministry of Industry, Food and Agriculture, for example Fallow-wheat, fallow-potato-wheat, fallow-wheat-fodder</li> <li>– Mulching technologies using straws to prevent wind erosion and accumulation of soil moisture</li> <li>– Monitor how farmers and crop producers invest in the application of new advanced technologies and provide incentives to encourage them to continue to use good practices</li> <li>– Control and regulate conditions where farmers abandon plowed fields without plantation and maintenance and thus prevent soil from unnecessary cultivation</li> <li>– On the basis of efficient utilization of cultivated croplands, extend crop field utilization agreements.</li> </ul>	<ul style="list-style-type: none"> <li>• Mongolian Livestock National Program (Resolution # 23, 20.05. 2010)</li> <li>• A Policy on Government Position for the Herders (Resolution #39, 2009)</li> <li>• National Program on Small Medium Enterprises Development</li> <li>• A Mongolian with Job and Income National Program (Resolution #154, 2013)</li> </ul>
6.1.2	Support production of biological fertilizers using cow manure to supply crop producers by providing them with technical advice and linking them to appropriate financial mechanisms	
6.1.3	Provide incentives to support farmers who introduce water-retention drip-irrigation systems by enrolling them in soft loan programs	
6.1.4	Facilitate enabling conditions to grow sea buckthorn and build small and medium processing plants that use small, affordable technologies	
Sub-objective 6.2: Increase herders income by improving quality of the products and increase herders ability to link to the market system		
6.2.1	<p>Use participatory methods to develop and implement short to long-term plans to improve animal breeds at household and community levels</p> <ul style="list-style-type: none"> <li>– Conduct rapid assessment on appropriate ratio of herd composition by studying each community group households' herd structure and rangeland carrying capacity</li> <li>– Identify local quality livestock breeds and breeders in collaboration with soum vet and livestock unit</li> <li>– Implement herd improvement community-based practices by application of artificial insemination methods</li> <li>– Support khot-ail based selection and breeding</li> <li>– Identify community scale herding best practices that suit the local rangeland ecosystem and encourage dissemination and transfer of these practices to others</li> <li>– Develop an inventory of local breeds by each herder household and improve access to and quality of veterinary services</li> </ul>	<ul style="list-style-type: none"> <li>• Law on Budget (2012 )</li> <li>• A Project Guideline for the Local Budget Development (Ministry of Finance. 19.11.2012)</li> </ul>



6.2.2	<p>Facilitate necessary linkages to implement Mongolian government policies at local level, improving quality of raw materials production and its supply to the market</p> <ul style="list-style-type: none"> <li>– Facilitate necessary conditions to increase values of wool and cashmere at soum level by developing soum-scale value chain mapping and assessment</li> <li>– Identify appropriate mechanisms to implement and benefit from the Mongol Wool National program at soum level and develop necessary capacity to produce garments</li> <li>– Support local soum entrepreneurs to participate and improve their capacity to produce quality, fashionable and warm coats and jackets from wool for school children, thus preventing them from catching the flu and other respiratory diseases during cold seasons.</li> </ul>	<ul style="list-style-type: none"> <li>• Law on Tourism</li> <li>• Implementation Policy for the Tourism Development (Resolution #37, 18.09.2012)</li> </ul>
Sub-objective 6.3 To develop alternative livelihoods to supplement animal husbandry <b>with green production</b>		
6.3.1	<p>Introduce innovative knowledge and eco-friendly methods and technology to support the development of green industries</p> <ul style="list-style-type: none"> <li>– Support bee-keeping and bee-breeding enterprises and support pollination services</li> <li>– Support biological methods to control pests by integrating poultry and crop production</li> <li>– Disseminate and promote water saving technology by introducing affordable and appropriate irrigation technology in berry planting and tree nurseries</li> </ul>	
6.3.2	<p>Provide support and technical assistance to small and medium enterprises to build market-links and introduce more ecologically friendly production technologies that prevent ecosystem services degradation</p> <ul style="list-style-type: none"> <li>– Improve criterion application and proposal development requirements to obtain investments and soft loans from Local Development and Small/Medium enterprise support Funds</li> <li>– Facilitate necessary infrastructural development and capacity building to introduce renewable energy technology</li> <li>– Support community initiatives and plants that produce energy-efficient stoves and briquettes.</li> <li>– Support the transfer of soil-bag technology to construct affordable buildings and constructions</li> <li>– Provide technical assistance in establishing joint cooperatives from small and medium industries engaged in wool processing, felt product production and traditional ger accessories and furniture production</li> </ul>	
Sub-objective 6.4: To increase local people's livelihood by supporting local ecotourism development based on historical sites, identifying potential locations for tourism		
6.4.1	<p>To improve services for foreign and local tourists that will benefit local community economically and well suited for ecotourism quality standards, and no negative socio-cultural and ecological impacts</p> <ul style="list-style-type: none"> <li>– Make ecotourism maps in each soum, install direction signs, markers and information, build tourist tents, toilets, campgrounds, and install signs of rules and regulations to keep campsites safe and clean</li> <li>– Build signs and advertisement boards of historical and sacred places to increase conservation habits at cultural and historic sites</li> <li>– Establish local ecotourism operators and volunteer teams, and train them on the specifics of ecotourism, quality standards, and rules and regulations</li> <li>– Organize eco-days and other activities as a side-event during soum holidays or anniversary celebrations</li> </ul> <p>Assess development of producing local farm and non-farm products that will <a href="#">carry local technological and processing feature to link them to market</a></p>	<ul style="list-style-type: none"> <li>• Concept Paper for the Renewal of the Tourism Legislation</li> </ul>

<p>6.4.2</p>	<p>Promote culturally responsible ecotourism development by creating community-based tourism opportunities to attract tourists, demonstrate and describe ethnic, cultural and historic rituals, practices, stories and events</p> <ul style="list-style-type: none"> <li>– Promote community-based tourism development based on the western Altai regions unique culture</li> <li>– Attract responsible tour operators that aim to demonstrate sustainable living practices and advocate how rural Mongolians produce and conserve their low impact culture i.e. having a limited impact on the environment?</li> <li>– Promote the operation of bird watching clubs</li> <li>– Operate felt-art making training and workshops and develop designs which depict rare and endemic wildlife species</li> </ul>	<ul style="list-style-type: none"> <li>• National Sub-Program on Renewable Energy (Resolution #32, 09.06.2005)</li> <li>• Mongolia' Sustainable Energy Sector Development Strategy (2002-2010)</li> <li>• Law on Renewable Energy ( 2007)</li> </ul>
<p>6. 4.3</p>	<p>Develop a responsible tourism industry as an incentive to conserve ecosystem goods and services and improve public environmental conservation knowledge, attitude and habits</p> <ul style="list-style-type: none"> <li>– Educate and raise awareness of the benefits as well as the potential negative impacts of tourism and build an understanding among the public about responsible tourism issues</li> <li>– Recover customary environmental practices among school children such as caring for bird nests and announcing contests</li> <li>– Organize discovery eco-tours for youth guided by environmental specialists and build their wildlife knowledge by participating in such events</li> </ul>	<ul style="list-style-type: none"> <li>• National 100,000 Solar Ger Electrification Program (Resolution 158, 1999)</li> <li>• Law on Environmental Protection. Restoration of Natural Re- (Article #25)</li> </ul>
<p><b>Sub-objective 6.5: Explore and introduce environmentally friendly energy solutions that save money and increase energy supply in settlements</b></p>		
<p>6.5.1</p>	<p>Assess possibilities to supply settlements with hybrid energy sources in the long-term and devise smart strategies and programs targeted to utilize alternative renewable energy resources</p>	<ul style="list-style-type: none"> <li>• Law on Environmental Protection. Environmental audit. (Article #10.1)</li> </ul>
<p>6.5.2</p>	<p>Encourage entities and individuals who have successfully introduced energy saving and environment-friendly techniques and technologies, and raise public awareness on energy-saving technologies and their benefits</p>	<ul style="list-style-type: none"> <li>• "Performance Standards on Environmental and Social Sustainability" International Finance Organization</li> </ul>
<p>6.5.3</p>	<p>Based on estimates of public investment returns, undertake energy sector reforms to develop regional energy efficiency by implementing secure energy supply projects and supporting innovative energy efficiency initiatives</p> <ul style="list-style-type: none"> <li>– Develop an enabling policy environment to increase and invest in energy efficient technology and infrastructure.</li> <li>– Long-term investment in developing energy-efficient soum-and aimag center centralized heating systems by using technologies that minimize energy waste, and invest in improving heating technologies to supply the public with affordable and reliable heating</li> </ul>	<ul style="list-style-type: none"> <li>• The Mongolia's Action Plan for the 21<sup>st</sup> Century / MAP 21 (Resolution 82, 1998)</li> </ul>
<p><b>Sub-objective 6.6: Strengthen regional policy and regulations on the implementation of environmental protection and reclamation plans to maintain ecosystem resilience in mining affected areas</b></p>		<ul style="list-style-type: none"> <li>• National Program for the Sustainable Development (2011)</li> </ul>
<p>6.6.1</p>	<ul style="list-style-type: none"> <li>– Take comprehensive regional scale action to improve the implementation quality of the Environmental Protection and Monitoring plans developed Mining Project Implementers, and ensure adherence to international standards of financial institutions</li> <li>– Improve reclamation and restoration regional policies and regulations in accordance with international financial institutions standards and criteria, and develop context-specific mechanisms to implement these policies at aimag and soum levels</li> <li>– Improve the capacity, knowledge and working conditions of aimag and soum level entities and inspectors who are in-charge of controlling the implementation of Environmental Protection, Monitoring and Reclamation plans.</li> <li>–</li> </ul>	

	<ul style="list-style-type: none"> <li>– Ensure that implementation of mechanical and biological reclamation of soil and vegetation on mining affected areas is efficiently performed by referring to the environment impact assessment report and the rangeland condition assessment report conducted by the ALAGAC every five years</li> <li>– Implement reclamation of abandoned mine sites</li> </ul>	<ul style="list-style-type: none"> <li>• National Program on Disaster Mitigation</li> <li>• (Resolution 25, 1999)</li> <li>•</li> <li>• National Sub-Program on Community Based Disaster Risk Reduction</li> <li>• (Resolution 35, Deputy Minister. 01.04.2013)</li> <li>•</li> <li>• National Program on Prevention and Control of Communicable Diseases</li> <li>• (Resolution # 108, 06.04.2011)</li> <li>•</li> <li>• National Program on Environmental Health</li> <li>• (Resolution # 245, 14.12.2005)</li> <li>•</li> <li>•</li> <li>•</li> <li>• National Program on Waste Reduction</li> <li>• (Resolution # 50, 1999)</li> <li>•</li> <li>• National Program on Creating the Healthy Environment for the City, Soum, Bag, Office and School</li> <li>• (Resolution # 359, 16.12.2011)</li> </ul>
6.6.2	<p>Controlling mining activities and prevent adverse mining activities by training local Government stakeholders in reclamation policies and standards, and establish a locally protected area network at aimag and soum levels</p> <ul style="list-style-type: none"> <li>– Implement environmental auditing every two years by the specialized/certified organization in accordance with the Environment Protection Law</li> <li>– Create an enabling environment for local communities to participate in monitoring of mining activities</li> <li>– Limit the number of permits and licenses of exploration and development in river basin areas</li> <li>– Facilitate involvement of local communities in direct discussion with national, aimag and soum authorities to discuss mining exploration and project implementation potential, and ongoing impacts from mining, to increase the urgency and quality of Environmental Protection and Reclamation plans.</li> <li>– Ensure that monitoring and inspection of mine sites and surrounds is conducted fairly, and realistic, accurate inspection and monitoring reports are produced by officers-in-charge</li> <li>– Review water use regulations for mining companies, referring to current studies on river-basin water resources and regimes</li> </ul>	
Sub-objective 6.7: Infrastructure and urban development: Provide regional scale policy support to create environmentally-sound access to appropriate infrastructure and urban development contributing to ecosystem resilience building		
6.7.1	<p>Implement policies that promote affordable and environmentally sound technologies to address gaps in basic services, construction and infrastructure at a regional scale:</p> <ul style="list-style-type: none"> <li>– Through a combination of business development education and direct outreach provide access to environmentally friendly infrastructure in aimag and soum center communities. Support development of local businesses that provide renewable energy, water, sanitation and construction technologies to aimag and soum center residents</li> <li>– Restrict creation of unauthorized country roads by mining companies, especially coal mining companies</li> <li>– Install traffic and road signs to inform the public about locations and destinations</li> <li>– Close coal mining multi branch roads and ensure mining companies take responsibility for biological restoration</li> </ul>	
6.7.2.	<p>Support and promote low-cost sustainable building materials or "eco-materials"</p> <ul style="list-style-type: none"> <li>– Build centralized storage facilities with environmentally sound technology to store meat and other livestock-products</li> <li>– Support improved technology and skills for briquette factories at a regional scale</li> <li>– Build a factory that produces wood pellets using wood particles and chips and coal waste</li> <li>– Built bone processing plants for livestock feed production</li> <li>– Supply rural herders with 100% renewable energy sources and suggest to continue Governmental Program "100000 solar lanterns"</li> <li>– Implement heating systems by using electric energy</li> <li>– Supply heating energy from renewable energy sources for soum hospital, school, cultural centers and build public shower</li> <li>– Supply households energy saving stoves which have a high efficiency, reduce fuel costs, and save energy in order to reduce air pollution</li> <li>– Encourage tourist camps and bag centers to utilize renewable energy resources</li> </ul>	



### Sub-objective 6.8: Health: Improve public health and healthy living habits to reduce health risks and build social resilience

- 6.8.1. To reduce negative health impacts of disasters, cooperatively organize trainings for community, children, and community groups with Aimag Emergency Management Agency
- 6.8.2. To reduce contagious diseases by keeping the drinking water clean. Prevent surface and drinking water sources from contamination and pollution
  - Protect drinking water sources by building protection zones around them, planting trees and building fences
  - Standardize surface and deep water water analysis and, given the results, if necessary install filters for these wells
  - Implement technology to use gray water
- 6.8.3. Support initiatives for environmental greening projects by introducing green living habits
  - Establish a public waste point that meets hygienic standards
  - Reuse, recycle, and sortwaste
  - Connect Ger districts to the centralized water and sanitation system (good practice model)
  - Implement policy on alcoholic drink producing companies that they must re-buy the bottles and cans from the consumers, if not charge them to pay financial penalty due to enormous amount of waste of bottles and cans
  - Implement an alcoholic bottle and can buy-back policy for production companies to increase recycling of alcoholic beverage bottles and cans. If not, charge companies a financial penalty due to the waste created.
  - Build bone processing factory and establish collection points for animal bones in the countryside
- 6.8.4. To advertise and organize informational trainings on healthy habits and healthy eating in order to fight against unhealthy habits
  - Strengthen advertising and inform the public about healthy eating habits at community levels
  - Include fruits and vegetable as part of the food stamp and commodity
  - Government organizations and companies should have special public health awareness action plans and distribute health information to employees
  - Improve the quality control of imported food products and increase the use of healthy local products
  - Training to improve knowledge of physical education teachers and school doctors to implement events on healthy and ecofriendly living habits
  - Work closely and in connection with National Programs and Concepts
- 6.8.5. To build windbreaks and green parks to slow wind speed and contribute to the reduction in dust storm (See Objective 3; 4)

## STRATEGIC PRIORITY 7: Strengthen sustainable ecosystem management and conservation policies and institutions environment

Strengthen sustainable ecosystem management and EBA practices at the regional level.  
conservation policies and institutions to implement

Sub-objective 7.1: Implementation of cross-sector policy implementation – integrate objectives and action plans of the EGD policy into IFAA, Land Management, Construction and Urban Development		Supporting activities Policy documents
7.1.1	<p>Test and implement policy implementation mechanisms at the aimag and soum level Improve capacity and collaboration of the officers who are in charge of different sectors to have a multi-sector approach to save transaction costs, time and labor</p> <ul style="list-style-type: none"> <li>– Ensure that EBA principles and strategic priorities are supported and mainstreamed into other sector policies and devise appropriate protocols to implement comprehensive action at aimag and soum scales</li> <li>– Propose mechanisms and entry points to integrate economic development, labor, population development, education and cultural sector objectives into regional EBA priorities</li> <li>– Industry, Food and Agriculture-Land management-EBA: Implement adaptive management practices to integrate land management and utilization plans with food and agriculture needs and ecosystem degradation</li> </ul>	<ul style="list-style-type: none"> <li>• National Action Program on Climate Change ( 2012 )</li> <li>• River Basin Administration Regulation</li> <li>• Law on Environmental Protection (amended 2012) Article # 50 Natural Resource Co-management</li> <li>• Local Development Fund Establishment, Utilization and Monitoring Regulation(Resolution # 134, 2011)</li> <li>• Mongolian Livestock National Program (Resolution#23, 2010)</li> <li>• Law on Environmental Protection (amended 2012) Article # 50 Natural Resource Co-management</li> </ul>
7.1.2	<p>Implement an incentive system for environmental protection activities (Unique, 2013) that requires understanding, engagement and participation from all sectors</p> <ul style="list-style-type: none"> <li>– Link Local Development Fund investment, Mongol Livestock and other state financing to the implementation of environmental and rangeland conservation management</li> <li>– Improve project application and selection criteria by adding EBA activities and principles</li> <li>– Establish and improve resource monitoring and assessment to link financing to ecosystem-based adaptation activities</li> </ul>	
7.1.3	<p>Strengthen community-based rangeland, forest and wildlife management by supporting their organizational development and linking them to economic opportunities</p> <ul style="list-style-type: none"> <li>– Organize local scale community-development forums and festivals</li> <li>– Celebrate and disseminate information about good practices, achievements and solutions provided by community-based organizations</li> <li>– Document and facilitate information exchange between communities to share best practices, technologies and knowledge</li> <li>– Ensure that local and regional policies are revised and improved by incorporating the successes and lessons learnt by community-based organizations</li> </ul>	
7.1.4	<p>Improve capacity building of herders, build trust and create opportunities to work collectively with official agreements on the free market economy, by implementing integrative policy for developing the triple connection of “<a href="#">Collaboration</a> – Herding – Market”</p> <ul style="list-style-type: none"> <li>– Develop economic modelling to develop a livestock product sales tax depending on soum specifications</li> <li>– Establish infrastructure for small dairy factories and support them to collect milk from herders and produce healthy, quality milk products</li> </ul>	
7.1.5	<p>Agriculture – land management – EBA cooperations: To implement flexible land management and planning to respond to ecosystem change and degradation appropriately</p>	

Sub-objective 7.2: To test and implement mechanisms that promote the interests and participation of individuals, consumers and policy makers' in EbA strategy

- 7.2.1 To implement policy to improve Government employee knowledge and education of EBA implementation in soums
- 7.2.2 To identify foreign and local investments, incentives, and projects for implementing rangeland, soil, water and forest restoring managements
- 7.2.3 To implement protection measures and reduce the risk of natural disasters
- 7.2.4 To improve local community group structure and organization, and train them to become a unit for implementing EBA policy in their area. Implement incentive methods

Sub-objective 7.3: To implement incentives and encouragements as well as [sanction methods](#) and permanently monitor and control ecosystem condition and its use Establish environment performance incentives and sanctions based on regular monitoring and evaluation

- 7.3.1 Conduct ecosystem condition assessments and monitoring activities, and link this initiative to performance based payments
- 7.3.2 To establish a permanent monitoring system for rangelands, water and hay area in each soum
  - Develop monitoring methods
  - Establish local working group on rangeland monitoring and train the members in rangeland monitoring and sampling
  - Plan pasture use management for each year by informing herders of monitoring results and by giving them the opportunity to participate in monitoring
  - Livestock numbers and type must depend on the grazing capacity
- 7.3.3 Integrate wildlife monitoring results into environmental policy with the help of local communities



**Sub-objective :7.4 Implement appropriate options for cooperation and investment that is suited to specific local conditions and which are implementable**

- 7.4.1 To design EbA projects, programs, implementation monitoring, and evaluations in collaboration and with assistance from international and national donors and non-governmental organizations
- 7.4.2 To develop community and private partnership, especially work closely with companies that have adverse impacts on biodiversity and ecosystem services over a short period of time.
  - Establish collaboration with mining companies to monitor their environmental and restoration plans
  - Protect places that have tourism significance
  - Protect historical and sacred cultural places
- 7.4.3 Develop individual and organization donations, financial assistance, volunteering, encourage initiatives and advertise its importance for EBA.
  - Celebrate Earth Day and initiate community service by cleaning up riverbanks, local park, neighbourhood and roadsides
  - Volunteers (students, teachers, residents) assist with trash pickup, weeding, or other beautification projects and volunteering for fire watch during dry periods.
  - Organize revegetation, seed collection, and gardening campaigns







## CHAPTER FIVE

### **EASTERN STEPPE AND MONGOL DAGUUR REGION STRATEGIC PRIORITIES TO IM- PLEMENT ECOSYSTEM BASED ADAPTATION**

## 5.1. ECOSYSTEM-BASED ADAPTATION STRATEGIC PRIORITIES AND OBJECTIVES

### EBA IMPLEMENTATION OVERALL PURPOSE:

Sustain social, economic and cultural ecosystem goods and services by introducing and implementing climate adapted practices and

technologies that build ecosystems resilience of the region for current and future generation.

### EBA IMPLEMENTATION OBJECTIVES:

To achieve this purpose seven directions or objectives were identified and each is broken down into several sub-objectives and activities:

1.Support social and ecological goods and services derived from water systems

2.Support conservation and provision of social and ecological goods and services derived from rangeland ecosystems

3.Support conservation and provision of social and ecological goods and services derived from forest ecosystems

4.Support conservation and provision of social and ecological goods and services derived from riparian ecosystems

5.Disseminate knowledge, approach and practices to conserve cultural and educational goods and services

6.Maintain multiple social and economic benefits derived from ecosystems to support sustainability of current and future generation

7.Strengthen policy and institutions for sustainable ecosystem management and conservation

Each sub-objectives contains region-specific and locally implementable list of EBA practices and activities (please refer to Chapter 6). This comprehensive list of the measures was developed by integrating opinions and suggestion recommended by local communities, studying local financing opportunities and estimating human resources local.

To ensure that by implementing proposed list of activities contribute to enhancement of human security, we designed these activities to meet the human security principles of 1) being people-centered, 2) multisectoral, 3) comprehensive, 4) context-specific, and 5) prevention-oriented (please refer to page 9-10). It is designed as a practical working document, on which basis any particular soum or aimag without compromising EBA principles and direction can use the proposed activities as a guide to make detailed activities or expand to own demands and opportunities.



## 5.2. PROPOSED ACTIVITIES TO BE IMPLEMENTED WITHIN THE SCOPE OF EBA FRAMEWORK

### STRATEGIC PRIORITY 1: Support and increase Social – ecological goods and services from water resources

To introduce adaptive technologies and practices that promote sustainable use and conservation of water resources that support its resilience,

and self-purification capacity in river basins' regional ecosystem equilibrium.

Sub-objective 1.1: Implement efficient measures to increase quantity of water sources by supporting self-purification capacity of water resilience		Supporting activities Policy documents
1.1.1	<p>Increase waterflow of head waters, streams and natural springs by protecting from trampling and other contamination:</p> <ul style="list-style-type: none"><li>– Carry out an inventory of regional natural springs and streams</li><li>– Determine the scientific reason for the loss and drying out of springs and streams with the help of appropriate scientific organizations and expert consultation</li><li>– Should complete rehabilitation and protection for 8 springs and streams origin in each year and prevent from disturbances and do monitoring</li></ul>	<ul style="list-style-type: none"><li>• Water National Program Article 3.1.6 (20.05.2010)</li><li>• National Green Development Concept and Mid-term Action Program. Article 2.1.4</li><li>• (Under parliament consideration, 2013)</li><li>• Government Policy on Ecology, Article 3.7, (Resolution I # 106, 1997)</li><li>• Water National Program, Article 3.3.2, (20.05.2010)</li><li>• Mongolia's National Action Program on Climate Change, Article 3.2.4 (06.01.2011)</li><li>• National Green Development Concept and Mid-term Action Program. Article 2.1.3</li><li>• (Under parliament consideration, 2013)</li></ul>
1.1.2	<p>River and lake water retention should be implemented by building water reservoirs and ponds from the collection of rain water, flood and meltwater:</p> <ul style="list-style-type: none"><li>– Duch, Sevshuul, Turgen rivers and Khukh, Chukh, Khulstai, Ulaan nuur (Red lake), teel, Sumiin nuur (Chirch lake) water regime study to be carried out by specialized scientific organizations. The proposed river and lake rehabilitation activities should be implemented.</li><li>– Build dams to improve water, marsh and watershed area ecosystem.</li></ul>	
1.1.3	<p>Build water reservoirs and ponds to decrease water loss and increase the availability of water resources for community groups and household use for example: gardening, hay field, forest nursery:</p> <ul style="list-style-type: none"><li>– Undertake a feasibility study for the local community with respect to water requirements and available resources; develop plans, drawings, and build water reservoirs in response to the results of the study.</li><li>– Provide the community with appropriate technology transfer, cost and benefits analysis, income calculation ability, and education</li><li>– Promote collaboration to plan and desing joint projects and mobilize technical assistance and required financial and professional support</li><li>– Rehabilitate water reservoirs that used to be in Bayandun soum center and identify options for building dams and ponds</li></ul>	
1.1.4	<p>Identify a suitable location to actively regulate natural water precipitation, flood and melt water along the Ulz river basin and undertake a technical and economical feasibility study on this concept</p>	
1.1.5	<p>To determine the path of ecological water cycle through the Kherlen, Onon and Ulz river basins and come up with acceptable levels of water extraction for community use in each river basin. Based on this, develop water use procedures to implement these actions.</p>	
Sub-objective 1.2: To support the capacity of water resilience by supporting the smart usage of water resources		
1.2.1	<p>Introduce a water metering system for each individual water user:</p> <ul style="list-style-type: none"><li>– Count, register and implement metering systems at all kinds of water wells in the soum territory</li><li>– Implement metering systems for mining water usage</li><li>– Adopt technology for reusing industrial water</li><li>– Connect water user entities with specialized organizations</li><li>– Provide the community and industry with educational training, user manuals, and promote sustainable water use awareness</li></ul>	



- 1.2.2 Encourage crop, vegetable and tree seedling producers to use drip irrigation technology for households and cooperative agricultural use
- Irrigation system repair and rehabilitation
  - Institutionalize incentive mechanisms to encourage individuals, corporations, and collectives who develop and successfully introduce water saving technologies

Sub-objective 1.3: Restore self-purifying function of water bodies in the region by protecting from contamination and waste

- 1.3.1 Prevent reduction in the water quality of rivers, lakes, streams and springs due to pollution and contamination
- Determine pollution sources
  - Stop the discharge of waste water into Ulaannuur (Red Lake) from the Khuutsgul gold mining industry in Bayandun soum of Dornod aimag
  - Implement appropriate activities for the Ulz river head water to prevent disturbance by livestock
  - Organize the sampling and analysis of water sources in Bayandun soum, which are used by 11 mining companies.
  - Determine the water usage and evaluate soil water contamination levels at the following locations:
  - Shini Shini gold mining at the origin of the Sevsuul River
  - Janlun gold mining in Choibalsan soum
  - Uranium and color-metal industry in Gurvanbulag of Dornod aimag .
  - Monitor and regulate the water use and levels of environmental contamination by mining companies
- 1.3.2 Establish permanent monitoring systems to monitor the water quantity and quality of rivers, lakes and springs
- Expand river and lake water quality monitoring by using existing water control points
  - Educate communities and water users about water quality and inform them how it is important to protect freshwater sources to promote water-saving and water-conserving habits and behaviors

Sub-objective 1.4: Adopt appropriate clean water technologies for public drinking water supplies in order to contribute to the public health.

- 1.4.1 Ensure all sources of fresh waters (well or spring) are under national or local protection
- Establish the sanitary control over the area with drinking water source (well or springs) and prevent contaminants from entering. Establish legal and physical control of the sanitary control area and label them as sanitation zones.
  - Establish a permanent water quality monitoring system for drinking water
- 1.4.2 Install high capacity filters to soften and purify drinking water in soum center water wells
- Study modern technologies and choose appropriate technology that suites local conditions and needs
  - Install the appropriate equipment following the completion of a water quality and consumer use assessment (the first priority should be the water wells in Dash-balbar, Chuluunkhoroot, Gurvanzagal soums)
- 1.4.3 Increase awareness of the importance of safe and hygienic drinking water bottles, water storage and transportation tanks, and set certain standardization schemes
- Determine the current level or baseline situation of the current practice
  - Educate and increase public awareness about drinking water safety and quality

## STRATEGIC PRIORITY 2: SUPPORT AND INCREASE SOCIAL – ECOLOGICAL SERVICES AND GOODS FROM RANGELAND ECOSYSTEM

To introduce appropriate management practices and technologies to restore soil quality, plant diversity and improve habitat and diversity of wildlife.

Sub-objective 2.1: Conserve grassland and rangelands' soil and vegetation by improving its soil structure, vegetation cover, distribution and composition planting perennial grass, perennial forb, shrub species that stabilizes soil infiltration and water holding capacity		Supporting activities Policy documents
2.1.1	Protect rangelands through: <ul style="list-style-type: none"> <li>– Formal local government protection</li> <li>– Implementation of prescribed grazing for rangelands threatened by over-use</li> <li>– Implementation of targeted management actions to recover rangelands that have already been degraded due to heavy grazing</li> </ul>	• Law on Natural Plants (11.04. 1995)
2.1.2	Conduct monitoring of plant composition, cover, and species richness <ul style="list-style-type: none"> <li>– Determine monitoring objectives</li> <li>– Establish permanent monitoring points</li> <li>– Establish a rangeland monitoring working group at the soum level, comprising of relevant experts, and train them in specific rangeland sampling and monitoring methods</li> <li>– Develop annual land-use and rangeland management implementation plans based on the monitoring results</li> <li>– Train herders in community-based rangeland monitoring methodology</li> </ul>	• Law on Land (07.06. 2002) • Law on Animals (12.05.2012) • Law on Soil Protection (17.05.2012.5)
2.1.3	Implement rangeland management activities to prevent rangeland degradation by conserving and rehabilitating plant functional groups and thus increase rangeland ecological and socio-economic values. <ul style="list-style-type: none"> <li>– Implement rangeland management actions that restore palatable perennial grass and forb species (<i>Beckmannia syzigachne</i>, <i>Cleistogenes</i>, <i>Poa</i>, <i>allium</i> species etc.)</li> <li>– Improve the growing condition of <i>Ribes diacanthum</i> - Gooseberry, <i>rosa davurica</i> etc. (control use of these species for fuel consumption)</li> <li>– Implement appropriate measures to control grazing to rehabilitate rangelands dominated by weeds and other increaser species (conduct controlled burning of weeds and harvest them before they set seed)</li> </ul>	• National Action Program for Combating Desertification (14.04.2011) • Mongolian Livestock National Program (Resolution #23, 2010)
2.1.4	Protect medicinal, rare and extinct species <ul style="list-style-type: none"> <li>– Specific habitat of these plants should be protected by the local Government</li> <li>– Control and monitor collection, harvesting and use of these plant species</li> <li>– Protect the local rangeland native species gene bank by preventing it from degradation</li> </ul>	
Sub-objective 2.2: To implement rangeland management that supports local wildlife habitat		
2.2.1	Protect wildlife habitat from human and livestock invasion, focusing on seasonal movement patterns and breeding seasons Conservation activities directed to protect habitat for wild boar, gazelle, Mongolian antelope, marmot etc. Develop and implement conservation plans for forest and water birds habitat Conserve habitat for insects that are vital for pollination (bees, butterfly etc.)	• Mongolia's National Action Program on Climate Change, Article 3.2.23 (06.01.2011)
2.2.2	Implement measures to protect water sources for wildlife and prevent them from livestock trampling Search for and identify options for the collection of precipitation water in naturally concave areas, for use by wildlife	
2.2.3	Identify potential saltlick resources used by wildlife and initiate measures to seasonally rest these areas from human and livestock use	

Sub-objective 2.3: To implement appropriate rangeland management to prevent degradation	Supporting activities Policy documents
<p>2.3.1 Implement pasture co-management for seasonal rotational use</p> <ul style="list-style-type: none"> <li>– Implement management practices that exclude warm season pasture from grazing during certain times, with support from the local Government</li> <li>– Rest cold season pasture during the plant growing season</li> <li>– Institutionalize a pasture use regulation system on the basis of estimating production and carrying capacity for the current year (based on monitoring results)</li> <li>– Obtain updates on annual pasture carrying capacity estimates from weather stations, and disseminate this information to bag governors and herders</li> </ul> <p>2.3.2 Determine inter-soum, soum and bag otor reserve areas and take them under local government protection. Develop otor management policies and plans that suits the local context and herder movement patterns</p> <p>2.3.3 Improve collective management for hay areas:</p> <ul style="list-style-type: none"> <li>– Restore rotational use practices for hay harvesting reserve areas and, if necessary, take appropriate management actions to exclude these areas from grazing</li> <li>– Improve permanent hay cutting area production by harvesting snowmelt and rain water (Torguud boolt), fertilize with manure and minerals to improve the soil quality and use other appropriate local techniques.</li> </ul> <p>2.3.4 Establish pasture use agreement with community-based rangeland management groups to encourage their roles/sustainable practices to protect and sustainably use the rangeland resources</p>	<ul style="list-style-type: none"> <li>• National Program on Natural Plants Protection (04. 2013)</li> <li>• National Program on Rare (Endangered) Plants Protection and Their Appropriate Utilization (Resolution # 105, 2002)</li> </ul>
Sub-objective 2.4: To advertise and adopt best practices, provide training, educate herders and communities on ecosystem services, goods and benefits	
<p>2.4.1 Institutionalize community-based natural resource management and organize and offer a package of integrated step-by-step training to herders</p> <ul style="list-style-type: none"> <li>– Basic level training on sustainable pasture management</li> <li>– On-site plant identification and classroom training</li> <li>– Link soum land use and rangeland management planning and incorporate the seasonal movement patterns of herder into land use plans.</li> <li>– Collaborative implementation and monitoring of pasture management plans</li> <li>– Train herders in community-based rangeland monitoring methods that could be used on daily basis</li> <li>– Train herders in specific methods of how to improve hay area and pasture condition</li> <li>– Integrate animal husbandry, appropriate environmental resource use and traditional and modern conservation best practices</li> </ul> <p>2.4.2 Organize regular community workshops and forums to enable knowledge exchange covering topics such as traditional herding knowledge associated with range and livestock management and possibilities to combine and integrate these methods for use in the evolving new environmental and economic context</p>	

### STRATEGIC PRIORITY 3: Improve social and ecological goods and services derived from the forest ecosystems

To implement innovative and appropriate technology directed to improve forest biological diversity and habitat and thus conserve socio-

economic and ecological services and goods derived from the forest ecosystems

Sub-objective 3.1: To rehabilitate forest nursery, forest wildlife habitat, vegetation cover, and corresponding supplemental resources		Supporting activities Policy documents
3.1.1	<p>Establish good nursery practices that produce native tree seedlings and planting materials and offer training in tree plantation and nursery management to farmers and local communities</p> <ul style="list-style-type: none"> <li>– Propagate local tree seeds by establishing local tree nurseries for each forested soum and prepare affordable and well-adapted saplings, and supply local groups for forestation and plantation</li> <li>– Capacity building for forest community groups</li> <li>– Build green space type garden in each soum</li> </ul>	<ul style="list-style-type: none"> <li>• Law on Forest (17.05.2007)</li> <li>• Law on Natural Resources and their Utilization (1995)</li> <li>• Mongolian Law on Fees for Use of Natural Resources (Resolution 34, 23.10.2012)</li> <li>• Law on Animal (17.05.2012)</li> <li>• Law on Fees for Timber and Fuel Wood</li> <li>• Law on Customs Tariff (amendment 07.01. 2005)</li> <li>• National Forest Program (Resolution # 248, 31.10.2001)</li> </ul>
3.1.2	Implement controlled forest thinning, and pruning for better sunlight in collaboration with Aimag Forest Agency	
3.1.3	<p>Forest vegetation cover rehabilitation</p> <ul style="list-style-type: none"> <li>– Undertake assessment of plants species in the forest and identify their condition in collaboration with specialized agencies</li> <li>– Collect tree seeds and develop seed bank</li> <li>– Establish botanical garden by planting and propagating seeds of native and endemic plants, protect the gene bank, and establish nursery /Bayan Uul, Dashbalbar, Bayandun, Norovlin, Batshireet/</li> </ul>	
3.1.4	Support operation of local forest communities in forest cleaning activities and link them to or support them to be more specialized, provide them necessary financial and technical support. Encourage forestation of the areas in the settlements.	
3.1.5	<p>Conservation of forest wildlife habitat</p> <ul style="list-style-type: none"> <li>– Protect wildlife and allow them to freely migrate and reproduce</li> <li>– Restore habitat to promote return of wildlife</li> <li>– Implement preventative measures not to disturb wildlife as a result of mining, road and other infrastructure development</li> <li>– Protect and provide wildlife with additional fodder and nutrition depending on the local area specifics and climate hardship</li> <li>– Control illegal hunting and develop incentive mechanisms for information providers</li> </ul>	
3.1.6	<p>Conduct regular monitoring of the condition and use of forest auxiliary resources such as wild berries, pine nuts, mushrooms, medicinal and edible plants, tree bark, birch juice, birch bark, wood tar and moss.</p> <ul style="list-style-type: none"> <li>– Monitoring results should be open to public access</li> <li>– Develop a list of key resources that need to be urgently protected and for which harvesting must be controlled</li> <li>– Place signs and information boards to inform users of the proper use and harvesting of forest auxiliary resources</li> </ul>	



## Sub-objective 3.2: To increase local community involvements to fight with forest fires, and insects

- 3.2.1 Limit favorable condition for insect population growth by cleaning the forest litter  
Build trails for motorized vehicles to reach deep into the forest and clean the forest
- 3.2.2 Prevent insect damage by training specialists and organizations to monitor insects and their distributions
- 3.2.3 Develop social and economic incentive mechanisms to encourage long-term forest restoration, insect control and fire prevention activities
- 3.2.4 Prevent forest fires, organize fire fighting activities, develop incentives for early warning information, strengthen awareness and supply with hand tools and other efficient equipments
- 3.2.5 Construct towers for fire watchers so they can spot fires when they start and monitor them as they move.

## Sub-objective 3.3: To prevent from Illegal hunting and timber, wood preparation

- 3.3.1 Advertise incentives to the community for providing inform about illegal activities occurring in the forest and in relation to wildlife
  - Inform and advertise to the community the punishment for breaking laws
  - Build incentive mechanisms to encourage early warnings by informants
- 3.3.2 Block access to some forest roads to control illegal logging and timber transport  
Involve volunteers, collectives and kids clubs by organizing forest protection, environmental and ecological discovery summer training and horse tour-guards
- 3.3.3 Build permanent control points to combat illegal timber preparation  
Restrict the amount of logging and timber preparation which occurs in the forest, if necessary

## Sub-objective 3.4: Implement sustainable management to protect forest resources, and their proper usage, and restoration

- 3.4.1 Cooperate with and support local forestry community initiatives in forest resource conservation and restoration:
  - Provide technical advice and extension services to form community-based forest groups or enterprises that have possession rights to implement forest management plans in collaboration with Aimag Forest Agency.
  - Community-based forest enterprises will be responsible for undertaking sustainable forest management practices to do forest conservation, restoration and cleaning activities
- 3.4.2 Support re-forestation initiatives by encouraging entities and individuals to plant trees and establish green corners or green spots in aimag and soum centers. Revise the local payment tariffs for 1m<sup>2</sup> forestation activity.
  - Establish green spots in settlements and provide incentives and prizes to entities and individual who successfully instituted such practices
  - Establish windbreaks in aimag and soum centers to slow wind and provide wind protection to dwellings and people
  - Encourage people to undertake reforestation activities and if their project is successfully completed give ownership of this forested area to the project leader, according

## STRATEGIC PRIORITY 4: Protect social and ecological goods and services derived from the riparian ecosystems

To expand and improve riparian corridor by introducing a combination of appropriate adaptive practices and techniques that conserve socio-economic and ecological goods and services from riparian ecosystems

Sub-objective 4.1: Improve soil quality, water holding and infiltration capacity by rotational grazing and restoring riparian meadow pasture, willow and shrub communities and perennial plant species.		Supporting activities Policy documents
4.1.1	Take riparian areas under local government protection and implement controlled management actions for resting and restoration if the rangeland is vulnerable to degradation or already degraded due to heavy disturbance	<ul style="list-style-type: none"><li>• Law on Land (07.06.2002)</li><li>• Law on Natural Plants (11.04.1995)</li><li>• Law on Animal (07.05. 2012)</li><li>• Law on Water (12.05. 2012)</li><li>• Law on Natural Plants (12.05.2012)</li><li>• National Forest Program (Resolution 248, 31.10.2001)</li></ul>
4.1.2	Implement riparian rangeland monitoring of species cover, richness, composition in meadows (see 2.1.2, 2.1.3, 2.1.4)	
4.1.3	Build plantation area for willow and other riparian fast growing shrubs and trees, Build nursery for shrub and tree along Ulz river (Rehabilitate from Bayandun soum to Chuluunkhoroot)	
4.1.4	Regulate operation of individuals and entities who cut willow for making gers and educate them about the importance of restoring riparian ecosystems. <ul style="list-style-type: none"><li>– Train individuals to find alternative income sources</li><li>– Grow shrubs and trees adapted to particular ecosystems</li><li>– Stop and forbid cutting willows and other medicinal plants along the river</li></ul>	
Sub-objective 4.2: Implement management and policy for increasing species composition, richness, production, and soil nutrition, water holding and infiltration capacity in meadow pasture		
4.2.1	If the river-meadow pasture, soil and vegetation ecosystem equilibrium is threatened act to protect the area and release it from use <ul style="list-style-type: none"><li>– Renew existing information systems and establish a basic information system to implement proper use and conservation management</li></ul>	
4.2.2	Include community volunteers and environmental officers in wildlife observation and monitoring training	
4.2.3	Provide community volunteers and environmental officers with GPS, binoculars and other tools and collect the information from the GPS based program “wildlife bio-fund”	
4.2.4	Improve river- meadow pasture and hay area management (see 2.3.1; 2.3.3)	

**Sub-objective 4.3:** To implement policy, methods, which sustain the wildlife, fish, water birds' habitat by cooperating with specialized scientific organizations

- 4.3.1 Control water birds, and fish growth development and involve volunteers
  - Advertise and provide information about fish and rare birds' habitat, and what a suitable reproduction environment is for these species, by making calendars, and flyers to distribute to the community
- 4.3.2 Protect rare wildlife species that inhabit meadows with the help of local communities
- 4.3.3 Expand cooperation with clubs and individuals who are interested in birds and fish
  - Develop plans and agreements for conservation and tourism management
  - Develop eco-tourism for bird watchers in the Ulz river basin where there are many interesting and rare bird species such as Daurian Redstart (*Phoenicurus aureus*), Common crane (*Grus grus*), White-naped Crane (*Grus vipio*), Demoiselle crane (*Anthropoides virgo*), Swan goose (*Anser cygnoides*), Great Bustard (*Otis tarda*), Asian Dowitcher (*Limnodromus semipalmatus*), Saker falcon (*Falco cherrug*), Lesser Kestrel (*Falco naumanni*), Pallas' Fish Eagle (*Haliaeetus leucoryphus*), Hooded Crane (*Grus monacha*), Daurian Jackdaw (*Corvus dauuricus*), Siberian Crane (*Grus leucogeranus*), Black Stork (*Ciconia nigra*), Eastern Imperial Eagle (*Aquila heliaca*), Chinese Pond-heron (*Ardeola bacchus*)
- 4.3.4 Develop recreational areas along riverbanks and close to the centers for children and youth
  - Educate the public about the value of protecting our environment and ecology

**Sub-objective 4.4:** To control the natural resource' usage even though they are abundant in the nature (sand

- 4.4.1 Install signs and information boards for the following forbidden activities, in order to prevent riverside landslides and sand movement in specially protected zones. This will help to educate and inform the public about environmental law. Signs will include information such as:
  - “Prohibited area to build any structures or buildings”
  - “No land cultivation”
  - “Do not use dynamite”
  - It is forbidden to undertake agricultural and mining activities
  - Do not cut trees, *Phragmites communis* – reed species and transport sand, gravel etc.
  - Do not harvest vegetation for factory use
  - It is forbidden to build animal husbandry production points and livestock washing places

**Sub-objective 4.5:** To provide with trainings and adaptation mechanisms of the best practices and educate communities on economical and ecological benefits of protecting river-meadow ecosystems

- 4.5.1 Organize community groups and their build capacity to protect biological diversity and undertake conservation actions:
  - Develop a plan to strengthen community groups and collectives
  - Train community group about the environmental conservation field
- 4.5.2 Support community-based natural resource management organizations by providing extension and targeted training programs
- 4.5.3 Educate people and inform them about the importance of supporting river, lake and meadow ecosystems and their economic advantages (increased production of hay, pasture and shrub, trees)

## STRATEGIC PRIORITY 5: Disseminate appropriate knowledge, approach and practices to conserve inherited cultural and educational ecosystem services

To disseminate and promote appropriate knowledge, multisectoral approach and practices to conserve inherited cultural and educational ecosystem services specifically derived from the local region

**Sub-objective 5.1: Improve access and quality of cultural ecosystem services by restoring local natural, historical places and traditional conservation ritual**

- 5.1.1 Develop an inventory, and conduct a participatory assessment of local natural heritage sites and their condition and develop a list of how to conserve them
- 5.1.2 Disseminate results of the assessment to the local population using various communication and social media channels.
- 5.1.3 Develop recreational and ecotourism values by determining and mapping tourist places and creating campsites for overnight stays in the outdoors. Publish educational pamphlets and install information boards to inform the public about local wildlife, vegetation, culture and tradition.
- 5.1.4 Establish collaboration and networking opportunities with interest groups who want to conserve ecosystem and cultural services, including specialized organizations, scientists, artists, volunteers and youth clubs

**Sub-objective 5.2: Increase educational and scientific benefits of ecosystem services and goods**

- 5.2.1 Participate in research projects undertaken in respective soums and aimags by national and international organizations and scientists, and contribute by providing input and exchanging knowledge and research results and outputs
- 5.2.2 Inform, advocate and educate the community about local cultural, historical and archaeological sites and significant scientific and socio-cultural values, including people, sacred places, archaeological sites, folklore, etc.
- 5.2.3 Disseminate information about, and support the development of eco-friendly habits and thinking by collaborating with secondary schools and adult learning centers, and implementing education programs on climate change adaptation and preservation of loss of ecosystems goods and services. Integrate local knowledge with international best practices to suggest innovative and sustainable context-specific solutions.
  - Pretest the ecological knowledge of different age groups and, based on their knowledge and needs, implement ecological educational programs

### Supporting activities Policy documents

- National Program on Community Education of the Ecology (Resolution # 255, 24.12. 1997)
- National Program on Environmental Awareness (Resolution #39, MoE. 1999)
- National Program on Public Education of the Environment (Resolution # 255, 24.12.1997)



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- Organize training sessions and demonstrations about appropriate tree cutting, pruning, planting methods and related technology
- Establish meaningful links between environmental educational programming and primary and secondary school programs
- Train teachers and students to build environmental learning centers in each soum to organize different kinds of training and educate the community and herders
- Organize different community promotional programs and events on various environmental themes such as “The value of water”
- Establish curriculum for local school classes to develop “Green school” habits and “Green camps” where schoolchildren can voluntarily participate in tree-planting and nursery types of work
- Establish “Eco-kindergarten” programs and teach children about environmental processes, cycles and wildlife habitats
- Organize contests for environmental essay writing, drawing, poetry composition and organize sports events
- Organize sustainable rangeland, water and wildlife conservation training and educational outreach programs for herders who live along the Ulz riverbank and whose livestock graze on riparian pastures.
- Support the activities of “Gangar-gungar” club in Dashbalbar soum, the local eco-club.
- Advertise and educate the soum community about water resources, hunting, waste management and other environmental conservation activities through television and radio
- Establish “Ulz” environmental club and implemented various training programs in collaboration with this club.
- Use informal training modules for environmental educational programs and train informal trainers
- Organize multiple, repeated events on environmental protection and increase the number of celebration days for the environment
- Establish guidelines from the project to encourage and award herders, who take action on environmental conservation issues

- National Program on Mongolian Throat Singing (Resolution #159, 2007)

## Sub-objective 5.3: Raise public understanding and awareness on the roles of ecosystem goods and services in production and origination of cultural and traditional heritages

- 5.3.1 Conduct participatory studies and document how the knowledge, herding practices and specific ger-educational practices are transforming and adapting to environmental change and what the main drivers of change are. Use findings and results from this research to inform, develop, and improve local government development policies and action plans.
- 5.3.2 Facilitate exchange of learning and cross-fertilization between orally preserved traditional environmental knowledge and modern resource management plans and practices
  - Disseminate and increase the importance and relevance of traditional environmental conservation knowledge
  - Collaborate with knowledgeable elderly community members and retrieve traditional knowledge of indigenous or local conservation practices and methods.
  - Install signs, information boards and posters informing the public about appropriate phrases and words that are accepted by communities and that promote good daily habits and practices, such as “tree planting day”, “A month of trash-free river”
- 5.3.3 Celebrate and advocate human-nature linkages by using modern and traditional art and folk culture
  - Tsuur, Khuumii (Mongolian throat singing)
  - Bii Bielgee (Mongolian folk dance)
  - Folk tale
  - Traditional song, long song

## STRATEGIC PRIORITY 6: Maintain and conserve capacity of ecosystems to generate goods and services, so it will continue producing multiple social and economic benefits for wellbeing of the current and future generation

To support and provide incentives to small and medium enterprises that encourage them to implement and introduce into their business appropriate green-practices and technologies adopt-

ed to climate change and directed to enhance & conserve capacity of ecosystems to generate goods and services for multiple social and economic benefits.

Sub-objective 6.1: Introduce water-saving and soil-conserving technologies in crop production		Supporting activities Policy documents
6.1.1	<p>Introduce appropriate technology and practices that reduce water consumption and increase soil conservation, such as planting windbreaks to reduce soil erosion and organizing rotational crop production.</p> <ul style="list-style-type: none"> <li>– Introduce crop rotation methods advised by the Ministry of Industry, Food and Agriculture, for example Fallow-wheat, fallow-potato-wheat, fallow-wheat-fodder</li> <li>– Mulching technologies using straws to prevent wind erosion and the accumulation of soil moisture</li> </ul>	<ul style="list-style-type: none"> <li>• Mongolian Livestock National Program (Resolution # 23, 20.05. 2010)</li> <li>• A Policy on Government Position for the Herders (Resolution #39, 2009)</li> <li>• National Program on Small Medium Enterprises Development</li> </ul>
6.1.2	Support the production of biological fertilizers using cow manure to supply crop producers by providing them with technical advice and linking them to appropriate financial mechanisms	
6.1.3	Finance with small interest loan and develop incentives and offer financing through low-interest loans for companies and individuals that install water conservation technology such as drip irrigation for crops such as potato, garden vegetables and fruits	
Sub-objective 6.2: Increase herders income by improving quality of the products and increase herders ability to link to the market system		
6.2.1	<p>Use participatory methods to develop and implement short to long-term plans to improve animal breeds at household and community levels</p> <ul style="list-style-type: none"> <li>– Conduct rapid assessments on the appropriate ratio of herd composition by studying each community group households' herd structure and rangeland carrying capacity</li> <li>– Identify local quality livestock breeds and breeders in collaboration with the soum vet and livestock unit</li> <li>– Implement herd improvement community-based practices by application of artificial insemination methods for breeding</li> <li>– Support khot-ail based selection and breeding</li> <li>– Identify community scale herding best practices that suit the local rangeland ecosystem and encourage dissemination and transfer of these practices to others</li> <li>– Develop an inventory of local breeds kept by each herder household and improve access to and quality of veterinary services</li> </ul>	<ul style="list-style-type: none"> <li>• A Mongolian with Job and Income National Program (Resolution #154, 2013)</li> <li>• Law on Budget (2012 )</li> <li>• A Project Guideline for the Local Budget Development (Ministry of Finance. 19.11.2012)</li> </ul>
Sub-objective 6.3: To develop the supplemental husbandry with green production		
6.3.1	<p>Introduce innovative knowledge and eco-friendly methods and technology to support developing green industries</p> <ul style="list-style-type: none"> <li>– Support bee-keeping and bee-breeding enterprises and support pollination services</li> <li>– Support biological methods to control pests by integrating poultry and crop production</li> <li>– Disseminate and promote water saving technology by introducing affordable and appropriate irrigation technology in berry planting and tree nurseries</li> </ul>	

- 6.3.2 Provide support and technical assistance to small and medium enterprises to build market-links and introduce more ecologically friendly production technologies that prevent the degradation of ecosystem services
- Improve the criteria for application, and proposal development requirements, to obtain investments and soft loans from Local Development and Small/Medium enterprise support Funds
  - Facilitate necessary infrastructural development and capacity building to introduce renewable energy technology
  - Support community initiatives and plants that produce energy-efficient stoves and briquettes.
  - Support transfer of soil-bag technology to construct affordable buildings and construction materials
  - Provide technical assistance in establishing joint cooperatives for small and medium industries engaged in wool processing, production of felt products and traditional ger accessories and furniture production

- Law on Tourism
- Implementation Policy for the Tourism Development (Resolution #37, 18.09.2012)
- Concept Paper for the Renewal of the Tourism Legislation

**Sub-objective 6.4: To increase local people's livelihood by supporting local ecotourism development based on the historical places, identifying places potentials for the tourism**

- 6.4.1 Improve services for foreign and local tourists that will economically benefit the local community and which meet ecotourism quality standards, with no negative socio-cultural or ecological impacts
- Make ecotourism maps for each soum, install information and location signs, build tourist tents, toilets, campgrounds, and install signs with rules and regulations to keep campsites safe and clean
  - Build signs and advertisement boards for historical and sacred places to increase conservation of
  - Establish local eco-tour operators volunteer teams and train them on the eco tour specifics, quality standards, and rules and regulations
  - Organize an eco-day and other activities as a side-event during soum holidays or anniversary celebrations
  - Assess development options for producing local farm and non-farm products that will carry local technological and processing features to link to the market
- 6.4.2 Promote culture sensitive eco-tourism development by creating community-based tourism opportunities to attract tourists, demonstrate and describe ethnic, cultural and historic rituals, practices, stories and events
- Promote community-based tourism development around the Buryat people's unique culture
  - Attract responsible tourism operators that aim to demonstrate sustainable living practices and advocate how rural Mongolians produce and conserve their waste-free culture
  - Promote bird watching club operation
  - Operate felt-art making training and workshops and develop designs to produce rare and endemic species of birds, herbivores and other species

**Sub-objective 6.5: Explore and introduce environmentally friendly energy solutions that saves costs and increases quality of energy supply in settlements**

- 6.5.1 Assess possibilities to supply settlements with hybrid energy sources in the long-run and devise smart strategies and programs targeted to utilize alternative renewable energy resources
- 6.5.2 Encourage entities and individuals who have successfully introduced energy saving and environmentally friendly techniques and technologies, and have increased public awareness about energy-saving technology and its benefits

6.5.3	<p>Based on estimates of public investment returns undertake energy sector reforms to develop regional energy efficiency by implementing secure energy supply projects and supporting innovative energy efficiency initiatives</p> <ul style="list-style-type: none"> <li>– Develop an enabling policy environment to increase and invest in energy efficient technology and infrastructure.</li> <li>– Long-term investment in developing energy-efficient soum-and aimag center centralized heating systems by using technologies that minimize energy waste and investing in improving heating technology to supply the public with affordable and reliable heating</li> <li>– Supply remote tourist camps, and Bag centers with renewable energy resources</li> <li>– Supply heating energy from renewable energy sources for soum hospital, school, cultural centers and build public showers which use renewable energy for heating and hot water.</li> <li>– Supply households with fuel efficient stoves with high efficiency burning, and energy saving stoves from Khas and Ulzii company, in order to reduce air pollution</li> <li>– Implement heating systems that use electric energy</li> <li>– Supply rural herders with 100% renewable energy sources and suggest the continuation of the Governmental Program “100000 solar lantern”</li> <li>– Replace Government organizations’ heating stoves with coal fired ones in Bayandun and Bayan-uul soum</li> </ul>	<ul style="list-style-type: none"> <li>• National Sub-Program on Renewable Energy (Resolution #32, 09.06.2005)</li> <li>• Mongolia’ Sustainable Energy Sector Development Strategy (2002-2010)</li> <li>• Law on Renewable Energy ( 2007)</li> <li>• National 100,000 Solar Ger Electrification Program (Resolution 158, 1999)</li> </ul>
<b>Sub-objective 6.6: To protect environmental equilibrium by improving the policy and regulations of appropriate usage of regional mineral resources, and restoration process of mining companies</b>		
6.6.1	<p>Support reclamation policy addressed restoration quality</p> <ul style="list-style-type: none"> <li>– Undertake biological restoration, soil analysis, and native plant restoration</li> <li>– Restore abandoned and disturbed (with no responsible party) land using the Aimag and soum budgets, and restore them step by step</li> <li>– Technical (physical) restoration and biological restoration by specialized organizations should be licensed separately</li> </ul>	<ul style="list-style-type: none"> <li>• Law on Environmental Protection. Restoration of Natural Re- (Article #25)</li> <li>• Law on Environmental Protection. Environmental audit. (Article #10.1)</li> </ul>
6.6.2	<p>Prevent adverse impacts on priority ecosystem services of relevance to mining and exploration affected communities:</p> <ul style="list-style-type: none"> <li>– Training local Government and other local stakeholders in policy and performance standards on environmental and social sustainability (IFC and EBRD), relevant legal acts</li> <li>– Expand network of local-and national protected lands</li> <li>– Determine priority ecosystem services in accordance with the stakeholder engagement process</li> <li>– Undertake environmental audits in every two years</li> <li>– Control mining companies’ measures targeted to minimize impacts and restore biodiversity and ecosystem services and involve local communities and environmental group members in this process.</li> <li>– Prohibit mining activities in river headwater regions</li> <li>– Limit the number of permits and licenses for mining in river basins</li> <li>– Make tripartite agreements including Mining companies, local Governments, and local herders</li> <li>– Ensure reliability and legitimacy of the acts and audit results produced by the specialized auditing agencies</li> <li>– Review the permitted amount of water usage for mining companies depending on the study of river basins water resource and regime</li> </ul>	<ul style="list-style-type: none"> <li>• “Performance Standards on Environmental and Social Sustainability” International Finance Organization</li> <li>• The Mongolia’s Action Plan for the 21<sup>st</sup> Century / MAP 21 (Resolution 82, 1998)</li> <li>• National Program for the Sustainable Development (2011)</li> </ul>
<b>Sub-objective 6.7: To support policy on strengthening infrastructure support ecosystem resilience, no negative impacts on the nature community control</b>		
6.7.1	<ul style="list-style-type: none"> <li>– Support rangeland ecosystem resilience by implementing new technologies and improving the policy and institutional environment to reduce the number of dirt roads with the aim of reducing soil erosion and increasing environmental protection</li> <li>– Monitor and regulate the construction of multi-branch dirt roads to reduce their number</li> <li>– Install clear road signs</li> </ul>	



6.7.2	<p>Support using new building materials that are ecologically acceptable, environmentally friendly, and energy efficient</p> <p>To build central storage with environmental friendly technology for meat, and supplemental raw resources: for example using ash blocks</p> <p>Build a factory that produces pellets using wood particles and dust as construction materials</p> <p>Produce pellets from wood chips, coal waste for fuel</p> <p>Build bone processing factory to</p> <p>Build a bridge or dig exits for wildlife to cross roads at a frequency of one for every 10 km of newly built railroad and roads for cars</p> <p>Build storage facility at soum center to allow preparing meat and raw material resources</p> <p>Rehabilitate the wooden bridge over the Ulz river in Bayandun soum, and the wooden bridge over Unagain river at the boundary of Bayandun and Bayan-Uul soums</p>	<p>National Program on Disaster Mitigation (Resolution 25, 1999)</p> <p>National Sub-Program on Community Based Disaster Risk Reduction (Resolution 35, Deputy Minister. 01.04.2013)</p>
Sub-objective 6.8: To make community habit of preparing for the possible risks by developing healthy leaving habits and knowledge		National Program on Prevention and Control of Communicable Diseases (Resolution # 108, 06.04.2011)
6.8.1	<p>Reduce the negative health impacts of disasters, cooperatively organize training for the community, children, and community groups by collaborating with Emergency Response Agency</p> <p>Provide trainings on how to be safe during wind storms, lightening, floods and reduce their possible damages</p> <p>Inform the community about fire risks, and fire frequency</p> <p>Implement step by step information programs to prevent contagious animal disease</p> <p>Build grounding pole to prevent lightening strikes</p>	National Program on Environmental Health (Resolution # 245, 14.12.2005)
6.8.2	<p>Reduce contagious diseases by ensuring safe, clean drinking water</p> <p>Prevent contamination and pollution of surface and drinking water sources</p> <p>Protect drinking water sources by building protection zones around them, planting trees and building fences with rocks</p> <p>Standardize surface and deep water analysis and if necessary install filters</p> <p>Implement technology to use gray water</p>	National Program on Waste Reduction (Resolution # 50, 1999)
6.8.3	<p>Implement green technology by building healthy habits</p> <p>Establish a public waste point that meets Mongolian sanitation standards</p> <p>Reuse, recycle, and sort waste by types</p> <p>Connect Ger districts to the centralized clean and waste water system /test district/</p> <p>Implement a policy for companies that produce alcoholic drinks which states that they must buy-back used bottles and cans, or, if not, pay a fine</p> <p>Build animal bone processing factory and bone collecting points</p>	National Program on Creating the Healthy Environment for the City, Soum, Bag, Office and School (Resolution # 359, 16.12.2011)
6.8.4	<p>Advertise and organize informational training on healthy lifestyle and healthy eating habits in order to fight against unhealthy living habits</p> <p>Strengthen advertising and public information about healthy eating habits at all level</p> <p>Include fruit and vegetables in the food stamp</p> <p>Government organizations and companies should have special health hours and distribute health information to employees</p> <p>Improve quality control of imported food products and increase the use of local products that grow in our land in our healthy soil</p> <p>Improve capacity building for physical education teachers and school doctors and nurses</p> <p>Work in close connection with National Programs and Concepts</p>	

## STRATEGIC PRIORITY 7: Strengthen sustainable ecosystem management and conservation policies and institutions environment

To strengthen sustainable ecosystem management and conservation policies and institutions to implement EBA practices at regional level.

Sub-objective 7.1: Implementation of cross-sector policy implementation – integrate objectives and action plans of the EGD policy into IFAA, Land Management, Construction and Urban Development		Supporting activities Policy documents
7.1.1	<p>Test and implement policy implementation mechanisms at the aimag and soum level</p> <ul style="list-style-type: none"><li>– Improve capacity and collaboration of the officers who are in charge of different sectors to have a multi-sector approach to save transaction costs, time and labor</li><li>– Ensure that EBA principles and strategic priorities are supported and mainstreamed into other sector policies and devise appropriate protocols to implement comprehensive action at aimag and soum scales</li><li>– Propose mechanisms and entry points to integrate economic development, labor, population development, education and cultural sector objectives into regional EBA priorities</li><li>– Industry, Food and Agriculture-Land management-EBA: Implement adaptive management practices to integrate land management and utilization plans with food and agriculture needs and ecosystem degradation</li></ul>	<ul style="list-style-type: none"><li>• National Action Program on Climate Change ( 2012 )</li><li>• River Basin Administration Regulation</li><li>• Law on Environmental Protection (amended 2012) Article # 50 Natural Resource Co-management</li><li>• Local Development Fund Establishment, Utilization and Monitoring Regulation (Resolution # 134, 2011)</li><li>• Mongolian Livestock National Program (Resolution#23, 2010)</li><li>• Law on Environmental Protection (amended 2012) Article # 50 Natural Resource Co-management</li></ul>
7.1.2	<p>Implement pilots to provide an incentive for environmental protection activities (Unique, 2013) that requires advanced level of collaboration, learning and mutual understanding, engagement and participation.</p> <ul style="list-style-type: none"><li>– Link Local Development Fund, Mongol Livestock and other state financing to the implementation of environmental and rangeland conservation management</li><li>– Improve small-grant and small loan application and selection criteria by incorporating EBA principles</li><li>– Establish customized natural resource monitoring and assessment systems to link to current Government subsidies and other development projects</li></ul>	
7.1.3	<p>Strengthen community-based rangeland, forest and wildlife management by supporting their organizational development and linking them to economic opportunities</p> <ul style="list-style-type: none"><li>– Organize local scale community-development forums and festivals</li><li>– Celebrate and disseminate information about good practices, achievements and solutions provided by community-based organizations</li><li>– Document and facilitate information exchange between communities to share best practices, technologies and knowledge</li><li>– Ensure that local and regional policies are revised and improved by incorporating the successes and lessons learnt by community-based organizations</li></ul>	
7.1.4	<p>Agriculture – land management – EBA cooperation: To implement flexible land management and planning activities in connection with ecosystem change and degradation</p>	
Sub-objective 7.2: To test and implement mechanisms that impose individuals, consumers and policy makers’ interest and participation in EbA strategy		
7.2.1	<p>Improve knowledge and skills of local officials and communities to implement EBA activities</p>	
7.2.2	<p>Encourage and incentivize conservation and restoration community-based good practices by providing them small grants or involving them in community development programs</p>	

7.2.3	Implement protection measures and reduce the risk of natural disasters
7.2.4	Improve local community group and organization and train them to become a unit for the implementation of EBA policy within their area: implement incentive methods
Sub-objective 7.3: Establish environment performance incentives and sanctions incentives based on regular monitoring and evaluation	
7.3.1	Establish local monitoring and evaluation system for rangeland, water, hay area management
7.3.2	Establish a permanent monitoring system for rangeland, water, hay areas in each soum <ul style="list-style-type: none"> <li>– Develop monitoring methods and methodology</li> <li>– Train working group members in field methods, required skills and knowledge</li> <li>– Determine a pasture use management plan each year, informed by monitoring results, and herder knowledge, giving herders the opportunity to participate in monitoring activities</li> <li>– Livestock numbers and type must be dependent on pasture grazing capacity</li> </ul>
7.3.3	Integrate wildlife monitoring results into environmental policy with help of the local community
Sub-objective 7.4: Initiate appropriate and customized options of cooperation and investment for local and regional development	
7.4.1	In collaboration with international and national donor and non-governmental organizations, develop EBA projects, ensure establishment of efficient monitoring and evaluation system
7.4.2	To develop community and private partnership, especially work closely with companies that have adverse impacts on biodiversity and ecosystem services over a short period of time. <ul style="list-style-type: none"> <li>– Establish collaboration with mining companies to monitor their environmental and restoration plans</li> <li>– Protect places that have tourism significance</li> <li>– Protect historical and sacred cultural places</li> </ul>
7.4.3	Develop individual and organization donations, financial assistance, volunteering, encourage initiatives and advertise its importance for EBA. <ul style="list-style-type: none"> <li>– Celebrate Earth Day and initiate community service by cleaning up riverbanks, local park, neighbourhood and roadsides</li> <li>– Volunteers (students, teachers, residents) assist with trash pickup, weeding, or other beautification projects and volunteering for fire watch during dry periods.</li> <li>– Organize revegetation, seed collection, and gardening campaigns</li> </ul>









## CHAPTER SIX

## CONCLUTION AND RECOMMENDATION



## CONCLUSION/ RECOMMENDATION

This Ecosystem-Based Adaptation (EBA) action plan has been developed for two ecological zones: Altai Mountains and Great Lake depression (Ikh Nuuruud), and Eastern Steppe and Mongol Daguur. This document outlines seven strategic priorities and lists EBA measures/activities to be implemented in these regions in the period of 2014-2021. These activities are in line with the provincial sustainable and regional development strategy and long-term development master plan. It is recommended to employ co-management strategy in implementation of the EBA action plan that requires a interdisciplinary and inter-sectoral approach.

EBA actions and activities were developed on the basis of theoretical concepts considering both national and international conceptual frameworks and methodologies, and used National policies, programs and other policy papers of Mongolia.

This policy document considers to be implemented within the region through multi-sector coordination instead of relying on one sector by flexible, integrated and collaborative management.

It highlights that the conservation of Ecosystem and its goods and services should be understood as not only responsibility of the Ministry of Environment and Green Development, instead it depends on effective collaboration of multi-sector management. Therefore, it proposes to see conservation of ecosystem services as the operative concepts and be used in practical and meaningful way.

EBA activities must be introduced through incentives and payment mechanisms considering environmental performance at the local level. It recommends the methodology and criteria to implement incentive based mechanism achieving specific environmental performance targets, while interrelate EBA activities with the financial sources of the Local Development Fund, Small and Medium Enterprise Support Fund and other international and domestic funding opportunities. We recommend that every soum monitor the abovementioned activities, and that they involve local communities in their monitoring and evaluation processes.

As notion of riparian ecosystem management is not available in these regions, we highlighted conservation of riparian benefits as a separate strategic priority. Riparian forest, rangeland and habitat have been heavily degraded becoming as a hot spot issue in these regions. Thus, regional and local conservation of riparian ecosystem services should emphasize on the comprehensive management rather than managing them as separate units of water, pasture, willow forest or hay-field.

The Ministry of Environment and Green Development took the important step of establishing a national network of 29 River Basin Administrations starting from 2013, which was timely decision that established institutional capacity to implement Ecosystem-based adaptation measures at the hot spot areas. There were eight River Basin Administrations were established in two regions and therefore, they should implement proposed EBA activities collaboratively with Environmental and Green Development agency at the aimag level by integrating objectives for land management, industry and agriculture, mining, health and education sectors to support conservation of ecosystem services.

For effective implementation of the EBA activities it is important to devise innovative mechanisms to transform approaches and knowledge of civil society organizations, private entities, herders, research institutions, and communities on conserving and enhancing ecosystem services.

Staff of river basin administrations, soum and aimag officials and administrations of special protected areas are the key agents responsible for implementing EBA actions. Therefore, they need to learn and enhance their knowledge and competence to employ integrated work approach to practice adaptive and innovative methodologies to lead and direct others in EBA principles. Therefore, it requires developing a close cooperation and improve social learning with professional institutions to obtain a guidance and advice for science-based empirical solutions and practices.

## APPENDIX

United Nations Development Programme  
“Ecosystem based adaptation to maintaining water security in critical water catchments in Mongolia  
MON/12/301” Project

A Discussion Meeting participants list for Ecosystem-Based Adaptation Strategic Directions in the Eastern  
Steppe, Mongol Daguur and Altai Mountain, Great Lakes Depression

Nº	Names	Organization
<b><i>Uvs aimag</i></b>		
1	Z. Ganbold	Head, Development Policy department, Aimag Government office
2	B. Enkhtuya	Head, Forestry Department, Environment and Tourism Agency
3	M. Tuguldur	Animals and Plants Specialist, Environment and Tourism Agency
4	D. Batzul	Specialist for Underground, mining, pollution and chemical issues, Environment and Tourism Agency
5	Ts. Meeleibaatar	Breeding Specialist, Food, Agriculture and SME Agency
6	B. Daalkhai	Agriculture senior specialist, Food, Agriculture and SME Agency
7	Ya. Odor	Specialist, Development Policy Department, Aimag government office
8	S. Gankhuyag	Officer in charge of infrastructure and urbanization, Development Policy Department
9	D. Dorjgotov	Officer in charge of public health and food, Social Development Department
10	Ts. Enkhbayar	Education specialist, Social Development Department
11	B. Delgermaa	Officer, Health Agency
12	B. Otgoi	Conservation management specialist, Development Policy Department
13	U. Murdorj	Water policy specialist, Environment and Tourism Agency
<b><i>Ulaangom soum</i></b>		
14	O. Gankhuyag	Soum governor
15	S. Buyandalai	State Inspector, Environmental Agency
16	M. Davaa	Conservancy officer, Ulaangom soum
27	D. Choijilsuren	Soum project officer
<b><i>Tarialan soum</i></b>		
18	S. Tsolmon	Soum governor
19	D. Tumendemberel	Officer in charge of land management
20	Z. Tegshjargal	Agriculture and rangeland specialist IT
<b><i>Naranbulag soum</i></b>		
21	Yu. Battulga	Soum governor
22	M. Sosorbaram	Officer in charge of land management
23	Kh. Batkhurel	Head, Environmental NGO



## Khovd soum

- |    |                  |  |
|----|------------------|--|
| 24 | P. Batbekh       | Soum governor  |
| 25 | D. Batbold       | Rangeland specialist, Veterinary and Breeding Agency |
| 26 | A. Chojilsuren   | Herder, Khaliunbulag bag                             |
| 27 | E. Tuvshinjargal | Soum project officer                                 |

## Turgen soum

- |    |             |                                      |
|----|-------------|--------------------------------------|
| 28 | E. Byambaa  | Soum governor                        |
| 29 | B. Zolzaya  | Officer in charge of land management |
| 30 | L. Munkhbat | Soum project officer                 |

## Sagil soum

- |    |                |                                      |
|----|----------------|--------------------------------------|
| 31 | D. Nyam-Erdene | Soum governor                        |
| 32 | S. Altangerel  | Officer in charge of land management |
| 33 | B. Tugsuu      | State inspector, Environment Agency  |

## Bukhmurun soum

- |    |                  |                                    |
|----|------------------|------------------------------------|
| 34 | Kh. Boldbaatar   | Soum Vise- Governor                |
| 35 | B. Aldarjavkhlan | Head, Civil Representative' Khural |
| 36 | S. Bolor         | Soum project officer               |

## Uvs Lake-Tes River Basin Administration Office

- |    |                 |   |
|----|-----------------|---|
| 37 | D. Togtokhbayar | Head, Uvs Lake, Tes River-Basin Administration Office |
| 38 | Ts. Bat-Erdene  | Water resource and ecology specialist                 |
| 39 | L. Batnasan     | Senior specialist, ground water resource management   |

## Ministry of Environment and Green Development

- |    |                |   |
|----|----------------|---|
| 40 | Uranchimeg     | Policy & Planning specialist                                |
| 41 | T. Davaanyam   | Specialist, management department                           |
| 42 | B. Tsendsuren  | Head, Clean Development Mechanism National Bureau           |
| 43 | Ts. Battsetseg | Climate Change Specialist, Climate Change Management Office |

## Economy team

- |    |         |           |
|----|---------|-----------|
| 44 | B. Onon | Economist |
|----|---------|-----------|

## Driver

- |    |               |                        |
|----|---------------|------------------------|
| 45 | Batsukh       | Driver, Ulaangom soum  |
| 46 | Tsolmontsog   | Driver, Turgen soum    |
| 47 | Otgonbayar    | Driver, Bukhmurun soum |
| 48 | Sumiyaragchaa | Driver, Khovd soum     |

United Nations Development Programme

“Ecosystem based adaptation to maintaining water security in critical water catchments in Mongolia  
MON/12/301” Project

A Discussion Meeting in Undurkhaan, Khentii for Ecosystem-Based Adaptation Strategic Directions in the  
Eastern Steppe/ Mongol Daguur

A Participants’ List: September 06, 2013

Nº	Names	Organization
<b>Khentii aimag, Undurkhaan city</b>		
1	D. Oyungerel	Emergency Department Head, Health Agency
2	J. Altanhuyag	Search and Rescue Department Depute, Emergency Management Agency
3	E. Oyunchimeg	Specialist, Environment Agency
4	B. Bayasgalan	Tourism Specialist, Culture and Tourism Agency
5	T. Baatarsukh	Water Supply & Monitoring Specialist, Environment Agency
6	B. Ganbaatar	Agriculture Specialist, Food & Agriculture & SME Agency, Kherlen soum
7	G. Oyunbold	Infrastructure Specialist, Development Policy Agency
8	Sh. Javkhlan	Department Head, Aimag Government Office
9	L. Chuluun	Head, Aimag Meteorology, Hydrology and Environment Agency
10	B. Kherlenchimeg	Technical Department Head, Aimag Meteorology, Hydrology and Environment Agency
11	S. Bayasgalan	Department Head, Aimag Meteorology, Hydrology and Environment Agency
12	Ts. Batbuyan	Food Specialist, Aimag Food & Agriculture & SME Agency
13	Ts. Mungunbayar	Specialist, Education Department
<b>Norovlin soum</b>		
1	G. Narantuya	Local project officer
2	L. Erdenebat	Vise-Governor
3	B. Nandinbaatar	State Inspector, Environmental Agency
<b>Batnorov soum</b>		
1	E. Zultsetseg	State Inspector, Environmental Agency
2	D. Davkharbayar	Officer, Civil Department
3	G. Taivanjargal	Soum Governor

## Bayan-Adarga soum

1	B. Anduu	State Inspector, Environmental Agency
2	D. Oyunchimeg	Head, Veterinary and Breeding Agency

## Driver

1	B. Ochirvaani	Bayan-Adarga soum
2	Kh. Khurelnyam	Batnorov soum
3	G. Garamkhand	Norovlin soum

## Dornod aimag, Choibalsan city

№	Names	Organization
<b>Dornod aimag, Choibalsan city</b>		
1	B. Dorjgotov	Specialist, Environment Agency
2	Kh. Sevjgarmaa	Specialist, Ministry of Environment and Green Development
3	Ts. Nansalmaa	Specialist, Environment Agency
4	B. Ganzorig	Specialist, Culture and Tourism Agency
5	B. Dugarmaa	Development Policy Department, Aimag Government office
6	M. Tserendavaa	Officer, Civil Representative Khural
7	N. Tumendemberel	Food & Agriculture Specialist, Aimag Government Office
8	N. Dashnyam	Development Policy Department, Aimag Government office
9	B. Ganzorig	Food, Agriculture & SME Agency
10	G. Odbileg	Education Specialist, Aimag Government Office
11	Ts. Munkhbaatar	Specialist, Aimag Government Office
12	M. Altannavch	Engineer, Aimag Meteorology, Hydrology and Environment Agency
13	N. Khishigjargal	Specialist, Aimag Meteorology, Hydrology and Environment Agency
14	J. Lkhagvadorj	Bayan-Uul soum
15	M. Urtnasan	Specialist, Protected Area Office
16	E. Byambajav	Specialist, Environment Agency

## Gurvanzagal soum

18	D. Dorjbaatar	Soum governor
19	A. Shinetsetseg	Head, Veterinary and Breeding Department
20	Erdenenjam	Project officer

## Dashbalbar soum

21	J. Yondonjamts	Soum governor
22	Ch. Bukhchuluun	State Inspector, Environment Agency
23	Ch. Ganchimeg	Project officer

**Chuluunkhoroot soum**

24	D. Boloot	State Inspector, Environment Agency
25	Ts. Ganbold	Head, Civil Representative' Khural
26	G. Gantuya	Conservancy officer
27	S. Batsaikhan	Project officer

**Bayandun soum**

28	T. Ganbaatar	Conservancy officer
29	P. Ayush	Head, Civil Representative' Khural
30	A. Bayartsogt	Head, Conservation Monitoring Committee (Soum civilians khural ordains this team )
31	D. Batjav	Soum governor

**Bayan-Uul soum**

32	J. Dorj	Soum governor
33	Lkhagvadorj	Head, Forest Department
34	R. Byambadorj	Conservancy officer

**Choibalsan soum**

35	P. Altantuya	Soum governor
36	O. Orgilsatsral	State Inspector, Environment Department

**Ulz River-Basin Administration Office**

37	I. Alimaa	Groundwater resource specialist
38	B. Ulzbayar	Water quality, ecology and communication specialist
39	I. Battemuujin	Specialist
40	B. Byambadorj	Water resource – senior specialist
41	S. Boldmaa	Head, Ulz River-Basin administration office

**Driver**

42	Battulga	Driver, Ulz River-Basin administration office
43	Dorjsuren	Project driver
44	Tuvshinbayar	Project driver
45	Chinbaatar	Project driver, Dashbalbar soum
46	Enkhtaivan	Project driver, Chuluunkhoroot soum

**Other**

47	Z. Orgil	"Marshal. Choibalsan, Khorlo" NGO
48	L. Lkhagvasuren	"Dun-Erdene" LLC
49	N. Otgonzaya	Project officer, Bayandun soum
50	S. Shijirbaatar	Driver, Gurvanzaya soum government office



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