MINISTRY OF NATURE, ENVIRONMENT AND TOURISM

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UNDP Mongolia

# INCEPTION REPORT

## "Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia" MON/12/301

June 2012

**Table of Content** **Page**

# 1. Introduction

The Government of Mongolia project "Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia" funded by the Adaptation Fund and supported by UNDP, will assist the country in applying a holistic (landscape-based) principle for planning, management and conservation of pasture/land, water and forest resources and biodiversity, and in analyzing and supporting climate change risks and adaptation options for vulnerable sectors and communities. It contributes towards increasing sector capacity for sustainable resources management under climate change conditions, with the participation of primary resource users.

Mongolia is highly vulnerable to climate change due to its geographic location, fragile ecosystems and socio-economic conditions. The combination of ongoing land and water degradation multiplied by climate change will almost certainly result in substantial ecological and social challenges. To address the challenges presented by climate change, there is an urgent need to conserve and rehabilitate the ecosystem services upon which Mongolia's rural economy, traditional culture, and rich biodiversity depend.

The immediate project objective is to maintain the water provisioning services supplied by mountain and steppe ecosystems by internalizing climate change risks within land and water resource management regimes. The project aims at alleviating vulnerabilities and dismantling identified barriers by implementing three interconnected components: 1) Landscape level integrated land use and water resources monitoring and planning system established. 2) Landscape level adaptation techniques implemented maintaining ecosystem integrity and water security. 3) Capacities strengthened to support EBA replication, monitoring, and enforcement for critical watersheds.

This project will apply the principles of Ecosystem-based Adaptation (EBA) to increase climate change resilience at a landscape level. EBA is broadly defined as "a range of local and landscape scale strategies for managing ecosystems to increase resilience and maintain essential ecosystem services and reduce the vulnerability of people, their livelihoods and nature in the face of climate change. Ecosystem-based adaptation involves collective action among governments, communities, conservation and development organizations, and other stakeholders to plan and empower local action that will increase environmental and community resilience to the changing climate." (UNFCCC)

Translated into the local context, integrated river basin management will be a core element of the broader EBA strategies to be developed. Concrete measures in ecological restoration and protection in catchment areas and riparian lands will be a major component in terms of funding, capacity development and local implementation activities. The integration of such measures into local planning, namely annual pasture management planning and Soum development planning, and enforcement of these plans, will be crucial aspects for sustainable and tangible results of the project. Without these measures effectively implemented locally, landscape level strategies will remain mere documents without actual benefits to communities through maintaining ecosystem services.

The local stakeholder consultations of the inception phase determined priority activities to be implemented and began identification of priority sites; by bringing the analysis and planning to the local level, a basis for stakeholder cooperation and local project ownership was created; the preliminary plans prepared by stakeholders are an important reference to be re-visited, refined and implemented with the commencement of project activities.

# 2. Inception Phase Activities

## 2.1 Establishment of Project Office and Team

Inception Phase activities commenced in April 2012 with establishment of the project office and team. As the implementing agency of the project, the Ministry for Nature, Environment and Tourism (MNET) made a space available for the project office. Project positions were announced and the project manager, as well as administrative staff and officers responsible for 2 of the 3 project components were recruited. The appointment of other staff and/or consultants was postponed in order to await outcomes of stakeholder consultations and discussions among project partners in the Inception Workshop to determine the focus of expertise/competency needed most to accommodate needs for successful project implementation.

## 2.2 Team Preparations and Meetings with Key Informants

The international consultant to support the Inception Phase proceedings started to work in April 2012. Draft agenda and methodologies were developed for local stakeholder consultations and for the Inception Workshop entailing internal workshop, discussions on the planned economic valuation studies, and the Inception Workshop with stakeholders from all levels and technical experts to validate the project design, implementation arrangements and key activities to be undertaken towards the project objectives.

Technical experts and decision makers from the Institute for Hydrology and Meteorology (IMH) of the National Agency for Meteorology and Environmental Monitoring (NAMEM) and the National Water Authority, both agencies of the MNET were consulted as key informants to confirm project design elements, recent changes in policy and legislation and premises in the project design documents related to the status of ecosystems in the target landscapes and to climate change impacts and risks. The key technical expert (Director of Water Section at the IMH) was involved in planning and undertaking of the field visits and local stakeholder consultations.

## 2.3 Local Stakeholder Consultations

Local stakeholder consultations were held in both target landscapes between May 20 and June 3, 2012. A process was designed to introduce the project design and underlying concepts of Ecosystem based Adaptation, provide background information on the status of water resources, ecosystem vulnerability to climate change impacts and the Adaptation Fund in the context of global climate finance mechanisms.

Consultations were undertaken in a) Khentii Aimag Center with representatives of Aimag Government Departments, b) Bayan-Uul Soum with representatives of Soum governments and local citizens including herders as the primary resource users from up-stream and mid-stream Soums (Norovlin, Bayan-Uul, Batnorov, and c) Choibalsan City (Aimag Center of Dornod Aimag) with representatives of Soum governments and local citizens including herders as primary resource users from mid-stream and down-stream Soums (Bayan-Dun, Gurvan-zagal, Dashbalbar, Chuluunkhorot, Choibalsan, and Bayan Adarga Soums). The list of participants in these consultations is provided in Annex 1.

### 2.3.1 Process of Stakeholder Consultations

Each stakeholder consultation workshop followed a process with the same key steps, applying methods of participatory analysis and planning derived from approaches of participatory appraisal and tools used for participatory analysis in natural resource management and conservation such as Conservation Action Planning (CAP). This methodological approach was designed to review the general project design in the local context, to undertake a broad initial needs assessment to inform project support programming for capacity development/trainings, technical assistance, institutional development, research and knowledge management and technical support to enhance monitoring systems in critical watersheds.

The following outcomes were expected from the local stakeholder consultations:

- Local stakeholders have a clear understanding of the project approach (EBA), objective, outcomes and components
- A foundation for stakeholder cooperation, active participation and ownership of the project is established in the target areas
- Implementation Arrangements discussed
- Stakeholders have jointly discussed:
    - Status of natural resources and ecosystems in their Aimag/Soum
    - Current impacts and potential threats, and drivers/causes of impacts (climate and others)
    - Key capacity development and support needs
    - Priority locations and activities for on-the-ground activities/adaptation techniques

The steps of the consultations included:

A. Presentations and Discussions:

- "Current Status of Ecosystem and Water Resources in the Target River Basins"
- "Project Background (Climate Change Impacts, Adaptation Fund) and Design (Objectives, Outcomes, Outputs)"

B. Analysis and Planning:

- Plenary discussions on the primary natural resources that local livelihoods depend on at target landscapes, and on changes of the natural resource conditions over time.
- Working Groups for threat analysis - Impacts/Changes in natural resource conditions, and drivers/causes of threats (distinguishing climate change impacts and antropogenic causes)
- Plenary - Summarizing threats across natural resource types, and levels of impact for each type of natural resources
- Soum-wise planning to address the causes/drivers of threats/impacts
- Plenary – Discussing shared responsibilities and joint planning for a) up-stream to mid-stream, and b) mid-stream to down-stream

### 2.3.2 Main Findings of Local Stakeholder Consultations

Table 1 depicts the causes/drivers of impacts and threats. While climate change/warming emerges as the cause ranked at both target areas, there was a consensus that causes related to human activities

and poor management practices are of equal significance in driving the destruction of ecosystems and degradation of natural resources. Among these causes, "too many livestock, changes in herd structure and decrease in traditional seasonal movements", "deficiencies in management and inspection, in legal environment and enforcement and in research and monitoring", "poor knowledge, lack of information and trainings" and "mining" ranked high (among the top 10 in all workshops).

Preliminary soum-wise planning to address the drivers of impacts and threats was undertaken by the Aimag governments. Also, joint objectives for the up-stream to mid-stream, and mid-stream to down-stream communities of the Ulz River Basin and for the Kharkhira/Turgen River Basins were developed; these are the first steps towards the development of integrated river basin management plans and are to be re-visited and followed up with the project support.

The full documentations of the stakeholder workshops are provided in Annex 2.

## 2.4 Inception Workshop

The Inception Workshop proceedings were divided into three events over three days:

| | |
|---|---|
| Day One | UNDP Internal Workshop |
| Day Two | Workshop on Economic Valuation Studies |
| Day Three | Inception Workshop with Stakeholders to validate Project Design, Implementation Arrangements and share Findings from Stakeholder Consultations |

### 2.4.1 Internal Workshop

The UNDP Internal Workshop took place on June 13, 2012 at the UNDP Country offices in Mongolia to address internal matters of team member roles, administrative procedures, and foster common understanding among the team on all technical, implementation and M&E/oversight issues.

The program included discussions and presentations on:

1. Adaptation Fund (funding mechanism), strategic priority into which project fits, additionality concept, other Adaptation Fund projects in the region
2. Review of AF Agreement and Operational Guidelines
3. Introduction and discussion of revised log frame (after stakeholder consultations)
4. Introduction and discussion of draft Annual Work Plan
5. Introduction and discussion of suggested Implementation Arrangements (after stakeholder consultations)
6. Final Preparation of Workshops on Economic Evaluation and Inception Workshop

Participants of the workshop included Mr. Thomas Eriksson, Deputy Resident Representative, UNDP Mongolia, and Mr. Pradeep Kurukulasuriya, Senior Technical advisor on Climate Change Adaptation, UNDP/GEF; Mrs. Midori Paxton, Regional Technical Advisor, Ecosystems and Biodiversity, UNDP Asia-Pacific Regional Centre; Mrs. Bunchingiv Bazartseren, UNDP Program Officer, Mongolia Mrs. Munkhjargal Tsendayush, Project Manager, Mrs. Tuya Tserenbataa, Project Officer/Component 3; Mrs. Sumiyasuren Jamiyan, Project Officer/Component 1; Mrs. Sabine Schmidt, Inception Phase support expert.

| **Table 1. Causes/Drivers of Impacts/Threats in the Three Target Landscapes, as determined by Local Stakeholders' Analysis** | | | |
|---|---|---|---|
| **Rank** | **Ulz River Basin Up-stream – Mid-stream** | **Ulz River Basin Mid-stream – down-stream** | **Kharkhira/Turgen River Basins** |
| 1. | Climate change | Too many livestock | Warming |
| 2. | Illegal logging | Warming | Poor management |
| 3. | Fire (human caused) | Mining | Irresponsible human actions |
| 4. | Mining | Poor inspection and management | Increased numbers of livestock |
| 5. | Carrying capacity of pasture exceeded | Waste<br>Fire | Insufficient public awareness and training |
| 6. | Decrease in Otor and seasonal movements, and too many livestock in the upstream area | Decreased precipitation | Young plants do not survive passed germination phase |
| 7. | Illegal hunting | Misuse of natural resources | Lack of water resources/pasture irrigation |
| 8. | Ineffective legal environment and enforcement | Lack of research and monitoring | Mining |
| 9. | Changes in Herd Structure, and Lack of wells (to expand usable pasture and promote seasonal moves and rotation) | More frequent natural disasters | Decreased precipitation |
| 10. | Lack of information and knowledge | Poaching | Natural disasters |
| 11. | Grazing in the riparian forest, and Waste | Natural disaster | Competition between livestock and wildlife |
| 12. | Water pollution | Lack of knowledge and information | Loss of traditional nature conservation methods |
| 13. | Fire from lightning | Changes in seasonal weather patterns<br>Insects | Poaching |
| 14. | | Use of wildlife for traditional medicine<br>Decreased precipitation | Insects |
| 15. | | Profit orientation | Illegal logging |
| 16. | | Cropping<br>Infrastructure development | Fire |
| 17. | | Poor livelihoods<br>Lack of financial resources | Drought |
| 18. | | Misuse of natural resources<br>Weak participation of local people<br>Less rotational use of pasture | No or inefficient water treatment plants |
| 19. | | Human irresponsible actions | Increased number of vehicles<br>Waste |
| 20. | | Springs and creeks have disappeared<br>Loss of biodiversity | disease |
| 21. | | Lack of water treatment plant<br>Lack of policy<br>Dust | |
| 22. | | Lack of wells | |
| *Causes/drivers and ranking determined in working groups applying methods of Conservation Action Planning (CAP).* | | | |

### 2.4.2 Workshop on Economic Valuation Studies

While the project has a strong focus on local activities to restore and conserve land and water resources, it also entails a number of studies to establish a baseline on the ecosystem and natural resources conditions, and a series of studies on economic valuations. The economic valuation studies are to quantify the economic impacts of ecological changes through climate change impacts, and to measure the economics costs and benefits of alternative adaptation strategies to cope with these changes.

The Workshop on Economic Valuation Studies took place on June 14, 2012. It was opened by Mr. Dagvadorj D., National Project Director, and Mr. Thomas Eriksson, DRR, UNDP Mongolia. Participants included representatives from academia and research institutions, representing expertise both in natural sciences and economics. Furthermore, key national experts on climate change monitoring and risk assessment, and decision and policy makers from government agencies from different sectors were present.

The workshop enabled participants to share current national experiences and policies in Mongolia with regard to the economic valuation of natural resources and ecosystem services, as well as from international perspective. Specific approaches and methodologies applied by the Yale University team led by Prof. R. Mendelsohn were discussed in the Mongolian context to guide the economic valuation studies.

Session One commenced with a presentation by Mr. Dagvadorj (National Project Director) on "Government Policies, Programs, and Strategies for Climate Change Adaptation", followed by an outline of "Economic Valuation of Natural Resources/Ecosystems - Approaches and Experiences in Mongolia, and their Role in Development Planning" presented by by Ms. Erdenetsetseg. S, MNET. Representatives of the Aimags (provinces) in the target areas (Khentii, Dornod and Uvs) made presentations on "Aimag/Regional Development Strategies, Climate Change Impacts and Key Issues in Livestock, Water, Mining and Tourism Sectors" in their respective Aimags.

The presentations by the Yale Study Team on the concept of and approach to Economic Valuation Studies generated extensive discussions and questions from the audience. The development of the implementation framework for the Economic Valuation Studies was begun with the proposed option that the National Development and Innovation Committee (NDIC) will take the lead in coordinating, providing policy guidance and advicing the Task Force established for the studies. For the study components, national experts will be contracted; a series of trainings will provide capacity development in the field of economic valuation of natural resources/ecosystems (See Annex 3 for the program of the Workshop on Economic Valuation Studies, and Annex 8 for the Draft Proposal for the Economic Valution Studies prepared by the Yale University Team ).

### 2.4.3 Inception Workshop with Stakeholders

The Inception Workshop to validate the project design, logframe and implementation arrangements, was held on June 15 in the Altai Conference Room, Kempinskii Khaan Palace Hotel, Ulaanbaatar. The workshop was opened by Mr. N. Batsuuri, State Sectary of MNET and Ms. Sezin Sinanoglu, Resident Representative, UNDP Mongolia, and chaired by Dr. D. Dagvadorj, Special envoy on climate change, Chairman of the Climate change coordination office of MNET, and National Project Director. The workshop was organized in the following four sessions:

**Session 1: Concept of Ecosystem-based Adaptation and Climate Finance Mechanism of "Adaptation Fund"**

- "Climate finance readiness – financing low emissions and climate change resilient development" *by Dr. Pradeep Kurukulasuriya, Senior Technical Advisor, Adaptation Programming (Global), Energy and Environment, UNDP (HQ)*
- "Adaptation Fund" *by Dr. D. Dagvadorj, Mongolia Special envoy on climate change, Chairman of the Climate change coordination office of MNET, National Project Director*
- "Ecosystem-based Adaptation (EBA) approach" *by Ms Midori Paxton, Regional Technical Advisor on Ecosystems and Biodiversity, Energy and Environment Group*

**Session 2: Background Information and Up-dates on Legal Environment, Status of Ecosystems andNatural Resources in the Project Target Areas, and the Project Design**

- "Brief Introduction of the Project" *by Ms Munkhjargal, National project coordinator*
- "Status of water resources in the target river basins" *by Dr. G. Davaa, Head of Hydrology sector, Institute of Hydrology and Meteorology*
- "Update on legislation and institutions for river basin management", b*y Dr. Ts. Batbayar, Deputy director, Water Authority, MNET*
- "Process of Consultations and Main Findings, Khentii and Dornod Aimags" *by Dr. Sabine Schmidt, Inception Phase Support Expert*
- "Findings from Uvs Aimag" *by Ms. J. Sumyasuren, Project's strategic planning expert*
- "International Experiences in Riparian Restoration and Management for Water Resources Conservation" *by Dr. Sabine Schmidt, Inception Phase Support Expert*

**Session 3: Review of Project Design and Planning Key Activities**

- "Project components and revised logframe" *by Dr. Sabine Schmidt, Inception Phase Support Expert*
- "Draft annual workplan" *by Ts. Munkhjargal, National project coordinator*
- Working Groups on Three Components (Changes of circumstances, develop key activities to achieve outcomes/outputs, review indicators and targets and determine milestones, discuss stakeholders and implementation partners)
- Presentations by working groups and discussions

**Session 4: Implementation Arrangements and Project Oversight**

- "Presentations on suggested implementation structure, monitoring and evaluation, technical and steering committees, and adaptive management concept" by Ms. Ts. Tuya, Project's natural resources policy expert

Closing by Dr. D. Dagvadorj, Special envoy on climate change, Chairman of the Climate change coordination office of MNET, National Project Director

The program and list of participants of the Inception Workshop with stakeholders is provided in Annex 4.

# 3 Logframe

The logframe was revised in several steps. Following the local stakeholder consultations, the team evaluated inputs from the target area stakeholders and reflected the suggestions and learnings from the field visits in an up-dated logframe version. The revision was primarily in relation to considering the river basin management plans as a key element in development of broader EBA strategies in the target landscapes. The development of integrated river basin management plans will address ecosystem functions in a holistic manner; the process of management planning will be a model for strategy development processes and the preceding baseline studies and climate change vulnerability assessments on ecosystems will provide the background for strategic planning. The vulnerability assessment is especially critical in determining the variables in ecosystem elements and processes that influence ecosystem functions. This will inform the ecosystem adaptation measures which the project will support. The phrasing for Component One was adjusted accordingly.

Furthermore, a change in circumstances, namely a new amendment to the Law on Water, led to a further revision to Component Three. The new legislation calls for establishment of Administrations and Councils for the river basins in Mongolia, whereby the Administrations are the government organization charged with the management of river basins and the Councils are a civil society organization with oversight and advisory functions. In line with this, component three was adjusted to support the establishment and strengthening of these institutions and staff/member capacities.

The first revision of the logframe was discussed in the Internal Preparatory Workshop, prior to presenting it at the Inception Workshop with stakeholders. At the same time, the indicators and quantitative targets were reviewed again with technical experts, baseline values were confirmed, and minor adjustments were made to the targets. The Inception Workshop was the last step to make revisions through working groups on the components. The contributions of the working groups primarily re-iterated priority activities to be undertaken, and made minor adjustments to indicators.

The final version of the logframe incorporates inputs obtained through consultations with key informants and stakeholders, and in team discussions. The logframe discussions also determined for which indicators baseline values are to be established during the baseline studies (see Annex 5 for the logframe).

# 4 Approach for Project Implementation

The local stakeholder consultations were an important step to foster project ownership, and it is important to continue to place them as implementers, especially local governments and resource users, such as herder households and herder communities, and individuals and entities involved in irrigated agricultural practices. The project team will play a support role, providing coordination, technical assistance, and capacity development.

For Component One, facilitation of planning processes, and the provision of technical expertise required to make informed decisions for management planning, are equally important. While the project officer responsible for Component One will oversee the overall development of management plans and strategies, it will be necessary to draw on facilitators contracted to guide the processes of developing the river basin management plans with all stakeholders. Technical/scientific expertise needs to be acquired likewise and should include experts on pasture, water, forest, and biodiversity.

Existing experiences in developing integrated river basin management plans should be drawn upon heavily.
For the Component Two, it is crucial that skills and knowledge on riparian restoration techniques be applied, that resource users and local government officers gain a thorough understanding of them, and that they become integral parts of local plans, namely the annual pasture/land management plan and the action plan of the local government. While herders and/or their organizations will play an important role in implementation, these measures have to be co-managed by herders and local government.

Soum budgets will see significant increases over the next years, and securing funding for these measures by developing co-financing from project resources and Soum budgets, will be an important task to promote the success of these measures. International experiences in riparian restoration and watershed conservation, and in community and government collaboration, can be drawn upon, and applied to the Mongolian context. For component implementation, a strong technical background on the subject matters (climate change, pasture management, hydrology/water resources management, riparian ecology) is required, while at the same time, close cooperation with local stakeholders and on-the-ground presence is required to support implementation of the measures and community organization for it. Again, for supporting community organizations, and for developing the local plans, facilitators can be engaged as contractors based on needs, while the component is overseen by a project officer with an appropriate technical background in one or several of the disciplines mentioned above.

For Component Three, the early tasks are in establishing close collaboration with the relevant agencies and support a process to determine the functions and structure of the river basin administrations for target areas, and how the project will support institutional strengthening. Experiences of existing river basin councils will be evaluated and applied in the target areas.

All components will cooperate closely, experiences from components one and two will feed into component three for policy development and mainstreaming into other sectors. Components One and Two overlap to some extent as they both address riparian area and river basin management. Component Two is really focused on concrete measures and on their implementation, and on integrating those in Soum level plans (pasture management, land-use, soum governors action plan), while Component One is targeted at River Basin and landscape level to develop management plans and strategies that include soum level activities and are informed by soum level experiences. Close cooperation between components one and two is also required with regard to the baseline assessments; their findings will inform planning for both components.

# 5 Annual Work Plan (2012 – 2013)

The annual work plan was completed following the stakeholder consultations and team discussions. This work plan for the beginning phase of the project (2012-2013) reflects the emphasis placed by stakeholders and technical experts on the need to establish a comprehensive baseline on ecosystem and socio-economic information, to measure project progress and to inform the development of strategies and river basin management plans. Moreover, for the development of EBA strategies, vulnerability assessments should be a key element in the baseline studies. The Annual Work Plan is attached in Annex 6.

## 5.1 Focus of Initial Activities

Initial activities for project management will focus on setting up the local implementation structure and completing appointments of project team members, and on establishing the Steering and Technical Committees. The establishment of the Steering Committee has been initiated with the issuance of a ministerial decree that identifies the members with representations of relevant agencies and organizations. The decree is attached in Annex 7; the organization of the first meeting of the Steering Committee is underway (as of June 21, 2012) and is planned to take place at the beginning of July (before the annual National Naadam Festival from Juy 11-13).

The Technical Committee is recommended to comprise of a broad spectrum of disciplines including hydrology, landscape ecology, rangeland and riparian ecology, traditional nomadic pastoralism, climate change, biodiversity, as well as social sciences.

For the Component One, initial activities will focus on the arrangements for all baseline assessments to be undertaken, on facilitating a common understanding on the objective, approach and modalities for undertaking the Economic Valuation Studies and supporting the establishment of a task force to guide the studies. An integral and crucial part of the baseline assessments is an assessment of the vulnerability of the ecosystems in the target landscapes. This vulnerability assessment is an important tool to inform the development of the EBA strategies and provides the framework for planning at micro- and macrolevels.

Also, the Component One will review existing experiences in developing river basin management plans and take up the process of joint planning with stakeholders as it was initiated during the inception phase.

For the Component Two, initial activities will focus on re-visiting the plans developed by local stakeholders during the Inception Phase, develop more details and determine concrete follow-up support, and to initiate capacity development for adaptation measures, particularly watershed/riparian management. The local plans will be developed to fit in with the overall (annual) work plan.

Component Three will begin discussions with relevant government bodies on project support to institutional development of river basin administrations and councils.

## 5.2 Rationale and Details for Activities in the Annual Work Plan

OUTCOME 1: INTEGRATED STRATEGIES/MANAGEMENT PLANS FOR TARGET LANDSCAPES/RIVER BASINS DEVELOPED AND UNDER IMPLEMENTATION.

Output 1.1. : Ecological and Socio-economic Assessments (Baseline studies) as a basis for the development of Ecosystem-based Adaptation strategies for the target landscapes and for the development of River Basin Management Plans (Kharkhira/Turgen,Ulz)

Activities:

1.1.1. Generate detailed inventories (water, wildlife, livestock, forest, land use, pasture condition, special conservation values) and assessments of resource/ecosystem services condition in the target river basins.

1.1.2. Produce detailed social and economic assessment (agriculture, livelihood, development sectors, cultural values) for 2 target areas for the development of integrated strategies/river basin management plans.

*The baseline studies should include a vulnerability/risk assessment of ecosystems and ecosystem services/rural livelihoods.Project team will prepare tender materials and ToR for experts/institutions to undertake baseline studies. One contract for ecological studies, one contract for socio-economic studies, - and one contract for climate risk/vulnerability assessment (possibly by one individual expert).Baseline study contractors will a) determine and compile existing information at relevant institutions (NSO, NAMEM, Academy of Sciences, universities and other research organizations) and from local governments (data on livestock numbers, trends, local economic activities), b) prepare a plan and budget to undertake field studies, c) undertake field studies, d) prepare baseline reports. Apart from contractors to undertake baseline studies, the project will also provide support to relevant agencies to complete data sets required as a baseline.*

1.1.3. Develop Knowledge Management Strategy and support establishment and maintenance of databases in relevant agencies to improve information management

*Apart from contractors to undertake baseline studies, the project will also provide support to relevant agencies to complete data sets required as a baseline. The project team will ensure that data bases are not "project" based, but from the onset of project implementation are within the relevant government agencies.*

Output 1.2: Economic Valuations completed comparing the landscape level costs and benefits of EBA.

Activities:

1.2.1. Support establishment of Taskforce (Working Group) led by NDIC to guide Economic Valuation Study design and execution.

1.2.2. Prepare tender, and select contractor(s) to compile existing background information for the Economic Valuation Study, and to undertake (1st round of) Economic Valuation Studies.

1.2.3. Support national capacity development for economic valuations of EBA strategies and ecosystem services under climate change conditions

*To make the Economic Valuation Studies a success, it is necessary that they are guided by in-country needs and national policies, that their specific objective in the context of national adaptation strategies is defined, and that they provide the specific input that is needed to complement in-country expertise and experience. Guidance is to be provided by the NDIC/task force, and the Yale team is to develop their inputs for discussion and training accordingly. The contractor(s) will work with the Yale team to fine-tune methodologies.*

Output 1.3: Ecosystem-based Adaptation strategies for the target landscapes and River Basin Management Plans (Kharkhira/Turgen, Ulz) completed and operational.

Activities:

1.3.1. Prepare tender and contract expert(s) to undertake a Vulnerability Assessment of the target landscapes.
A vulnerability assessment of the larger target landscapes is to be undertaken in order to guide mid-and long term planning and strategy development. The assessment will be undertaken in close coordination with the initial Economic Studies, and both will inform the development of the EBA strategies.

1.3.2. Facilitate stakeholder collaboration for the development of Ecosystem-based Adaptation strategies for the target landscapes and River Basin Management Plans (for Kharkhira/Turgen, and Ulz)

*The River Basin Management plans are the core of the component outputs and the models for integrating EBA into strategic planning. Lessons from the development and implementation of the River Basin Management plans will feed into the EBA landscape strategies. The development of management plans will built on the foundation laid during the local stakeholder consultations during the inception phase. The activity (1.3.2.) will commence with defining/confirming all stakeholders to be involved in developing the plan, reviewing existing experiences in developing river basin management plans in Mongolia. Coordination with Component Three is necessary to determine the role of existing or future RB Administrations and Councils in the development of the management plans. If/when the RB Administration is the lead agency in developing the RBMP, the project will play a role in supporting the process of management planning. The details are to be determined. Project support could be in the form of providing facilitators, training in planning/stakeholder collaboration skills, providing technical assistance in management planning, financial support for consultations/planning meetings. Baseline studies already feed into management planning. Preparing draft plans, printing and circulating draft plans for public review.*

OUTCOME 2: IMPLEMENTING LANDSCAPE LEVEL ADAPTATION TECHNIQUES TO MAINTAIN ECOSYSTEM INTEGRITY AND WATER SECURITY UNDER CONDITIONS OF CLIMATE CHANGE.

Output 2.1: Capacities of rural communities for monitoring natural resources and climate change impacts and for adaptive management in two watersheds strengthened.

2.1.1. Undertake Soum level needs assessment for capacity development, and develop capacity building programme for 2 target areas

*A capacity development program focusing on integrated water resources management is being drafted as a part of inception phase support. It will provide an outline of trainings and capacity development measures for all stakeholders and relevant institutions. The capacity development program under activity 2.1.1 will include this program, and built on it with further training activities necessary to help stakeholders achieve the objectives of their local plans and overall project objectives.*

2.1.2. Design community based monitoring programme with tools and mechanisms to monitor and assess the health and status of their ecosystem based on current practices and experiences

2.1.3. Undertake 1st series of trainings for communities on monitoring guideline tools, mechanisms and indicators

*Other programs and donor assisted efforts have introduced community based monitoring, namely water quality monitoring. One of these programs is the program Water Quality Monitoring (WQM) program supported by The Asia Foundation (TAF) and implemented in collaboration with the National University's Faculty of Biology. These and other initiatives will be evaluated for their applicability and replication/up-scaling in the project target areas. Likewise, options, opportunities and needs to involve local citizens, communities, schools and/or local NGOs/CBOs in water resources related monitoring will be explored, and support activities developed. For example, some hydrological monitoring, namely in remote locations, may need to rely on local citizens participation. This is to be determined by the relevant agencies who would provide the technical training with project support.*

Output 2.2: Suite of physical techniques to improve ecosystem resilience established in two critical watersheds

Activities

2.2.1. Identify priority areas, and undertake feasibility studies to implement adaptation measures to improve ecosystem resilience and services in each Soum

*This activity is a direct follow-up of the local stakeholder consultations; local governments prepared preliminary maps to identify degraded and vulnerable sites, resources and ecosystems.*

2.2.2. Support to and training in implementation of adaptation techniques to improve ecosystem services and resilience with community participation

2.2.3. Support development of annual land use and pasture management plans that integrate adaptation techniques, discuss co-financing opportunities for implementation of plans, and support implementation

*For restoration and protection of water resources and river basins, concrete measures (such as fencing of stream sections, wetlands and water sources/springs, appropriate livestock watering access/facilities, etc.) are crucial. To prepare implementation, the type of measure is to be planned, who will establish and maintain it, and how it is funded (contributions from Soum development budget, livestock program budget, pasture management plan budget, community contribution and project contributions are to be determined. Measures will have to be implemented in phases in each Soum.*

*These measures, in order to be effective, are not "small" projects undertaken only by herders or herder communities; they need the full support, including financial, of local government in implementation, policy support of all relevant agencies and significant capacity development support. It is crucial that they become integral elements of pasture and livestock management, i.e. that they are included as key elements in the annual pasture management plans.*

*Input is needed from experts in pasture and livestock management to develop a comprehensive approach that enables riparian conservation and will include adjusting livestock numbers to carrying capacity, developing rotational use of pasture, developing required pasture irrigation, and others. (this will also require livelihood support measures, such as helping in product development, value addition/processing, marketing of livestock products, and/or alternative incomes from ecologically friendly activities, such as production*

*of pressed fuel, building blocks (to counteract use of fire wood), tourism and others to be determined.)*

2.2.4. Support to improve technical and human capacity of glacial run-off and water monitoring networks in target areas

To enhance water resources monitoring, preliminary identification of sites for additional monitoring posts has been completed in cooperation with relevant agencies. These include two sites for glacial run-off in the Western target area, and sites for hydrological gauges in the Eastern target area. Local citizens and officers are to be trained to ensure correct and consistent data collection. Determine training modalities with agencies, support selection of trainees and training.

Output 2.3. Regulatory and financial mechanisms for supporting climate change resilient livelihood strategies

Activities

2.3.1. Explore options to support climate change resilient livelihood strategies

2.3.2. Support activities to develop climate change resilient livelihood strategies through diversification, alternative incomes, value addition to local products

*While the focus of the project is not on livelihood support, or poverty reduction, these aspects have to be integral parts of a comprehensive approach that includes addressing income generation and livelihood strategies. This is particular true with regard to developing income opportunities that are compatible with project objectives, i.e. that do not have negative impacts on water sources, quality and quantity. Current activities with negative impacts include a) herding where traditional patterns of movement, of herd structure and other practices are lost or impossible to implement, b) mining, c) tanning of animal hides with discharge of waste water, d) agricultural activities depending on wasteful/outdated technologies for irrigation, and e) other activities producing pollution/untreated water released into the environment. In support of protection of water resources and the environment, and in support of local livelihoods, the project will explore options to establish a mechanism (small grants) from project sources, or facilitate coordination with other projects and organizations to provide access to grants, loans and other start-up support for small enterprises, or to extend capacity development support (training, small business advice, etc.) for livestock and non-livestock livelihood strategies.*

**OUTCOME 3: STRENGTHENING CAPACITIES/INSTITUTIONS TO SUPPORT EBA STRATEGIES AND INTEGRATED RIVER BASIN MANAGEMENT, THEIR REPLICATION AND MAINSTREAMING IN SECTOR POLICIES.**

Output 3.1: Ecosystem-based adaptation approaches/integrated river basin management mainstreamed in national resource use planning and implementation mechanisms in sector policies.

Activities

3.1.1. Conduct institutional capacity and needs assessment of NCC Authority, CCCO and related key agencies including legislative, financial and regulatory frameworks of EBA management and deliver recommendations for relevant agencies

3.1.2. Develop National level EBA Institutional Capacity Building Programme and Action Plan

*Meetings with key informants and decision makers; assessments/surveys with staff*

3.1.3. Support in implementation of Institutional Capacity Building Programme

3.1.4. Support review of soum and aimag level development plans/strategies/policies and develop recommendations to integrate EBA approaches

*Desk reviews of documents, and discussions on Soum/Aimag level with planners and policy makers*

Output 3.2: Institutional structure for river basin management integrating climate change risks (Administration and Council) established and operational in the target areas as model for replication.

Activities

3.2.1. Support to the establishment process of Integrated River Basin/Sub-basin Management Administrations and Councils for 3 river basins/sub-basins

*Initial meetings with the relevant agency (water authority) to plan support to establishment of administrations and councils based on new legislation, and current experiences.*

3.2.2. Support to the development of a guideline to prepare Integrated River Basin Management Strategy and Action Plans integrating climate change risks

*Review current guideline and/or processes applied for preparing management plans,*
*Review international experiences/guidelines, consult with councils and key individual currently/recently involved in preparation of management plans. Discussions with relevant agency staff. Drafting of guideline, workshop(s) to discuss/validate guideline.*

3.2.3. Conduct capacity building trainings for administration/council officers

Output 3.3: Best practices are identified and program for up-scaling best practices developed and implemented.

Activities

3.3.1. Promote public awareness through media; newsletter, radio, TV and forums

3.3.2. Produce publications (guideline, workshop and study reports, manuals, updated flier)

3.3.3. Establish and maintain an "Interactive Climate Change Resilience Website"

3.3.4. Prepare 1st annual "State of the Ecosystem" report and disseminate to stakeholders and relevant agencies for further planning and monitoring of ecosystem state

# 6 Implementation Arrangements

## 6.1 Execution Modality

UNDP is the Multilateral Implementing Agency (MIE) for the project, which will be implemented following UNDP's National Implementation Modality (NIM). The designated Implementing Partner is the Ministry of Nature, Environment and Tourism (MNET). MNET is responsible for implementing UNFCCC and water resource management and will hold the responsibility of the senior supplier. MNET is ultimately responsible for the timely delivery of inputs and outputs and for

coordination of all other Responsible parties including other line ministries, relevant agencies, and local government Authorities. The MNET has appointed Dr. D. Dagvadorj, Special Envoy on Climate Change, and Chairman of the Climate Change Coordination Office of MNET as the National Project Director.

## 6.2 Project Oversight, Policy and Technical Guidance

### 6.2.1 Project Board

The Project Board (PB) is responsible for providing overall policy guidance and for making management decisions for the project and plays a critical role in project monitoring and evaluations and using evaluations for performance improvement, accountability and learning. The PB membership has been established by decree of the MNET. The decree is attached as Annex 7. Committee members are appointed by their position in key agencies and organizations relevant to the objectives and implementation of the project.

In order to ensure UNDP's ultimate accountability for the project results, the PB decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Steering Committee, the final decision shall rest with UNDP.

### 6.2.2 UNDP – Financial Management, Procurement and Results-based Monitoring

Project assurance - UNDP Mongolia will support project implementation by assisting in monitoring project budgets and expenditures, recruiting and contracting project personnel and consultant services, subcontracting and procuring equipment. UNDP Mongolia will also monitor the project implementation and achievement of the project outcomes/outputs and ensure the efficient use of donor funds through an assigned Programme Officer in the Country Office in Ulaanbaatar. The UNDP Senior Technical Adviser (climate change adaptation) and the Regional Technical Adviser (Ecosystems and Biodiversity) will provide technical backstopping to the project as and when required.

### 6.2.3 Technical Committee

A Technical Committee with members from all relevant disciplines - including hydrology, climate change impacts, risks and adaptation, rangeland health and traditional nomadic pastoralism, riparian ecology, river basin management, biodiversity, land management, and social sciences, - and representing key research and academic institutions, will provide technical advice and guidance to the Project Implementing Unit.

## 6.3 Project Implementation Structure

### 6.3.1 National Level – Project Implementing Unit

Project Implementing Unit (PIU) – The PIU is headed by the National Project Coordinator (NPC) - He/she will be a national professional designated for the duration of the project. The NPC's prime responsibility is to ensure that the project produces the results specified in the project document to the required standard of quality and within the specified constraints of time and cost. The NPC is

supported by a core technical and support staff located at the MNET to execute the project activities, including day-to-day operations of the project, and the overall operational and financial management and reporting.

Technical staff in the PIU include officers responsible for the different component outcomes; the component coordinators will be supported by experts (national and in to a lesser degree international) for specialized technical tasks in implementation, capacity development and planning. Particularly components two and three required both technical/scientific expertise as well as inputs by planners and facilitators for stakeholder agreements and collaboration and for community participation and organization. For both components, it is recommended that the full-time staff position is filled with an individual with strong technical/subject matter background. Support staff in the PIU include a finance/administration officer and a translator/administrative assistant.

### 6.3.2 Local Level Implementation Structure

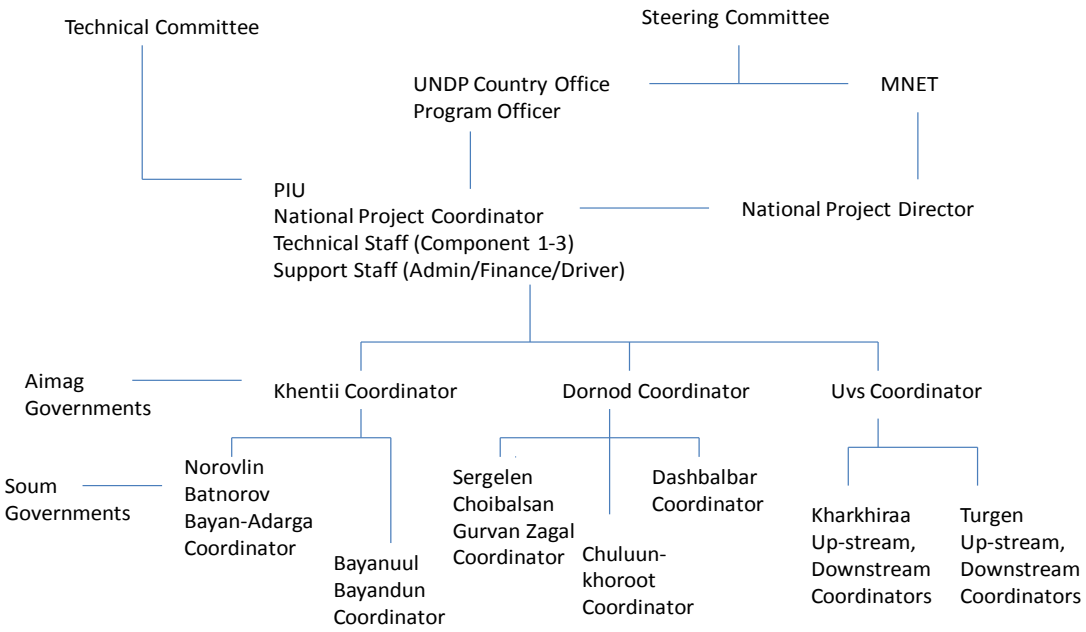
The local stakeholder consultations addressed the issue of local implementation arrangements; discussions and votes very clearly favored the appointment of coordinators at Aimag and Soum level through a public announcement, and selection process. Moreover, the majority of discussants agreed that several Soums can be covered by one coordinator It is therefore suggested that 3 Aimag coordinators (ideally a relevant officer at Aimag Governor Office) and 9 Soum coordinators be selected. In the Ulz River Basin, one coordinator for up-stream (Norovlin, Batnorov and Bayan-Adarga Soums), one for mid-stream (Bayan-Uul, Bayandun), one for the mid/down-stream Soums with small territory in the river basin (Sergelen, Guvanzagal and Choibalsan). The down-stream Soums Dashbalbar and Chuluunkhoroot with larger territories in the basin will have a coordinator each. In the Western target area, there will be coordinators for upstream and downstream soums in each of the two sub-basins (Kharkhiraa, Turgen), totally 4 coordinators.

The evaluation of candidates and final selection of individuals should be undertaken jointly by the PIU and Aimag and Soum Governments. Considering the workload of local government officers due to routine tasks, and the innovative character and amount of activities to be implemented, this approach is favorable. However, the ToR of the local (soum) coordinators need to ensure very close cooperation with and responsibility to local government to implement local activities, while financial responsibility and accountability to the project unit is maintained.

### 6.3.3 Inputs by International Consultants

The International Consultancy support has been reduced significantly, as compared to initial proposal in the Project Document, through replacing by national expertise and by combining responsibilities of several other proposed consultancies. This will release funds for tangible activities, capacity development and other measures to be defined through adaptive management approaches during project implementation. A capacity development program is being defined, building on the stakeholder consultations and all other inputs during the inception phase; the program will include suggestions for measures to build national expertise applying various means. The International Consultancy inputs have been reduced to USD 416,500 (Adaptation Fund), compared to an original total of USD 910,000. In addition, the UNDP/TRAC funded consultancy for Economic Valuation Studies remains in place, costed at 168,000 USD.

**Diagram 1: Implementation and Oversight Structure**




The following consultancies by international experts are considered necessary to achieve the expected outcomes and to contribute to planned outputs:

- Ecosystems Management Expert (long-term support) – The consultant will be responsible for providing support throughout project implementation; working closely with the project team, the consultant will assist in bringing all three components forward, ensuring that local level activities are effective on the ground while reflecting strategic objectives. The consultant will also provide assistance in planning approaches at all levels, in assessing project progress towards targets, and in implementing an adaptive management approach.
- Technical Expert, Small Scale Water Harvesting in mountainous regions. This expert will have extensive experiences and background in Climate Change in Mountainous areas, and in technical measures on snow melt and rainwater harvesting, to guide feasibility studies and advice on potential measures.
- Ecosystems, Watersheds and Wetlands Restoration Expert – this consultant will provide technical advice and training on best international practices in watershed management and restoration, and riparian restoration, and will assist, with the project team, local stakeholders to implement and monitor measures locally. Close cooperation with other national and international consultancies is required to address strategic objectives adequately and address findings of baseline studies and vulnerability assessments. The inputs are strongly linked to pastureland management issues, therefore activities are to be planned within pasture management plans.
- Law, policy and governance expert – this consultancy will support the development of strategies and mainstreaming of EBA in sector policies. The input will build on an assessment by national consultants of financial mechanisms applicable for EBA support in current legislation.

- Expert on Economic Valuation. This consultancy, along with the vulnerability assessment for the target landscapes, will inform the development of the landscape level EBA strategies. It is funded by UNDP/TRAC funding.

# 7. Monitoring and Evaluation (M&E) Framework

Monitoring and Evaluation activities will be undertaken according to established UNDP procedures throughout the project lifetime. As implementing partners, MNET and the UNDP Country office Mongolia will ensure the timeliness and quality of project implementation. Oversight and general guidance of the project is provided by the project's Steering Committee; established by decree of the Minister for Nature, Environment and Tourism, its members are from related ministries, the National Development and Innovation Committee, the Authority for Land Affairs, Construction, Geodesy and Cartography, Local Governments, NGOs, River Basin Administrations and Councils, and other organizations such as international donors or programs/projects in related fields that they assist.

Technical oversight and advice will be provided by a Technical Committee comprised of national experts from academic and research institutions. Technical guidance, namely on EBA strategic issues, will be provided by the UNDP Regional Office, Bangkok. Audits of the project's financial management will follow UNDP finance regulations and rules and applicable audit policies. Indicators to apply results-based monitoring have been developed with technical experts as well as local stakeholders; monitoring of technical indicators will be undertaken by experts of the respective government agencies and research institutions (Institutes of Geo-ecology, Biology and Institute of Meteorology and Hydrology). The project's knowledge management strategy will ensure that data bases (improved and/or new data bases) are embedded within existing data bases and institutions, rather than developing "project" based data collections.

Indicators and targets to measure progress in the implementation of local activities will be fine-tuned when re-visiting the local plans developed during the stakeholder consultations. Annual project planning will take place with emphasis (for component 2) on local planning by the stakeholders themselves whereby local indicators and targets will be reviewed and renewed. In this way, results-based monitoring will be grounded on participatory monitoring and evaluation principles and promote participation and ownership.

## 7.1. M&E Activities and Events

**Steering Committee**

Regular Meetings (6-monthly), and ad-hoc meetings as needed, of the Steering Committee will review timely delivery of inputs and outputs and provide coordination and guidance.

**Technical Committee**

Regular Meetings (annual), and ad-hoc meetings as needed, of the Technical Committee, will discuss project progress related to development of management plans, ecological restoration and ecosystem services functioning, review monitoring results and provide technical and methodological guidance.

**Periodic Project Site Visits**

Representatives of the UNDP CO, the UNDP RCU as well as members of the Steering and Technical Committees will conduct visits to project sites and meetings with local stakeholders to assess project progress.

**Measurement of Technical Indicators**

Monitoring of indicators that measure biophysical parameters are to be undertaken by the relevant agencies, or if additional input is needed, by technical experts/institutions to be contracted by the PIU. Data collected will be forwarded to the respective databases of research institutions/agencies, as well as recorded for project M&E reporting.

**Mid-Term Evaluation**

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation.
A team of international and national experts will be recruited to undertake the evaluation including field visits and discussions with all stakeholders.

**Final Evaluation**

An independent Final Evaluation will take place three months prior to the final Steering Committee meeting and will be undertaken according to UNDP guidelines. It focuses on the delivery of project results as initially planned, or as modified after the mid-term evaluation. The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit.

The final evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

**Local Level M&E – Participatory M&E for Component 2**

Monitoring and evaluation of on-the-ground activities in ecological restoration and natural resource management (riparian management and restoration, pasture and livestock management) within Component 2 will be according to the indicators and targets of the log frame and the project M&E framework; but it is important for sustainability and ownership that M&E of inputs, performance, and of impacts is included in routine monitoring and review procedures of local government, and of local communities where applicable. Reporting of local coordinators on activities and outcomes will be to project management as well as to the Soum government and local parliament (khural). Annual planning at Soum level will define annual targets to measure progress. Where local community organizations or NGOs are implementers of activities, the project will facilitate the participatory

development of indicators and targets for the specific activities and locations that are to be monitored by the community groups/organizations themselves. A participatory monitoring and evaluation system will be the basis for measuring progress in these local level activities, and the findings from this system will feed into the overall project M&E system. Developed with the local stakeholders, the system will be a planning and monitoring tool to promote active local participation. Working with local governments, the project thus can contribute to putting principles of results-based M&E into practice with regard to pasture and livestock management, and local environmental management in general.

**Financial Audits**

Annual audits by a professional, certified organization will review financial management and adherence to required standards and regulations.

### 7.2. Reporting

Mandatory reports throughout project implementation include:

**Quarterly Reports**

Quarterly Reports including financial reports, to donor, implementing and executing agencies, - prepared by the project manager, based on PIU team members' information on their specific area of responsibility.
Progress will be monitored in the UNDP Enhanced Results Based Management Platform. Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot. Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Local coordinators will prepare quarterly reports to provide information for the PIU (Component 2) and to up-date local government on progress.

**Annual Project Reports**

Annual Project Reports, to donor, implementing and executing agencies, - prepared by the project manager, based on PIU team members' information on their specific area of responsibility.
This annual reports are prepared to monitor progress made since project start and in particular for the previous reporting year between June 30 and July 1.
The Annual Project Report provides information on a) Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative); b) Project outputs delivered per project outcome (annual); c) Lessons learnt and best practices identified; d) Annual Work Plan and expenditure reports; e) Comments on Risk assessment and management and on adaptive management measures if applicable; f) other issues/concerns and observations

Local coordinators will prepare annual reports to provide information for the PIU (Component 2) and to up-date local government on progress.

**Site Visit Reports**

Following project field visits, a site visit report will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the PIU and Steering Committee.

**Mid-Term Evaluation Report**

The Mid-Term Evaluation Report is prepared by the team leader of the independent team of M&E experts; it provides information on progress being made toward the achievement of outcomes and will recommend changes in project implementation for the second half of implementation if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation and will present initial lessons learned about project design, implementation and management.
The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

**Final Evaluation Report**

The final evaluation report is prepared by the team leader of the independent team of M&E experts. The report describes the achievements of the project based on the M&E framework, specifically referring to targets for all outcomes. It investigates reasons if there are discrepancies in actual and expected results, elaborates on the impacts and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit. The final evaluation should also provide recommendations for follow-up activities

**Terminal Report**

The project manager is responsible for delivery of the Terminal Report; during the last three months, the PIU will work on preparing this comprehensive report. It will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to promote ensure sustainability and replicability of the project's results, and ensure that lessons learnt are shared and introduced to policy makers.

# 8. Risk Assessment

It is fair to state that the outlook for successfully managing environmental, political, financial, operational, and institutional risks is very positive, considering recent changes in the legal and institutional environment that create enabling conditions for EBA and integrated land-use and water resources management. Also, commencement of project implementation is coinciding with the conclusion of general elections and local government elections are to follow shortly. This presents a good opportunity to incorporate project objectives in the action plans at Aimag and Soum level and strategic goals of EBA measures into strategic planning at landscape level across administrative boundaries. The risk of project activities being implemented parallel to ongoing activities by government and communities is significantly reduced, and there is a high potential of good project ownership and of internalizing project goals into environmental and development planning at all levels.

Other positive factors that contribute to the reduction of risks are the recent coming into force of a new amendment to the law on water that provides for an institutional basis for integrated river basin management. These include separate administrative units responsible for the 29 river basins in Mongolia, as well as a river basin councils as a civil society advisory and oversight body to the administrations. The amendment also calls for the development of guidelines for the preparation of river basin management plans, thereby making integrated river basin management a standard practice in Mongolia which will increase the sustainability of project results.

The Mongolian government has, and continues to further develop institutions to address climate change issues and is actively pursuing innovative approaches; an example is the inter-sectoral National Development and Innovation Committee (NDIC) which will take charge of guiding the Economic Valuation studies.

While the development of the extractive industry poses an environmental risk by impacting land and access to grazing lands, using water and effecting water sources locally, it also is the driver of unprecedented economic growth. It is anticipated that Soum budgets for local development and environmental management, at the discretion of local governments, will increase very significantly (at least four-fold) in the up-coming years. This, along with the introduction of needs-based budgeting for local areas, and of initiatives such as participatory budget planning and monitoring supported by other projects (for example a governance project supported by Swiss Development Cooperation Agency), are factors that reduce the risk of project failure as local governments will be able to co-finance measures and with skills and knowledge being improved through project support will be in a position to implement and maintain practices in the future.

The Government of Mongolia is also in the process of introducing results-based M&E in all sectors; this is another opportunity for the project to support this approach and develop models for results-based M&E in EBA and in the maintenance and restoration of ecosystem services.

Enforcement of pasture management plans, including adherence to carrying capacity and excluding livestock, at least for certain periods from riparian areas, will be a prerequisite for successful ecological restoration and watershed management to restore ecosystem services; therefore, political support on all levels and effective enforcement will be crucial. These issues need to be addressed by promoting project ownership by the stakeholders, by incorporating project objectives into local action plans and strategies, and by facilitating collaborative planning and management and functioning cooperation between local government authorities and resource users, namely herders and their formal and/or informal institutions.

Specific risks to achieve and/or measure project progress and overall achievements include a) hydrological monitoring stations remain operational; this will be alleviated by project support to up-grading and expanding the hydrological monitoring network. b) capacity of local stakeholders for implementing EBA measures and strategic planning is not sufficient; this will be addressed by a capacity development program delivered by the project.

Other risks are that either the project emphasis is focused too much on strategy development without achieving on-the ground successes in restoring and maintaining ecosystem function, or that too much emphasis may be put on local measures that may fail to address trends of climate change risks and impacts in the longer term, or distract from mainstreaming EBA in landscape level strategies and sector policies. This risks is being addressed by the design of the separate project components, and it will need continued addressing by fine-tuning the coordination between components. Close working relationship and experience sharing among components will promote that lessons learnt and best practices will inform strategy and policy development, and that successes will be linked to incentives.

The project design is complex, with components that address both policy/strategic issues as well as practical measures in the target areas, and the development of river basin management plans. These different elements require a high degree of stakeholder collaboration and communication between all stakeholders at all levels and the PIU. The local stakeholder consultations during the inception phase have initiated dialogue and joint planning; with appropriate training in participatory planning for key stakeholders, project coordinators, and heightened awareness for the need of ongoing good communication and collaboration, this issue can be addressed and turned into a major success factor.

# 9. Overall Recommendations

**Developing Project Ownership and Active Participation**

- Follow-up on the local stakeholder consultations and re-visit the local areas as soon as possible, select local coordinators and give them a good understanding of their role.
- Provide local stakeholders with copies of all the plans and maps they prepared during the inception phase, and where new government officials are in place after the local elections, ensure they receive all information and plans of the project, and recognize their responsibility and benefit from actively participating in project implementation.
- To enhance ownership, and promote successful implementation of local-level measures, project management may want to make an extra effort to put themselves into a support role while local governments and resource users are the main actors in implementation. Prepare

annual work plans jointly, defining the tasks and what support the main implementers need from the project implementation unit.

- Anchor the local-level activities firmly in the ongoing processes of developing action and strategic plans and into routine natural resource management and development activities, as opposed to planning and implementing them as "project" activities that local stakeholders do not perceive them as the responsibility of the "project" team. Themselves are the project team.
- Develop co-financing arrangements for implementation of local activities; with the anticipated budget increases for Soums, it is quite realistic that local governments can contribute financially to the measures, include them in routine budget allocation planning in the future.

**EBA Approach and Mongolian Nomadic Pastoral Culture**

- Present the EBA approach in the context of traditional nomadic practice, not as an alien concept.
- Introduce the innovative aspects of the project, i.e. EBA approaches, into ongoing planning such as Soum level land-use and annual pasture management plan, Soum and Aimag development strategies, - as opposed to developing separate strategies that are more "project"- driven. While doing this, it is also very important to recognize EBA elements that are inherent to traditional and current strategic planning, namely in relation to planning for pastureland use. Science based findings and international experiences on ecosystems, vulnerability and adaptation strategies do offer added benefit, but EBA and landscape level approaches are not at all new to a country and culture like Mongolia; therefore, in order to enhance project ownership, it is important to create this common understanding of what EBA approaches mean in the Mongolian context, that it is not something alien, but at least partially a traditional concept.
- Current thinking on adaptation already does include recommendations for larger administrative and natural resource management units; the territorial division into 5 development regions reflects this approach. Nomadic pastoral practice is a key adaptation strategy. "Nomadic pastoral culture as practiced in Mongolia developed as a response to the variable ecosystem dynamics of arid and semi-arid systems. These pastoral systems have adapted to variable environmental conditions responding to variation in resource availability. The emergence of hierarchical pastoral networks or cooperative groups based on common location of grazing or family relationships, as a complex adaptive system, increased the resilience of these systems to climate variability"[1] (Chuluun, 2010)

[1] Chuluun Togtokh, 2010: Opportunities for synergies between climate change, desertification, conservation, and human development at multiple scales. ICID+18, 2nd International Conference: Climate, Sustainability and Development in Semi-arid Regions August 16 - 20, 2010, Fortaleza - Ceará, Brazil. Department of Environmental Policy and Science, Mongolian Development Institute, Office of the President of Mongolia & Mongolian Academy of Sciences, and Drlyland Sustainability Institute, Mongolia.

**Economic Valuation of Adaptation**

- The Economic Valuation Studies can make a valuable contribution, but it is crucial that it links effectively to ongoing efforts and that it targets the needs. Adaptation strategies are already being developed for different sectors, or development of strategies is imminent. Economic valuation of adaptation strategies is needed, and the main need for international expertise is here, while there is probably less need for international expertise in defining different scenarios and developing adaptation strategies.

**Project Team – Expertise and Roles**

- Project staff responsible for component oversight all need to have a solid background in environmental management and policy, of ecological processes at scale, of climate change impacts and a common understanding of the EBA approach. For component 2, expertise in climate change, ecology and hydrology is required in order to provide the necessary technical guidance. Specialists for facilitating community organization and collaborative management at local level can be contracted and guided in their work. Likewise, for component 1, facilitators to work with stakeholders in preparing river basin management plans, can be contracted to assist in planning processes throughout project implementation.
- For the development of EBA/landscape level strategies, additional expertise may be necessary It is advisable to hire experts, national and international, that provide intermittent input through project implementation, rather than arranging more frequent short-term consultancies whereby new consultants each time need familiarization time to effectively provide technical assistance.

**Balancing Strategic and On-the-Ground Activities**

- Overall project success depends on effective work on strategic level as much as on local, practical level. Without successful measures in restoration and protection of water sources, the project will not offer replicable models and the strategic components have little credibility. On the other hand, without mainstreaming climate risk, vulnerability and ecosystem services restoration aspects into strategies and policies, the project objectives will not be achieved. Regularcommunications, experience sharing and coordination among the project team themselves as well as all stakeholders will be necessary to achieve overall objectives, and special events and activities for this purpose should be considered in preparing work plans.
- Activities under Component 2 are not just “small-scale” activities to be undertaken by local herders or herder organizations only. They require effective joint planning, collaborative management and enforcement of agreed regulations and plans.

**Linkages to and Lessons from other Projects**

- Livelihood support activities will be important to enable measures in livestock management and in managing carrying capacity; if the project has very limited scope to directly support income generation activities and small enterprises, it will be very important to forge strong

linkages to other programs such as the "Sustainable Livelihoods Program" (Phase II) supported by the World Bank and implemented country wide.

- Take up lessons learnt from other projects and programs related to river basin management (WWF experiences in Onon and Khovd River Basins), strategic planning (such as Altai Mountain Conservation Strategy, MNET/UNDP) and pasture and land management (Sustainable Land Management for Combating Desertification Project, MoFALI/UNDP).

# 10. Annexes

## Annex 1. List of Participants in Local Stakeholder Consultations

### Workshop in Khentii Aimag, Undurkhaan City, May 21, 2012

| № | Names | Position | Contact number |
|---|---|---|---|
| | ***Aimag level workshop*** | | |
| 1. | D. Erdenebileg | Government office, Development Policy Department Director | 93149992 |
| 2. | D. Bayarkhuu | Government office, Development Policy Department, Infrastructure and Environment expert | 93014501 |
| 3. | D. Erdenebaatar | FA department expert | 93014506 |
| 4. | B. Darkhantur | EPTA Director | 93014919 |
| 5. | N. Oyunmandal | EPTA Wildlife expert | 93014915 |
| 6. | E. Oyunchimeg | EPTA expert | 98225123 |
| 7. | B. Tserenchimed | FA SMED | |
| 8. | L. Chuluun | Hyd-Met Agency director | 93070199 |
| 9. | Bayasgalan | Hyd-Met Agency, water research engineer | |
| 10. | B. Kherlenchimeg | Hyd-Met Agency, Climate technology expert | 93028620 |
| 11. | S. Amgalanbaatar | Professional Inspection Agency Environmental Inspector | 93216622 |
| 12. | B. Gantogoo | Land and City Development Agency Director | |
| 13. | Ts. Bilegsaikhan | Land And City Development Agency Expert | 98992817 |
| 14. | Ts. Batkhuu | Disaster Mitigation Agency | |
| 15. | J. Altankhuyag | Disaster Mitigation Agency | |
| 16. | Z. Bat-Erdene | Head of NGO s | |

## Workshop in Khentii Aimag, Bayan-Uul Soum, May 23, 2012

| № | Participant's Name | Position /Organization | Contact |
|---|---|---|---|
| | ***Soum Level Consultation*** | | |
| | **Batnorov soum** | | |
| 1. | D. Jambaa | Soum governor | 93151001 |
| 2. | J. Oyunbadrakh | Environmental inspector, Land officer | 98647102 |
| 3. | Ts. Batzaya | Meteorological technician | 93028607 |
| 4. | Kh. Khurelnym | Ranger | |
| 5. | G. Badamsuren | Leader of "Baynii Undraaa" herder group | 93151239 |
| 6. | J. Dorj | Local coordinator | |
| 7. | U. Gombodorj | herder | |
| | **Norovlin soum** | | |
| 8. | P. Khurelbaatar | Head of Citizens Representative Khural | 93014388 |
| 9. | O. Uuganbat | Land officer | |
| 10. | Tungalag | Leader of "Nars" forest group | 98613356 |
| 11. | I.Khandsuren | Ranger | |
| | **Bayn-Uul soum** | | |
| 12. | N. Munkhjargal | Head of Citizens Representative Khural | |
| 13. | N. Dolgor | Meteorological technician | 93157200 |
| 14. | Ts. Oyunchimeg | Environmental inspector | 93156805 |
| 15. | G. Ganbold | Secondary school social worker | |
| 16. | D. Densmaa | Secondary school teacher | |
| 17. | T. Oyun-Erdene | Secondary school teacher | |
| 18. | I.Khishigt | 6th bag governor | |
| 19. | G. Ganbaatar | Director of soum's forest group | 98864370 |
| 20. | R. Byambadorj | Ranger | 93156806 |
| 21. | T. Oyunchimeg | Kharikhiraa group | 93066302 |
| 22. | B. Dorjkhand | Herder group | |
| 23. | J. Ichinkhorloo | "Noyn orgil" group | 95589298 |
| 24. | B. Balbarmaa | "Erdenebulag" group | 99279557 |
| 25. | O. Gunjinlkham | "Batsumber" group | 99575843 |
| 26. | D. Burmaa | "Batsumber" group | |
| 27. | Altantsetseg | "Bayn-Khaan" group | 95587371 |
| 28. | D. Enkhtungalag | "Bayn-Khaan" group | |
| 29. | G. Ulziibat | "Kharikhiraa" group | 95810108 |
| 30. | U. Dariimaa | "Khukh chono" group | 95874110 |
| 31. | B. Dogorjav | "Shinestei" group | 99792910 |
| 32. | B. Batzorig | "Nogoon Tseel" group | 99679720 |
| 33. | B. Bymbachimeg | "Tsagaan Dev" group | 95820385 |
| 34. | T. Oyunbileg | "Buynt" group | 95589554 |
| 35. | B. Tserenkhand | "Khusuu" group | 98126716 |
| 36. | B. Dorjkhand | Chuluunt group | |
| 37. | Ts. Otgonbaatar | Rashaan bulag group | |
| | **Bayndun soum** | | |
| 38. | B. Baatartsogt | Soum governor | 99065523 |
| 39. | B. Batdulam | Head of Livestock unit | 99573994 |
| 40. | B. Enkhjargal | Ranger | 93013615 |
| 41. | B. Otgonzaya | Land officer | 98727080 |
| 42. | B. Bymbadorj | "Sarlag Nars" forest group | 98217477 |
| 43. | D. Nymbuu | Herder | |
| 44. | B. Uranchimeg | Kharkhiraa group | |

## Workshop in Choibalsan City, Dornod Aimag, May 25th, 2012

| № | Names | Position | Contact number |
|---|---|---|---|
| 1. | N. Dashnyam | Acting Governor | 98217186 |
| 2. | D. Damdinbazar | Land and City Development Agency Director | 99582228 |
| 3. | Ch. Nergui | Land and City Development Agency Senior expert | 93013480 |
| 4. | Sh. Ganbat | EPTA director | |
| 5. | E. Byambajav | EPTA, Biological Diversity Expert | 93066138 |
| 6. | D. Khyagbaatar | EPTA, Land and Mining relation expert | 98623493 |
| 7. | S. Munkhsaikhan | Forest Department director | 98667161 |
| 8. | A.Enkhtuvshin | FA SMED Agency Director | 98216369 |
| 9. | D. Sanduijamts | FA SMED expert in charge of pastureland irrigation | |
| 10. | A. Enkhbat | Professional Inspection Agency Inspector in charge of Geology and Mining | 98551587 |
| 11. | N. Khishigjargal | Hyd-Met agency Director | 99716089 |
| 12. | A.Shinechimeg | Hyd-Met Agency Water research Engineer | 88993602 |
| 13. | B. Urantuya | Hyd-Met Agency Climate Engineer | 93071079 |
| 14. | Kh. Dashdorj | Dornod PA Director | 99019697 |
| 15. | B. Batdorj | Dornod PA Senior Expert | 99585862 |
| 16. | B. Gantumur | PA Ugtam NR Ranger | 99932588 |
| 17. | B.Batkhuu | Mongol Daguur PA Dashbalbar soum ranger | 94037345 |
| 18. | Z. Natsagdorj | "Righteous People Movement " NGO | 98730080 |
| 19. | D. Dagvasuren | EMCCA Director | 99169864 |
| | **1. Choibalsan soum** | | |
| 20. | Ts. Aruinbold | Governor | 99045908 |
| 21. | Ts. Lkhagvaa | Ranger | |
| 22. | Ts. Khurelchuluun | Vet and selection section director | 99067278 |
| 23. | D. Sarantsetseg | BayanKhutag herder Community | 88585712 |
| 24. | R. Batbold | Herder | 95588085 |
| | **2. Sergelen soum** | | |
| 25. | N. Gurragchaa | Governor | 99298986 |
| 26. | Ts. Erdenebayar | Ranger | |
| 27. | Ts. Bolormaa | Weather observer | 91580209 |
| 28. | T. Nyamjargal | Land officer | 91588797 |
| 29. | Sh.Bayartugs | Member of Gozgor Chuluut community | 91566060 |
| 30. | N.Bat | Nogoon Huv community | 95220295 |
| | **3. Chullunkhoroot soum** | | |
| 31. | Ch. Shurentsetseg | En. Inspector | |
| 32. | P. Unurtsetseg | Land officer | 99067456 |
| 33. | E, Amgaibaatar | Water Guard | 89196076 |
| 34. | S. Batsaikhan | Ranger | 89229089 |
| 35. | N.Azjargal | Member of Delgerkhangai community | 88207978 |
| | 4. **Dashbalbar soum** | | |
| 36. | B. Battulga | Governor | 88845646 |
| 37. | U.Bukhchuuun | En. Inspector | 88609977 |
| 38. | B. Bilguun | Ranger | 99087167 |
| 39. | B. Bat-Erdene | Vet and Selection section director | 88209668 |
| 40. | M. Ganchimeg | Hyd-Met agency Dashbalbar station head | |
| 41. | D. Tsendsuren | Chukhn Community | 95860906 |
| 42. | B. Baatarmunkh | Chukh Eco tour Community Leader | 88728099 |
| | **5. Gurvanzagal soum** | | |

| | | | |
|---|---|---|---|
| 43. | D. Nyamaa | Governor | |
| 44. | B. Tumursukh | Vice governor | 88177676 |
| 45. | N. Naran-Erdene | En. Inspector | 88587274 |
| 46. | B. Altansuvd | Vet and Selection section expert | 88577926 |
| 47. | Kh. Enkhtsetseg | Herder | |
| 48. | Ch. Erdenechimeg | Herder | 88946516 |
| | **6. Bayan-Adraga soum** | | |
| 49. | M. Munkhbat | Head of Citizen khural | 98994941 |
| 50. | B. Anduu | En. Inspector | 93014673 |
| 51. | B. Munkhbat | Land officer | 93014661 |
| 52. | M. Altantsetseg | Weather observer | 93012840 |
| 53. | N. Buyandelger | Khuush forest user group leader | 98653183 |
| 54. | L. Dovchinsuren | Vet and Selection section director | 93014679 |

## Workshop in Ulaangon City, Uvs Aimag, June , 2012

| № | Names | Position | Contact number |
|---|---|---|---|
| 1. | Z. Ganbold | Development Policy Department Director | 99459405 |
| 2. | Ya Ochir | Development Policy Department, FA expert | 99457868 |
| 3. | V. TSeveensambuu | International Relation and Policy | 99459445 |
| 4. | Т. Лхавгасүрэн | Senior expert, Land and City Development Agency | 99459445 |
| 5. | KH. Ochirbat | EPTA Director | 99452491 |
| 6. | U. Murdorj | EPTA Senior Expert on water | 99452491 |
| 7. | D. Batzul | EPTA expert | |
| 8. | J. Khurelbaatar | EPTA expert | 93081108 |
| 9. | Ts. Narantuya | EPTA | 99454179 |
| 10. | T. Oyunkhuu | EPTA accountant | 93084801 |
| 11. | Yo. Batbayar | EPTA Driver | |
| 12. | S. Mendbayar | PIA, En. Inspector | |
| 13. | P. Namsrai | Hyd-Met Agency Director | 99458604 |
| 14. | D. Munkhbat | Hyd-Met Weather Engineer | 93071599 |
| 15. | M. Otgonkhuu | Hyd-Met Engineer | |
| 16. | B. Purevsuren | HydMet Agency Water Engineer | |
| 17. | P. Uuganbayar | ОБХэлтсийн ГХУБ | 93015850 |
| 18. | B. Buyantsog | Khan Khukhii, NR, PA Director | |
| 19. | G. Nyamjav | Uvs Nogoonton Movement | |
| 20. | D. Togtokhbayar | Community Association Head | |
| 21. | Chuluunbaatar | | |
| 22. | G. Bayaraa | Western region Agricultural Institute Director | 98603461 |
| | **1. Bukhmurun soum (6)** | | |
| 23. | B. Tugstur | Vice Governor | 95016506 |
| 24. | B. Bayanduuren | En. Inspector | 98891625 |
| 25. | Ts. Batmunkh | Bukhmurun Community leader | 99614279 |
| 26. | B. Ganbold | Tsagaan Buram community | |
| | **2. Khovd soum (7)** | | |
| 27. | B. Odsuren | Head of Citizen Khural | 93019090 |
| 28. | Kh. Nergui | En. Inspector | 93019079 |

## Annex 2. Documentations of Local Stakeholder Workshops for Project Planning "Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia" MON/12/301

### A. Workshop in Khentii Aimag, Undurkhaan City, May 21, 2012

**Participants:** Aimag level government officials

Plenary discussion on changes/threats and its causes of key natural resources for livelihoods in the Ulz River Basin

| **Changes/Threats** | **Causes/Drivers** |
|---|---|
| Water | |
| Water level has decreased significantly | Livestock number has increased<br>Too many livestock at the beginning of the river |
| Springs and creeks are drying out | |
| The quality of water is getting bad | |
| Pasture | |
| Plant cover is declining | Climate change<br>Weak law enforcement<br>Lack of effective policy environment |
| Plant diversity has decreased | |
| Desertification | |

According to the participants the most general and common causes for those threats are firstly climate change and secondly human irresponsible activities

Participants discussed the needs (institutional, information, training, research, technical etc) and activities to reduce the above threats.

| Common Challenges and Needs | Activities to address Needs and Challenges |
|---|---|
| Lack of information and knowledge<br>Lack of baseline studies<br>Lack of appropriate policy environment<br>Lack of human resource | Baseline study needs to be conducted by the professional team/agency<br>Trainings such as:<br>• Simple measuring methods of water level<br>• Simple approaches identifying water quality/pollution<br>Set up water monitoring posts<br>Identify/define the wells/sites<br>Training and equipment for fire fighting<br><br>To manage the herd structure<br>Fencing the pasture in critical areas<br>Tree nurseries |

## B. Khentii Aimag, Bayan-Uul Soum, May 23, 2012

Documentation of Working Groups on Threats/Impacts o Key Resource and Causes/Drivers

| **Pasture and Soil** | | | | |
|---|---|---|---|---|
| **Impacts/Threats** | **Score** | **Causes/Drivers** | **Score** | **Total** |
| Desertification | 2 | Number of vehicles has increased due to the mining activities | 2 | 4 |
| | | Soil erosion | 1 | 2 |
| | | Climate change | 4 | 8 |
| | | Illegal logging | 4 | 8 |
| | | Fire | 3 | 6 |
| | | Mining | 2 | 4 |
| Lack of water supplies | 4 | Lack of information and knowledge | 2 | 8 |
| | | Mining | 2 | 8 |
| | | Lack of well | 4 | 16 |
| | | Climate change | 4 | 16 |
| | | Many springs, creeks and lakes dried out | 4 | 16 |
| | | Lack of protecting/fencing the beginning of the river | 3 | 12 |
| Degradation | 4 | Decreased the biological diversity | 3 | 12 |
| | | Mining | 2 | 8 |
| | | Soil structure has changed | 4 | 16 |
| | | Garbage plant | 3 | 12 |
| | | Decreased the number of valuable plants | 3 | 12 |
| | | | | |

Discussants: Ganbold, Chimgee, Dolgorjav, Dorjkhand, Jambaa, Enkhjargal, Khurelbaatar, Ichinkhorloo, Enkhtungalag, Batzaya

| **Forest** | | | | |
|---|---|---|---|---|
| Changes/Threats | Score | Causes/Drivers | Score | |
| Declined forest resources | 4 | Fire (man made) | 4 | 16 |
| | | Fire from lightening | 1 | 4 |
| | | Bad forest management and ineffective monitoring | 2 | 8 |
| | | Drought | 3 | 12 |
| | | Illegal logging | 4 | 16 |
| | | | | |
| Drought in the forest | 4 | Fire | 4 | 16 |
| | | Climate change | 4 | 16 |
| | | Mining | 4 | 16 |
| Reducing riparian forest | 3 | Livestock number increased | 3 | 9 |
| | | Logging to make fire | 4 | 12 |
| Reduced the desidious forest | 3 | Illegal logging | 4 | 12 |
| | | Pesticides | 3 | 9 |
| | | Drought | 4 | 12 |
| | | Fire | 4 | 12 |

| | | | | |
|---|---|---|---|---|
| Insect increased in the forest | 3 | Drought | 4 | 12 |
| | | Fire | 4 | 12 |
| | | No pesticides management | 3 | 9 |

Discussants: Uuganbat, Balbarmaa, Dariim, Lombodorj, Uranchimeg, Byambadorj, Dashdorj, Baatartsogt

| Water | | | | |
|---|---|---|---|---|
| Changes/threats | Score | Causes/drivers | Score | |
| Water pollution | 3 | Climate change | 1 | 3 |
| | | Waste | 3 | 9 |
| | | Too many livestock | 3 | 9 |
| | | Mining | 4 | 12 |
| Water level has reduced | 4 | Drought | 1 | 4 |
| | | Misuse of riparian forest | 4 | 16 |
| | | Fire (human) | 3 | 12 |
| | | Small creeks, lakes and springs have shrincked down | 4 | 16 |
| | | Too many livestock near the river | 4 | 16 |
| Drought | 4 | Hot weather | 2 | 8 |
| | | No fencing of beginning of the river | 4 | 16 |
| | | Too many livestock | 3 | 12 |
| | | Illegal logging | 4 | 16 |
| | | Fire (human) | 3 | 12 |
| | | Mining | 4 | 16 |

Done by: Munkhjargal, Nyambuu,Batzorig, Tungalag, Batdulam, Otgonzaya, oyunbileg, Oyunchimeg, Densmaa

**Wildlife**

| Changes/Threats | Score | Causes/drivers | Score | |
|---|---|---|---|---|
| Less birds | 3 | Seasonal change | 3 | 9 |
| | | Gazelle number has decreased | 4 | 12 |
| Wildlife growth is slow | 4 | Water pollution | 2 | 8 |
| | | Hunting during birthing and mating season | 3 | 12 |
| No more bear | 4 | Poor habitat | 4 | 16 |
| | | Forest fire | 4 | 16 |
| Number has decreased | 3 | Weak enforcement | 3 | 9 |
| | | Illegal logging | 4 | 12 |
| | | Less habitat capacity ??? | 3 | 9 |

Done by: Oyunchimeg, Enkhtungalag, Otgonbaatar, Burmaa, Khandsuren, Dolgor, Gunjinlkham

| Ranking of Overall Threats/Drivers and of Impact Level by Resource | | | | | | | |
|---|---|---|---|---|---|---|---|
| **№** | **Threats/Causes** | **Water** | **Pasture** | **Wildlife** | **Forest** | **Score** | **Rank** |
| 1 | Waste | 9 | | | | 9 | 11 |
| 2 | Climate change | 15 | 24 | 12 | 64 | 115 | 1 |
| 3 | Carrying capacity of pasture exceeded | 34 | 16 | 12 | | 62 | 5 |
| 4 | Mining | 28 | 16 | 12 | 16 | 72 | 4 |
| 5 | Illegal logging | 32 | 6 | | 40 | 78 | 2 |
| 6 | Fire (human) | 24 | 6 | | 44 | 74 | 3 |
| 7 | Too many livestock at the upstream area | 16 | 12 | | | 28 | 6 |
| 8 | Less otor and seasonal movement | 12 | 16 | | | 28 | 6 |
| 9 | Herd structure has changed | | 16 | | | 16 | 9 |
| 10 | Lack of information and knowledge | | 12 | | | 12 | 10 |
| 11 | Lack of well | | 16 | | | 16 | 9 |
| 12 | Illegal hunting | | 24 | | | 24 | 7 |
| 13 | Ineffective legal environment and monitoring procedure | | 9 | 8 | | 17 | 8 |
| 14 | Water pollution | | 8 | | | 8 | 12 |
| 15 | Fire from lightening | | | | 4 | 4 | 13 |
| 16 | Grazing in the riparian forest | | | | 9 | 9 | 11 |
| | total | | 170 | 140 | 77 | 185 | |
| | Ranking | | 2 | 3 | 4 | 1 | |

**Bayan-Uul Soum plan**

**Objective**: to improve the local livelihood through identifying the ecological condition of the Ulz river basin, and through restoring the pasture, river, and forest, and carrying out the adaptation process

| **№** | **Activities** | **timeframe** | **Responsible party** | **Financial source** | **Indicators** |
|---|---|---|---|---|---|
| 1 | Baseline study of forest resources | 2012 | MNET<br>Soum Government | State budget | Identify the forest resources and its current condition |
| 2 | Smart use based on current available resources | annually | Soum government, forest unit | Project | Give permission on logging for thinning only |
| 3 | Tree nursery | annually | Community<br>Local people | State and local budget | More forest |
| 4 | Restoration of forest | annually | Soum government, Forest unit, communities, herders | State budget<br>Project | |
| 5 | Dam from forest fire | annually | Soum government, Forest unit, communities, herders | Project | Less threat causes by fire |

| | | | | | |
|---|---|---|---|---|---|
| 6 | Equipment for fire fighting | Once in 2 years | Soum government, Forest unit, communities, herders | Project | |
| 7 | Create more working place for community | 2012-2013 | Community | Project | Less illegal logging |
| 8 | Increase number of rangers | 2012-2013 | Soum government | Project<br>State budget | Improved monitoring |
| 9 | Public awareness activities | annually | Forest users | Project | Less use of forest |
| 10 | Wildlife survey and counting | 2012 | MNET, EPTA, soum | State budget | The number identified |
| 11 | Guidance to form groups on wildlife protection | 2012-2014 | MNET, NGO, Soum | Project | The number of wildlife will be increased |
| 12 | Improve inspection and enforcement on illegal hunting | 2012-2017 | Нөхөрлөл<br>soum government | Нөхөрлөл<br>soum<br>project | Reduced illegal hunting |
| 13 | Water resource baseline study at Ulz river basin area | 2012 | Soum government, weather forecast station "onon" | project | Water resource identified |
| 14 | Information dissemination | annually | Project<br>Soum government | project | Improved local participation |
| 15 | Eliminate water pollution at the upstream, middle stream and down stream | 2012-2014 | Soum government<br>Env. agency | MNET<br>Soum | |
| 16 | Free the riparian area from grazing | annually | Soum government, En. Agency, Bag governor | Soum government<br>Local herders | Restoration of riparian area |
| 17 | Plant fodder for pasture restoration | 2013 | Local people | Project and from other sources | Improved riparian pasture |
| 18 | Ban to get rock and sand from riparian area for construction work | | Soum government<br>Env. agency | | |
| 19 | Ban to allow mining at the upstream area | | Soum government, khural | | Ulz and other small creeks restored |
| 20 | Tree plant to restore the small rivers | 2013-2017 | Local people and enterprises | project | Restored small creeks |
| 21 | Waste collection in riparian area | Every spring and fall | Local people, Env. Agency, soum government | Local people, soum and fund or waste collection | Clean environment |
| 22 | Improve the wells | 2012-2017 | soum | project | Improved pasture management |
| 23 | Grow sea buckthorn bushes | 2012-2017 | Project<br>Soum government | project | Livelihood improved |
| 24 | Vegetable planting | 2012-2015 | soum | project | Improved livelihood |
| 25 | Develop a monitoring and inspection system at riparian area | 2012 | | soum | Improved pasture management |

| | | | | | |
|---|---|---|---|---|---|
| 26 | Build park near the Ulz river | 2013 | soum | project | Healthy environment |
| 27 | Gardener at the park (poor household) | | soum | project | Improved livelihood |
| 28 | Irrigation system | 2013 | Soum government, forest unit | project | Improved monitoring |
| 29 | Training for pre-school and school children | 2012-2015 | Forest unit between soums | project | |
| 30 | Set up an expedition to have more rain or snow | 2013 | Weather forecast unit | Project 50.000.000 | More precipitation |

**Batnorov Soum Plan:**

**Objective:** Contribution to the Ulz river integrated management plan

| № | Activities | Responsible party | Financial source | Indicators |
|---|---|---|---|---|
| 1 | Form pasture management groups and develop management plan | Soum and bag governor | soum | Protected and improved pasture |
| 2 | Improve herd quality | Vet and reproduction unit | | Improved helders livelihood |
| 3 | Reduce the number of goats | Herders | | No exceeded carrying capacity |
| 4 | More wells | Soum and project | Project | Improved pasture management |
| 5 | Protect/fence the upstream area | Bag governor and community | Project | |
| 6 | Prohibit to set up ger and to graze livestock too close to the river and lake ( 3 km away) | Soum Khural, government | | |
| 7 | Prohibit to have mining activity near the river, lake (5 km) | | | |
| 8 | Public awareness activities to the herder groups on pasture, water and wildlife protection | Government with professional organization | Project | |
| 9 | Tree nurturing and plant trees near the upstream area | Ulz river basin administration and soum government | Project | |
| 10 | Possess the forest to the local people | Soum government and khural | | Improved land use |
| 11 | Form a team with no less that 30 people for fire fighting activities and provide with necessary tools | Soum, Ulz river basin administration | Project | |
| 12 | Chose certain spot and set up post with incentive | Soum government and Ulz river basin administration | Project | Improved monitoring system |
| 13 | Artificial rain | | | No drought |
| 14 | Reintroduce the endangered wildlife | Soum government and Ulz river basin Administration | | Deer and ? |
| 15 | Provide Env. Inspectors, Rangers and volunteer rangers with necessary instruments and provide budget for fuel | Soum government and Ulz river basin administration | Project | Working environment improved |

**Norovlin Soum Plan:**

**Objective**: to protect the Ulz river, wise use of natural resources, support environmentally friendly activities and to improve the local livelihood . Achieve the sustainable management of NR.

**Outcomes:** 1. Ulz river protected economically and legally. 2. Improved environment through local people mentality improvement by traditional knowledge. 3. Support environmentally friendly activities 4. More economic opportunities for local people

| № | Activities | Responsible parties | Project support | Indicators |
|---|---|---|---|---|
| 1 | Protect the upstream area: plant seabackthorn | Soum government, local people and project | Training and financial support | Water level increase and livelihood improved |
| 2 | Widen the protection zone | soum Khural and Environmental inspector | Legal advice and budget | Irresponsible actions stopped near the riparian area |
| 3 | Law enforcement: protected area | Khurak, Environmental inspector ranger and soum government | Legal advice and public awareness | Less water pollution |
| 4 | Increase the number of wells | Local people and soum government | Equipment and budget | Less livestock in riparian area |
| 5 | Develop tourist route along with the Ulz river | Soum government, project and Khural | Training and public awareness activities | Mentality and livelihood improved |
| 6 | Training on nature protection among local people | Soum government, Environmental inspector project | Training, public awareness | |
| 7 | Conduct forest restoration | Environmental inspector and local people | Training and budget | Forest restored |
| 8 | Provide equipment for fire fighting | Soum and project | Training, equipment | Less fire victim |
| 9 | Protect endangered species | Soum, project, Environmental Inspector, ranger | Training and budget | |
| 10 | To build 2 post for monitoring water | Weather forecast unit | Water post 15 million and water monitoring 12 million | |

**Joint Objectives of the Up-stream to Mid-stream Soums (Norovlin, Batnorov, Bayan-Uul_**

1. Free the Ulz river riparian area pasture through increasing and improving the wells in other areas
2. Encourage pasture management suits with carrying capacity
3. Restoration of forest and plant along the river
4. Disseminate related information and knowledge to the local people
5. Fence the small rivers and creeks and upstream of Ulz river
6. Build legal environment to coordinate Ulz river basin Integrated management plan

## C. Workshop in Choibalsan City, Dornod Aimag, May 25th, 2012

Before commencement of the plenary discussion, each soum delivered a 5 min summary on the current condition of the natural environment in their respective soums

**Bayan-Adarga Soum**

- Locates upstream area of Ulz river Улз
- Another project has been implemented in Onon river basin area
- Pasture degradation is normal (not too bad)
- Springs and creeks are shrinken down
- Only after rain some of the rivers and creeks come to the Ulz river
- No mining activities

**Dashbalbar Soum**

- Ulz river 100 km through the soum
- Almost 40% of the herder HH live near the river
- No water to 10 km from soum
- Many water birds
- Water level has decreased upstream site due to mining activities

**Gurvan Zagal Soum**

- Otor resource area during natural disaster
- 6-7 springs are always alive
- 14000 head of livestock
- Relatively less water use

**Chuluun Khoroot Soum**

- 90 km through the soum ulz river passes
- East side no water
- Last 4 years some small rivers have no water
- Less and less water birds

**Choibalsan Soum**

- Yahi lake – No water for last 10 years
- Herders move to the wells
- Khukh nuur

**Sergelen Soum**

- Ulz river is not passing through
- 13 springs from the mountains, 6 of them are gone
- Gal river have no water during summer time
- Fencing the springs
- 4 rivers need to be fenced

**Changes in Natural Resources over Time**
(ss discussed by plenary of workshop)

| | Natural Resource | 1970-1990 | 1990-2000 | 2000-2012 | 2012-2020 |
|---|---|---|---|---|---|
| 1 | Land (pasture and soil) | 8 | 7 | 5 | 6 |
| 2 | Water and wetland | 10 | 8 | 3 | 3 |
| 3 | wildlife | 10 | 5 | 3 | 4 |
| 4 | forest | 10 | 5 | 3 | 3 |

| **Wildlife** | | | | |
|---|---|---|---|---|
| Changes/threats | Score | Causes/ drivers | Score | Rank |
| Habitat degraded | 4 | Increased number of insects | 2 | 8 |
| | | Less water | 3 | 12 |
| | | Lack of food | 2 | 8 |
| | | Fire | 4 | 16 |
| | | Mining | 2 | 8 |
| | | Climate change, extreme weather condition too hot or too cold | 4 | 16 |
| | | More frequency of natural disaster | 4 | 16 |
| | | Misuse of water | 2 | 8 |
| | | To many livestock in one spot | 3 | 12 |
| Wildlife is going away | 2 | Dried the wetland | 4 | 8 |
| | | Natural disaster | 4 | 8 |
| | | Too many livestock | 2 | 4 |
| | | Infrastructure development | 2 | 4 |
| | | Cropping | 2 | 4 |
| | | Poaching | 3 | 6 |
| | | Less biological diversity | 2 | 6 |
| The number has decreased | 3 | Use for traditional medicine | 2 | 6 |
| | | Lack of ecological knowledge of local people | 2 | 6 |
| | | Bad inspection/monitoring | 2 | 6 |
| | | Infectious disease | 1 | 3 |
| | | Poaching | 4 | 12 |
| | | Poor livelihood | 3 | 9 |
| | | Too much economic interest/profit making | 4 | 12 |

| Land (Pasture and Soil) | | | | |
|---|---|---|---|---|
| Changes/threats | score | Causes/drivers | Score | |
| Pasture degradation | 2 | No legal environment | 3 | 6 |
| | | Weak local participation | 4 | 8 |
| | | Less traditional knowledge | 3 | 6 |
| | | Lack of training | 3 | 6 |
| | | No regular monitoring | 2 | 6 |
| | | No policy on restoration of land | 2 | 6 |
| | | Former mining activities | 4 | 8 |
| | | Less wildlife | 2 | 4 |
| | | Springs are dried up | 3 | 6 |
| | | Less otor movements | 4 | 8 |
| | | Sand movement | 2 | 4 |
| | | Warming and drought | 2 | 4 |
| | | No rotational movement | 4 | 8 |
| | | Mining | 2 | 4 |
| | | Livestock increase (goat) | 4 | 8 |
| | | Less water resource | 3 | 6 |
| | | Insects | 3 | 6 |
| Less biological | 3 | Fire | 3 | 6 |

| | | | | |
|---|---|---|---|---|
| diversity (plants) | | No policy on protecting the biological diversity | 3 | 6 |
| | | Many land used to be crop plantation | 2 | 4 |
| | | Less rainfall | 3 | 6 |
| Lots of bare land | 2 | Dust | 2 | 4 |
| | | Heavy rain, drain the soil | 2 | 4 |
| | | Too hot weather | 3 | 6 |
| | | mining | 2 | 4 |
| | | Less rainfall | 3 | 6 |
| | | Crowded | 2 | 4 |
| | | Less baseline study | 3 | 6 |
| | | Too many country roads | 3 | 6 |
| | | Sand movement | 2 | 4 |
| | | Lack of training | 2 | 4 |
| Many salt sites | 2 | Less baseline study | 3 | 6 |
| | | Less plant | 3 | 6 |
| | | Lake has shrunk | 4 | 8 |
| | | Warming | 4 | 8 |
| | | Evaporation | 2 | 4 |

| **Forest** | | | | |
|---|---|---|---|---|
| Changes/Threats | Score | Causes/Drivers | Score | |
| Widdow dried up | 3 | Mining | 2 | 6 |
| | | Fencing and fire making | 1 | 3 |
| | | Water level got down | 3 | 9 |
| Forest declined | 3 | Fire (human) | 3 | 9 |
| | | Fire (lightning) | 1 | 3 |
| | | Less restoration work | 3 | 9 |
| | | Human misuse | 4 | 12 |
| | | Mining | 2 | 6 |
| Insects | 2 | drought | 2 | 4 |
| | | No pesticide management | 4 | 8 |
| | | Lost ecological balance | 3 | 6 |
| Less monitoring and information | 3 | Lack of finance | 3 | 9 |
| Waste in bushy areas | 1 | Human misuse and action | 3 | 9 |

| **Water** | | | | |
|---|---|---|---|---|
| Changes/Threats | score | Causes/Drivers | score | |
| Water level decreased | 4 | Fire | 3 | 12 |
| | | Lack of research | 2 | 8 |
| | | Less rainfall | 4 | 16 |
| | | evaporation | 4 | 16 |
| | | mining | 3 | 12 |
| | | Too many livestock | 3 | 12 |

| | | | | |
|---|---|---|---|---|
| Pollution | 2 | Lack of wells | 3 | 6 |
| | | Livestock crowded and too many | 3 | 6 |
| | | Mining | 3 | 6 |
| | | Lack of sanitation/cleaning plant | 2 | 4 |
| | | Lack of monitoring | 3 | 6 |
| | | waste | 2 | 4 |
| | | fire | 2 | 4 |
| Less water animal | 3 | Habitat degradation | 3 | 9 |
| | | Lack of information | 3 | 9 |

| **Threats/Causes across Resources and Total Impact Level by Resource** | | | | | | | |
|---|---|---|---|---|---|---|---|
| № | Causes and threats | Water | Pasture | Forest | wildlife | Total Score | Rank |
| 1 | Lack of research and monitoring | 7 | 22 | | | 28 | 8 |
| 2 | Less rainfall | 13 | 6 | 19 | | 38 | 6 |
| 3 | warming | 14 | 12 | 6 | 8 | 50 | 2 |
| 4 | mining | 17 | 8 | 12 | 8 | 45 | 3 |
| 5 | Fire | 15 | | 9 | 16 | 40 | 5 |
| 6 | Waste | 4 | | | | 4 | 5 |
| 7 | Too many livestock | 15 | 14 | | 24 | 53 | 1 |
| 8 | Lack o cleaning plant | 4 | | | | 4 | 22 |
| 9 | Bad inspection and management | 6 | 15 | 16 | 6 | 43 | 4 |
| 10 | Lack of well | 6 | | | | | |
| 11 | Lack of knowledge and information | 9 | 4 | | 6 | 19 | 13 |
| 12 | Poor livelihood | | | | 9 | 9 | 18 |
| 13 | Poaching | 4 | | | 18 | 22 | 11 |
| 14 | Springs and creeks are gone | 6 | | | | 6 | 21 |
| 15 | Use wildlife for traiditional medicine | | 6 | 3 | 6 | 15 | 15 |
| 16 | cropping | | 6 | | 4 | 10 | 17 |
| 17 | Infrastructure development | | 6 | | 4 | 10 | 17 |
| 18 | Natural disaster | | 9 | 3 | 9 | 21 | 12 |
| 19 | Misuse of NR | | | 12 | 20 | 32 | 7 |
| 20 | More frequency of Natural disaster | | 8 | | 16 | 24 | 10 |
| 21 | Seasonal change | | | | 16 | 16 | 14 |
| 22 | Profit making mind | | | | 12 | 12 | 16 |
| 23 | Human irresponsible action | | 4 | 3 | | 7 | 20 |
| 24 | Lack of finance | | | 9 | | 9 | 18 |
| 25 | Lack policy | | 4 | | | 4 | 22 |
| 26 | Lack of rainfall | | 15 | | | 15 | 15 |
| 27 | Weak participation from local people | | 8 | | | 8 | 19 |
| 28 | Less rotational use of pasture | | 8 | | | 8 | 19 |
| 29 | insects | | 16 | | | 16 | 14 |
| 30 | Less biodiversity | | 6 | | | 6 | 21 |
| 31 | Dust | | 4 | | | 4 | 22 |
| | total | 110 | 196 | 92 | 182 | | |
| | ranking | 3 | 1 | 4 | 2 | | |

**Chuluun- Khoroot Soum Plan:**

| Objective | Activities | Responsible party | Financial source | Indicator |
|---|---|---|---|---|
| To protect Ulz river basin, while good pasture management implementation and improve local livelihood | More knowledge on pasture protection and use for local people | Soum | Soum budget project | More than 50% of the herders gained knowledge |
| | Build well in isolated pastures | Soum and project | Project | 10 wells in 2017 |
| | Reasearh on pasture caring capacity | Soum government, professional organization, 2012 | State budget and project | |
| | Fire fighting | Ranger and soum government | State budget and project | 50% less fire |
| | Provide fire blow equipment to local HH | Soum 2017 | Project and herder HH | 25% of HH got this equipment |
| | Support activities to improve the quality of the livestock | Aimag small scale business support unit, soum and project | Project | Every bag has ? |
| | Fencing the upstream of the creeks and springs | Soum government, herder hh<br><br>Annually | Project 20 million | By 2017 10 rivers upstream protected |
| | олгохгүй байх to mining permission in Ulz river basin | Soum government, khural | | |
| | Improve the rehabilitation work monitoring for mining activities | Soum government, Env. Inspection unit | Budget | Better monitoring and inspection |
| | Develop tourism and dairy product marketing for livelihood improvement | Soum project | Project | Herders got more livelihood strategy |
| | 2 observation sites for water measurement | Weather forecast unit | 12 million from project | |
| | Provide vehicle for poaching | Soum government, project | project | |

**Bayan-Adarga Soum Plan:**

| № | Objective | Activities | Responsible party | Financial support | timeframe | indicator |
|---|---|---|---|---|---|---|
| 1 | To protect Ulz river basin, to improve livelihood, improve | Research on pasture carrying capacity | Soum and project | 500 thousand | 2012.8 | |
| 2 | | More wells in Temeen ar, Suul undur and Arganatiin ekh | state budget and project | 60 million | 2013.10 | More rotational use for |

| | | | | | | |
|---|---|---|---|---|---|---|
| | participation level of local people, to provide ecological balance | | | | | 15000 LS 8000 hectare |
| | | Research on water and biodiversity | project | 500 million | 2012.8 | Research and info fund |
| | | Support Herder groups to improve their LH | Soum project | 10 million | 2013. 4 | LH improved |
| | | Protect upstream tree planting<br>Burch, хайлаас? In 5 hectare | Soum government and project | 6 million | 2013-2015 | Increase water level, creeks restored |
| | | Public awareness on pasture use | Soum government and project | 1 million | 2012-2015 | Improved mentality |
| | | Improve habitat gazelle, marmot, water birds | EPTA, project, community | 5 million | 2013-2017 | |
| | | Hay fund build between soums | 3 soums project Төсөл | 8 million | 2014-2016 | Preparation for zud |

**Sergelen Soum Plan:**

| Objective | Activities | Responsible party | timeline | Financial source | indicator |
|---|---|---|---|---|---|
| Protect Ulz river basin, do restoration activities, ensure the cooperation between government and NGO | Build 4 Monitoring site for pasture | Soum government, weather forecast unit | 2012-2014 | project | |
| | 5 year plan development for pasture and other NR | Soum government | 2013-2014 | State budget | Document for nature conservation |
| | Prepare trainer for Nature conservation | Env. inspector | 2014 | budget | Local people knowledge improved |
| | Build pasture info fund | Env. inspector | 2013-2014 | projcet | Research and equipment |
| | Public awareness activities | trainers | 2013-2014 | Budget project | Improved ecological knowledge of local people |
| | Fire figthing | Env, inspector, bag governor | 2014-2015 | Project | |
| | More wells in isolated areas | Bag governor | 2012-2015 | Budget and project | Less degradation |
| | Plant trees along the river of GAL | ranger | 2013-2014 | Project budget төсөв | |
| | Fodder growing in degraded pasture | Volunteer ranger and | 2014 | project | |

| | | | | | |
|---|---|---|---|---|---|
| | | water guard | | | |
| | Protect marmot | Env, inspector | 2013 | budget | |
| | Create water catchment area | Env.inspector | 2013 | project | |
| | Fix the fencing | Volunteer ranger | 2013-2015 | project | Creeks protected |
| | | | | | |
| | More fire fighting equipments | Emv. inspector | 2013-2015 | Budget project | |

**Choilbalsan Soum Plan:**

**Objectives:** to improve ecosystem condition, soum level land management improvement, improve water security, improve local livelihood

| № | Activities | Responsible party | timeline | Financial support | indicator |
|---|---|---|---|---|---|
| 1 | Well build in isolated pasture area | Aimag and soum level government | 2013-2017 | Project 230 million | 10-15 wells built |
| 2 | Fencing the upstream area of creeks and rivers | soum | 2012-2014 | State budget, project 20 million | Rivers and creeks fenced |
| 3 | More equipment for fire | Soum and project | 2012-2013 | Project 12 million | Blow equipment 10, uniform 10 |
| 4 | Training an info center builing | Soum and project | 2012-2013 | Project 20 miliion | |
| 5 | Research on water resource | Soum , professional org, project | 2012-2013 | Project 5 million | |
| 6 | Eliminate poaching and improve monitoring | Soum government, Envm, unit | 2012-2017 | Project 10 million | Kept ecological balance |
| 7 | Weather forecasting station build | Soum government, weather forecast unit, project | 2012-2013 | Project 15 million | |
| 8 | Marmot reintroduce | Suom, project | 2012-2014 | Project 26 million | |
| 9 | State protected area – Khukh nuur area | Soum hural, soum government | 2012-2015 | | |
| 10 | More pasture user groups | Khural, soum | 2012-2014 | Training 4.5 million | Improved livelihood |
| 11 | Fodder plant | Khural and soum | 2012-2017 | Project 100 million | Improved livelihood |
| 12 | Tree nursery | Khural, soum and project | 2013-2015 | Project 150 million | |
| 13 | Wildlife counting | Soum, professional organization, project | 2012-2014 | Project 5 million | |
| 14 | Dump truck for soum | Soum and | 2012- | Project 100 | Clean |

| | | | | | |
|---|---|---|---|---|---|
| | center | project | 2014 | million | environment |

**Dashbalbar Soum Plan:**

**Objective:** Improve livelihoods through protecting natural resources

| № | Activities | Responsible party | Financial source | Indicators |
|---|---|---|---|---|
| 1 | Fence springs and dig 10 wells | Local people , Soum, project | 40 million | 300 thousand hectare can be used by 70 million herds of 100 HH |
| 2 | Tree planting | Local people, Soum, project | 3000 hectare area: 100 hectare – riparian forest, old forest 2000 hectare needs to be restored, 150 million totally | The water flow will be stabilized and more water birds will come |
| 5 | Training: tree nursery, pasture use, traditional way of using NR and small scale business development | | 5 million | Local people knowledge will be improved |
| 6 | Equipments for fire fighting | | Along the border area 90 km with 20 million and 3 million for equipment | Less fire and threats after fire |
| 7 | Monitoring and inspection need to be improved, more research needs to be conducted | | always<br>3 million | |
| 8 | Set up a guard for water research | Weather forecasting unit | 15 million | |
| 9 | Build 2 ?? ? for observing the ground water | | 12 million | |
| 10 | Set up lab for water quality between the soums | | 20 million | |
| 11 | Monitoring on rare birds | Environmental unit | State budget and project 1.5 million | The research conducted on birds |
| 12 | Develop tourism and build info center | Chukh eco tour, community and project | Community – 3 million<br>Project – 5 million | The local people knowledge improved |
| 13 | Use biotechnical approach to protect wildlife during zud period | Env, unit | 3 million | |
| 14 | Shoot the cloud to have more rainfall | Env. unit<br>MNET<br>Weather forecast unit | project<br>5 million | |

**Gurval Zagal Soum Plan**

**Objective:** Create better environment for the local people through creating environmental balance

| № | Activities | Timeframe and responsible party | Financial source | Indicator |
|---|---|---|---|---|
| 1 | Fencing 9 springs and give responsibility to HH for better maintenance | Soum government and project | For 1 spring fencing: 6-8 million<br>Total 72 million, local people 7.2 million | Better use of pastureland |
| 2 | Conduct public awareness activities | | Annually<br>5 million | |
| 3 | To protect Yah lake and more landscapes need to be protected under local protection | 2013<br>Khural, Env inspector ranger | | |
| 4 | Create tradition such as each HH plant 1 tree in river basin area every year | | 120 million | Soum 0,01 % will be covered by forest |
| 5 | Reintroduce otor and movement | Bag governor | | |
| 6 | Conduct training for students on nature protection and improve the community activities | 2012<br>Soum, school, ranger | | |
| 7 | Build dam using water catchment area, and build reservoir | 2012, 2013<br>Project | | |
| 8 | Equip every herder household with fore fighting equipment | 2012 fall | HH will take care the required budget | |
| 9 | Restore the river basin vegetation and increase the number of plants | Local people and soum | | |
| 10 | Marmot protection and give responsibility to the communities to maintain | Soum government | 11 million | |
| 11 | Ban on any mining activities | | | |

**Choibalsan Aimag Plan:**

**Objective**: Improving the capacity of the local area to implement the EBA

| № | Activities | Responsible party | Support needs | indicator |
|---|---|---|---|---|
| 1 | Pasture baseline study | Project, soum, weather forecasting unit, unit of agriculture ministry on developing small and medium scale businesses | 14 million<br>2013 | |
| 2 | Training on restoring the mining sites | MNET, Soum | 3 million<br>2013-2016 | |
| 3 | Create well in isolated pasture area | unit of agriculture | 8 wells | Improved water |

| | | | | |
|---|---|---|---|---|
| | | ministry on developing small and medium scale businesses, soum | 120 million | source |
| 4 | Training on land use planning | Soum Khural | 5 million<br>2013 | |
| 5 | Ulz river basin counsel established | Aimag khural | 5 million<br>2012 | Improved land management |
| 6 | River basin administration establishment | MNET | 100 million | |
| 7 | Ulz river basin water integrated management plan development | Professional tem | 2012-2013 | |
| 8 | Conducted required baseline studies | | | |
| 9 | Water guard establishment in Dashbalbar and Norovlin | Weather forecast unit | 30 million | |
| 10 | Establishment of ground water observation sight in Dashbalbar, Chuluun khoroot, Bayan-Ovoo and Norovlin | | 50 million<br>2013 | |
| 11 | Restore the creeks and springs to Ulz river | Project | 500 million | |
| 12 | Plant bushy plants in upstream area of the river | | | |
| 13 | Establishment of research team to increase the rainfall in Bayan-Uul soum | Weather forecast unit | 80 million | |
| 14 | Establishment of sanitation /cleaning plant in soum center | Soum governments | 1 billion | |
| 15 | Protection from fire | Soum | 100 million | |
| 16 | Tree nursery in each soum | Soum government | 140 million | |
| 17 | Human resource on forest | EPTA, Inspection agency | 100 million | |
| 18 | Use airplane for monitoring | | 100 million | |
| 19 | Reintroduce endangered wildlife | EPTA | 150 million | |
| 20 | Provide fire figthing equipment for each HH | soum | 30 million | |
| 21 | Increase PA network in Khukh lake, Kherleh Menen and Salbar area | | 200 million | |

**Integrated /joint Plan of mid-stream to down-stream Soums:**

1. Implement pasture management based on carrying capacity
2. Improve the capacity for fire fighting
3. Conduct baseline study (environmental, social and economic) in Ulz river Basin
4. Develop a monitoring/inspection network of Ulz river water
5. Restore the Ulz river through improving its ecosystem
6. Improve the participation level of the local people through providing knowledge an information about nature conservation
7. Build tree nurseries along Ulz river and prepare human resource

## D. Workshop in Ulaangon City, Uvs Aimag, June , 2012

Participating Soums included Ulaangom, Tarialan, Khovd, Sagil, Bukhmurun, Naranbulag and Turgen Soums.

| **Land (Pasture and Soil)** | | | | |
|---|---|---|---|---|
| **Changes/Threats** | **Score** | **Causes** | **Score** | **Total** |
| Drought and desertification | 3 | Logging | 4 | 12 |
| | | Lack of training and information | 3 | 9 |
| | | Less rainfall | 4 | 12 |
| | | Dust | 2 | 6 |
| | | Water level gone down | 3 | 9 |
| | | Mining | 2 | 6 |
| | | More windy and stormy days | 2 | 6 |
| | | Lost of traditional NC activities | 2 | 6 |
| | | Bad Government Policy | 2 | 6 |
| | | Warming | 3 | 9 |
| Less vegetation coverage | 3 | Forest fire | 2 | 6 |
| | | Less biodiversity | 3 | 9 |
| | | Water level is going down | 4 | 12 |
| | | Lack of good management | 3 | 9 |
| | | Misuse of NR | 3 | 9 |
| | | Too many LS | 4 | 12 |
| | | Less training and public awareness activities | 3 | 9 |
| | | Less rainfall | 4 | 12 |
| | | Warming | 4 | 12 |
| | | More insects | 3 | 9 |
| | | Less water recourse | 3 | 9 |
| Degradation | 2 | LS number increased | 3 | 6 |
| | | Less number of well | 3 | 6 |
| | | Wrong planning | 3 | 6 |
| | | Decrease of nutrition value | 4 | 8 |
| | | Less training and public awareness activities | 3 | 6 |
| | | Lack of state policy | 3 | 6 |
| | | Lack of moist | 3 | 6 |
| | | Increased number of vehicle | 2 | 4 |
| | | Illegal activities | 3 | 6 |
| | | Cropping | 3 | 6 |

| **Wildlife** | | | | |
|---|---|---|---|---|
| **Changes/threats** | **Score** | **Causes** | **Score** | **Total** |
| Decreased number of wildlife | 2 | Desease | 1 | 2 |
| | | Weak law enforcement | 2 | 4 |
| | | Natural disaster | 3 | 12 |
| | | Slow growth | 2 | 4 |
| | | Lack of fodder | 3 | 6 |
| | | Less livelihood opportunity | 2 | 4 |
| | | More economic interest | 3 | 6 |
| | | Traditional treatment | 2 | 4 |
| Biodiversity loss | 2 | Natural disaster | 3 | 6 |
| | | Poaching | 4 | 8 |
| Less habitat area | 3 | Overlapping of pasture for wildlife and LS | 4 | 12 |

| | | | | |
|---|---|---|---|---|
| | | Too many LS | 3 | 9 |
| Habitat degradation | 4 | Pasture and forest insects | 2 | 8 |
| | | Less pasture | 3 | 12 |
| | | Bad germination of plants | 4 | 16 |
| | | Forest fire | 2 | 8 |
| | | Lack of water | 2 | 8 |
| | | Mining | 2 | 8 |

| **Water** | | | | |
|---|---|---|---|---|
| **Changes/Threats** | **Score** | **Causes** | **Score** | **Total** |
| Water level gone down | 4 | Increased number of LS | 1 | 4 |
| | | Misuse | 3 | 12 |
| | | Warming | 4 | 16 |
| | | Loss of traditional method to protect upstream area | 3 | 12 |
| | | Less rainfall | 4 | 16 |
| | | Poaching water animal | 1 | 4 |
| | | Illegal logging | 4 | 16 |
| | | Mining | 4 | 16 |
| | | Cropping | 3 | 12 |
| Loss of water habitat and plant | 2 | Mining | 3 | 6 |
| | | Warming | 4 | 8 |
| | | Poaching | 3 | 6 |
| | | Development of tourist camp | 3 | 6 |
| | | Lack of food for animal | 2 | 4 |
| Water pollution | 2 | Misuse | 2 | 4 |
| | | Tourism development | 1 | 2 |
| | | Lack of cleaning plant | 3 | 6 |
| | | Mining | 3 | 6 |
| | | Waste | 2 | |
| | | Less training and public awareness activities | 2 | 6 |

Discussants: Nergui, Namsrai, Buyandalai, Purevsuren, Batsuuri, Tsetsegbal, Tsogii, Batmunkh, Alimaa, Chimeddulam

| **Forest** | | | | |
|---|---|---|---|---|
| **Changes/Threats** | **Score** | **Causes** | **Score** | **Total** |
| Forest lost from fire | 2 | Drought | 4 | 8 |
| | | Human irresponsible action | 4 | 8 |
| | | Less training and public awareness activities | 3 | 6 |
| | | Weak policy environment | 3 | 6 |
| Eaten by insects | 3 | Drought | 4 | 12 |
| | | Bad forest management | 3 | 9 |
| Less forest resource | 4 | Drought | 4 | 16 |
| | | Human irresponsible action | 4 | 16 |
| | | Natural disaster | 2 | 8 |

| | | | | |
|---|---|---|---|---|
| | | Bad forest management | 3 | 12 |
| | | Less training and public awareness activities | 3 | 12 |
| | | LS number increased | 3 | 12 |
| Forest/tree life expectancy is getting less | 2 | Drought | 4 | 8 |
| | | LS number increase | 2 | 4 |
| | | Bad forest management | 4 | 8 |
| | | Less training and public awareness activities | 2 | 4 |

Done by: Ochirbat, Naranbaatar, Chuluunbat, Osor, Khishigbaatar, Namjuur, Bat-Ochir, Buyan-Tsog, Alimaa, Murdorj, Sosorbaram

| **Threats/Causes across Resources and Impact Level by Resource** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **№** | **Threats and changes** | **Water** | **Forest** | **Pasture** | **Wildlife** | **Total Score** | **Rank** |
| 1 | Warming | 24 | 34 | 18 | | 86 | 1 |
| 2 | Less rainfall | 16 | | 12 | | 28 | 9 |
| 3 | Loss of traditional NC methods | 12 | | 6 | 4 | 22 | 12 |
| 4 | Poaching | 10 | | | 8 | 18 | 13 |
| 5 | Mining | 22 | | 18 | 2 | 42 | 8 |
| 6 | Illegal logging | 16 | | | | 16 | 15 |
| 7 | Cropping | 12 | | 6 | | 18 | 13 |
| 8 | Habitat degradation | 4 | | | 10 | 14 | 16 |
| 9 | Less training and public awareness activities | 6 | 22 | 24 | | 52 | 5 |
| 10 | Waste | 4 | | | | 4 | 19 |
| 11 | Lack or bad cleaning plant | 6 | | | | 6 | 18 |
| 12 | Human irresponsible action | 26 | 16 | 12 | | 54 | 3 |
| 13 | Increase number of LS | 4 | 16 | 24 | | 53 | 4 |
| 14 | Bad or weak management | 9 | 20 | 33 | | 62 | 2 |
| 15 | Natural disaster | | 8 | 6 | 12 | 26 | 10 |
| 16 | Lack of policy environment | | 6 | 6 | 4 | 16 | 15 |
| 17 | Less livelihood opportunity | | | | 4 | 4 | 19 |
| 18 | More economic interest | | | | 6 | 6 | 18 |
| 19 | Overlapping of pasture | | | | 24 | 24 | 11 |
| 20 | Insects | | | 9 | 8 | 17 | 14 |
| 21 | Bad vegetation germination | | | 29 | 16 | 45 | 6 |
| 22 | Fire | | | 6 | 8 | 14 | 16 |
| 23 | Lack of water source | | | 36 | 8 | 44 | 7 |
| 24 | Deseae | | | | 2 | 2 | 20 |
| 25 | Drought | | | 12 | | 12 | 17 |
| 26 | Increased number of vehicle | | | 4 | | 4 | 19 |
| | Total | 171 | 88 | 255 | 125 | | |
| | Ranking | 2 | 4 | 1 | 3 | | |

**Ulaangom Soum Plan:**

**Objective:** Strengthen the local capacity for adaptation to climate change

| № | Activity plan | Responsible party | Timeframe | Support from the project | Outcome |
|---|---|---|---|---|---|
| 1 | To build tree nurture for protection of the upstream area | Soum government, project, communities | 2012-2017 | Financial and professional | Upstream area protected and better living condition |
| 2 | Build reservoir and set up irrigation system | Soum government, project, communities | 2013-2015 | Financial and professional | More hay collected |
| 3 | Reduce the waste water resource for aimag crop planters and provide electricity measurement for aimag residents | Soum government and project | 2012-2014 | Get involved in different projects | Increased the water source |
| 4 | Add up the number of local protected areas and set up signs | Soum government and ranger | 2013-2015 | | Ownership for better protection |
| 5 | Strengthen the communities for better protection of NR through organizing Naadam and share experience | Soum government and project | Annually | Financial | Improved the local people knowledge and capacity |
| 6 | Support intensive farming and to possess land | Soum government and project | From 2012 | Financial | Improved the carrying capacity of the pasture |
| 7 | Conduct training about efficient usage of water | Soum government , project, river basin counsel | 2012-2013 | Financial | Increased knowledge |
| 8 | Increase the number of wells in the pasture | Soum government and project | 2013 | Financial | Improved the pasture carrying capacity |

**Turgen Soum Plan:**

**Objective:** Strengthen local capacity for climate change adaptation

| № | Activity | timeframe | Responsible party | Outcome |
|---|---|---|---|---|
| 1 | Build more wells | 2012-2017 | Soum government | Better protection of pasture through more pasture used |
| 2 | To protect upstream area of the shrinked rivers and creeks | | Soum government and project | Increase ground water level |
| 3 | Build irrigation system | | From state budget | More efficient usage of the land |
| 4 | Protect from forest fire: conduct more training to the local people | | En. inspector and forest user groups | Threats reduced |
| 5 | Pasture pesticide management | | From state budget | Pasture condition and livelihood improved |

| | | | | |
|---|---|---|---|---|
| 6 | Reveal poaching cases using biotechnical approach with participation of local people | | Ranger and forest user groups | Wildlife protected |

**Sagil Soum Plan:**

| № | NR | Activity | Timeframe | Financial source | Outcome | Responsible party |
|---|---|---|---|---|---|---|
| 1 | Water | More wells build (2-3 annually) | Annually | State and local budget | Efficient use of pastureland | Soum rep. Khural and governor |
| | | Fence the upstream are of rivers (5 rivers annually) | Annually | State budget and project | Rivers and springs under threat protected | Soum governot , Sustainable livelihood project-2 |
| | | Public awareness activities about laws related to water | Annually | | Better use of water | Soum bag rep. khural governor, ranger |
| | | Water guard in Kharig river | 2012 | | Connected to the information network | Weather forecast agency and soum government |
| 2 | Pasture and forest | Better pesticide management for pastureland | Annually | State budget | More pastureland plants | Agriculture small and medium scale business center and soum |
| | | Improve quality of the LS | Annually | | Pasture degradation reduced | Soum rep. khural and governor |
| | | Enforcement of the norm on rotational use of pasture in the governor action plan | Annually | | Rational use of pastureland promoted | Soum government , bag rep. khural and governor |
| | | Plant fodder in hay area | Annually | State budget and project | Hay fund established | Soum government |
| 3 | | Continue forest pesticide management | Annually | State budget | Better forest restoration | Aimag EPTA, forest agency and ranger |
| | | Stop illegal logging | Annually | | | Professional inspection agency, Police and soum ranger |
| | | Improve the tree planting activity in spring and | Annually | Donation | More green area | Ranger, soum |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | autumn | | | | government |
| 4 | Ан амьтан | Increase biotechnical activity | | Local budget and Gulz fund | Increased number of wildlife | Communities and rangers |
| | | Conduct wildlife survey and monitoring | Annually | project | | EPTA and ranger |
| | | Free the wildlife habitat systematically | Annually | Project | Better living environment for WL | Soum rep. khural, rangers and communities |
| | | Conduct Badanga Khuder bure survey and monitoring with professional organization | 2013 | State and local budget, Gulz fund | Increased number of WL | Soum government, ranger, Khragait community, professional organization |

**Bukhmurun Soum Plan:**

| Objective | Activity | Responsible party | Support | Outcome |
|---|---|---|---|---|
| Reduce the threats to the NR: water, forest and pasture and WL | Rotational use of pastureland and plant more fodder | Bag governors and herders | Project | |
| | Plant trees near the Yamaat river | Soum government, EPTA and forest agency | Project | |
| | Reduce the mining activities near Yamaat river | Mining companies | Project | |
| | Improve the LH while reducing number of LS | Soum and mining companies | Support from project: HH with less LS | |
| | Support Yamaat community activities | Buffer zone counsel and ranger | Project and PA | |
| | Restore the pasture irrigation system and reduce the number of roads | Project and mining company | | |
| | Fence the wild seabucktorn bushes near the Bukhmurun | Communities and ranger | Project | |
| | Build dam using snow water | Soum governor and project | Project | |

**Tarialan Soum Plan**

**Objective:** Sustain the ecosystem through restoration activities

| № | Activity | Timeframe | Responsible party | Financial source | Outcome |
|---|---|---|---|---|---|
| 1 | Baseline study of water resource and grassland | 2012-2013 | Soum government, | Project | Identified water and grassland |

| | | | | | |
|---|---|---|---|---|---|
| | | | project | | resource for efficient use |
| 2 | Based on baseline study develop land use management plan | 2013 | Ranger,Soum rep. khual, river basin counsel | | Developed detailed plan |
| 3 | Identify the pastureland and forest eaten by insects | 2012 | Ranger and communities | Soum and communities | Identified the area size eaten by insects |
| 4 | Work with professional organizations eliminate the insects | 2012 | Rangers, communities, soum government | | |
| 5 | Organize training about pastureland use | 2012-2014 | Ranger, project, Vet service | | |
| 6 | Develop pastureland use plan and follow it | | | | Improved pastureland |
| 7 | Reduce the overlapping case of pastureland between LS and WL | 2012-2013 | Sum government, project | Project, communities | Identified WL pasture zone |
| 8 | Conduct training on efficient use of water | 2012-2013 | Rangers, soum government, weather forecast officer | | Better protection of water |

**Khovd Soum Plan:**

**Objective:** Strengthen the local capacity for adaptation to climate change

| № | Activity | Timeframe | Responsible party | Financial source | Outcome |
|---|---|---|---|---|---|
| 1 | Develop water, forest and land management plan | 2012-2013 | Soum government | Project: 40000000 Local source: 20000000 | Better implementation of management plan |
| 2 | Introduce modern technology to crop plantation against drought | 2012-2014 | Soum government, Food and Agriculture agency, EPTA, project | Project: 50 million State: 30 million Local: 20 million | Better irrigation system and better protection of riparian area |
| 3 | Conduct training about modern nature conservation activities with harmony of traditional approach | 2012-2017 | EPTA, project soum government | Project: 30 million, local 10 million | |
| 4 | Build well | 2012-2017 | Water provider agency | Project 40 million, local 40 million | Better protection of pastureland |
| 5 | Improve waste management | 2012 | Soum government | State budget 30 million | |
| 6 | Improve local livelihood through supporting small and | 2012-2017 | Soum government, FA | Project 80 million, local 10 | More work space |

| | | | | | |
|---|---|---|---|---|---|
| | medium scale business | | SM scale business development center | million | Improved livelihood |
| 7 | Set up limit on water and forest use and improve law enforcement | Annually | Soum government | | Reduced inefficient and irresponsible action |

**Naranbulag Soum Plan**

Objective: Develop intensive farming using appropriate technology and create better living condition through improving the protection of natural resources

| № | Activity | Responsible party | Timeframe | Outcome |
|---|---|---|---|---|
| 1 | Restore forest and riparian forest | Soum government , rangers | 2013-2016 | Increased level of water |
| 2 | Build reservoir using snow and rain water | Bag governors | 2014-2016 | |
| 3 | Organize forest user groups and cooperation | Bag governor and rangers | 2012-2014 | |
| 4 | Develop intensive farming: crop and LS | Vet service center | 2014-2016 | |
| 5 | Introduce drop irrigation system | Food and agricultural agency | 2015-2016 | |
| 6 | Pesticide control | Food and agriculture agency: Environmental department | 2013-2014 | |
| 7 | Fence the upstream area of the rivers and build wells | Soum Environmental department | 2013-2015 | |

**Aimag representatives developed the following plan:**

Objective: Protect/Restore the ecosystem in Turgen and Kharkhiraa rive
rs basin

| № | Activity | Timeframe | Responsible party | Financial source | Outcome |
|---|---|---|---|---|---|
| 1 | Conduct baseline study on Kharkhiraa and Rugen river basin: environmental, social and economic | | | | |
| 2 | Renew the Uvs lake and Tes river basin counsel and establish administration | 2012-2013 | EPTA, aimag government, project | State and local budget | |
| 3 | Establish sub counsel and strengthen | | Related foreign and domestic projects | | |
| 4 | Water: Ground water…., Ulaangom 6, Tarialan 2, Turgen 3, Naranbulag 2<br>• Glacier study<br>• Uvs lake study<br>• Water study guard in Khundlun river | | MNET | Project<br><br>Investment from business entities<br><br>Donation and | 13 tsoonong and network expended |

| | | | | | |
|---|---|---|---|---|---|
| | • Feasibility study on reservoir and Ice keeping ???<br>• Fence river upstream<br>• Establish water monitoring network in river basin area | | | support from other sources | |
| 5 | Tree planting<br>• Protection from fire<br>• Forest insect control<br>• Incentive system<br>• Implement small scale projects (forest thinning, plant bushy plants) | | MNET | | Forest restored |
| 6 | Observe pasture and land degradation process: Ulaangom 6, Turgen 6, Tarialan 4, Sagil 5, Khovd 5, Bukhmurun 6<br>Establish weather forecast urtuu in Tarialan soum,<br>Support to implement the pastureland management plan<br>Plan pastureland plants, create more wells,<br>Shoot clouds, increase number of expedition and generator<br><br>Better pesticide control<br>Improve land use plan and better map develop | 2012-2017 | | Project | |
| 7 | Wildlife:<br>Thorough baseline study on biological diversity<br>Conduct observation and monitoring on rare animals<br>Increase budget on conducting biotechnical approach<br>Improve legal environment<br>Improve investigation<br>Training and public awareness activities: on TV, radio, eco tour<br>Strengthen the related NGOs, Improve participation of stakeholders<br>Develop intensive farming: plantation<br>Reintroduce the local traditional approach on nature consevation | 2012-2017 | MNET, project, professional investigation agency | Project | |

**Joint Plan of all Soums of the Turgen and Kharkhiraa river basins:**

All soums developed joint objective to contribute to the development of Turgen and Kharkhiraa river basin integrated management plan.

**Joint objective:** Improve protection management of forest, water, pasture and wildlife in Turgen and Kharkhiraa river basin area to increase NR.

- Implement pastureland management based on carrying capacity
- Better coordination of water usage and allocation mechanism
- Create reservoir using snow and rain water
- Fence river upstream and plant trees
- Improve the local livelihood in the site
- Introduce new technology to reduce water waste

## Annex 3. Program of the Workshop on Economic Valuation Studies

**Agenda**
**Workshop on "Economic Valuation Studies"**
**June 14, 2012**

| | |
|---|---|
| 09.00 | Registration |
| 09:30 | Opening<br>Mr. Dagvadorj D., National Project Director<br>Mr. Thomas Eriksson, DRR, UNDP Mongolia |
| 09:45 | Introduction of workshop agenda |

**Session One – Introduction to Economic Valuation and Climate Change Adaptation**

| | |
|---|---|
| 09:50 | Government Policies, Programs, and Strategies for Climate Change Adaptation by Mr. Dagvadorj D. |
| 10:05 | Economic Valuation of Natural Resources/Ecosystems Approaches and Experiences in Mongolia, and Role in Development Planning by Ms. Erdenetsetseg. S, MNET |
| 10.15 | Questions and Answers |
| 10.30 | Economic Valuation – Concept and Approaches, Objectives, Application, International Experiences, Context of Climate Change, Relevance to the Project by Yale Team by Mr. Robert Mendelsohn |
| 10.50 | Questions and Answers |
| 11:00 | Tea Break |

**Session Two – Introduction of the proposed Economic Valuation Studies' Design**

| | |
|---|---|
| 11:20 | Overview of the Study Design (Rationale, Objectives, proposed regions and timeframe, required inputs and local support) by Yale Team |
| 11:35 | Methodology for Natural Science Models (Climate Scenarios, Ecosystem Models and Predicted Changes in Ecological Zones, Permafrost Reduction, Net Primary Production, Water Run-Off) by Yale Team |
| 11:45 | Questions and Answers |
| 11:55 | Methodology for Economic Models (Projected Sector Development, Economic Evaluation of Sectors for different Climate Impact Scenarios, and Development of Options for Sector Management Strategies (grasslands/livestock, water, mining, tourism) by Yale Team |
| 12:05 | Questions and Answers |

12:15 Presentations by Aimag Representatives on Aimag/Regional Development Strategies, Climate Change Impacts and Key Issues in Livestock, Water, Mining and Tourism Sectors in their Aimags

- Presentation by Uvs Aimag Government Representative
- Presentation by Khentii Aimag Government Representative
- Presentation by Dornod Aimag Government Representative

12:45 Questions and Answers

13:00 Lunch Break

**Session Three – Validation of the Design and of Implementation/Partner Arrangements of the Study**

14: 00 Plenary Discussion – The Economic Valuation Studies in the Context of Mongolia's Development Goals and Adaptation Strategies

1. Does the study design ask the right questions, do the defined objectives of the studies contribute to ongoing policy/strategy development, on national and regional levels?
2. Are the main premises of the study right?
3. What are the key stakeholders/partners for the study (academic institutions, government agencies)
4. Other issues

14:30 Plenary Discussions on:

1. Natural Science Models
2. Economic Models

16:00 Tea Break

16:20 Discussions

17:40 Conclusions

17:50 Closing of the Workshop
Mr. Dagvadorj D., National Project Director

## Annex 4. Program and List of Participants of the Inception Workshop (June 15, 2012)

"Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia" project

**Inception Workshop Agenda**

**Venue:** Altai Conference Room, Kempinskii Khaan Palace
**Date:** 15th June, 2012

09.00 Registration

09:30 Opening remarks:
- Mr. N. Batsuuri, State Sectary of Ministry of Nature, Environment and Tourism
- Ms. Sezin Sinanoglu, Resident Representative, UNDP

Chairman of the workshop: Dr. D. Dagvadorj, Special envoy on climate change, Chairman of the Climate change coordination office of MNET, Project National Director

09:40 Introduction of the workshop agenda

**Session 1 – Concept of ecosystem-based adaptation and climate finance mechanism of "Adaptation Fund"**

09:45 "Ecosystem-based adaptation (EBA) concept and other EBA projects" by Pradeep Kurukulasuriya, Senior Technical advisor on Climate Change Adaptation, UNDP/GEF

Questions and Answers

10:05 "Adaptation fund" by Dr. D. Dagvadorj, Mongolia Special envoy on climate change, Chairman of the Climate change coordination office of MNET, National Project Director
Questions and Answers

**Session 2 – Background information and up-dates on legal environment, status of ecosystems and natural resources in the project target areas, and the project design**

10:25 "Brief introduction of the project" by Ms Munkhjargal, National project coordinator
10:40 "Status of water resources in the target river basins" by Dr. G. Davaa, Head of Hydrology sector, Institute of Hydrology and Meteorology

11:00 "Update on legislation and institutions for river basin management by Dr. Ts. Batbayar, Deputy director, Water Authority

11:15 "Process of Consultations and Main Findings, Khentii and Dornod Aimags" by Ms. Sabine Schmidt, Inception Phase Support Expert

"Findings from Uvs Aimag" by Ms. J. Sumyasuren, Project's strategic planning expert

11:35 Tea/coffee break

11:55 "International Experiences in Riparian Restoration and Management for Water Resources Conservation" by Ms. Sabine Schmidt, Inception Phase Support Expert

**Session 3 – Review of project design and planning key activities**

12:10 "Project components and revised logframe" by Sabine Schmidt, International Consultant

Plenary discussion, clarifications

12:40 "Draft annual workplan" by Ts. Munkhjargal, National project coordinator

13:00 Lunch

14:00 Working Groups on Three Components

(Component review - changes of circumstances, develop key activities to achieve outcomes/outputs, review indicators and targets and determine milestones, discuss stakeholders and implementation partners)

15:00 Presentations by working groups and discussions

16:00 Tea/coffee break

**Session 4 – Implementation arrangements and project oversight**

16:20 "Presentations on suggested implementation structure, monitoring and evaluation, technical and steering committees, and adaptive management concept" by Ms. Ts. Tuya, Project's natural resources policy expert

17:30 Closing – Dr. D. Dagvadorj, Special envoy on climate change, Chairman of the Climate change coordination office of MNET, National Project Director

**List of Participants- Inception Workshop, June 15, 2012**

| № | Names | Position\organization | Contact | |
|---|---|---|---|---|
| | **Government, government organizations, Agencies** | | | |
| 1. | N. Batsuuri | State secretary, MNET | 99115785 | |
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| | **Project team** | | | |
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| 84. | Sabine Schmidt | Project inception phase consultant | | |
| 85. | Ts. Tuya | Policy expert | | |
| 86. | J. Sumyasuren | Strategic planning expert | | |
| 87. | M. Enkhbat | Administrative and Finance officer | | |
| 88. | Ts. Odontuya | Translator/Secretary | | |
| 89. | Ya. Narangerel | IW facilitator | | |
| 90. | D. Naran | Translator | | |

## Annex 5. Logframe

| Objective and Components | Indicator | Baseline | | | | Targets/End of Project | Source of verification | Risks and Assumptions |
|---|---|---|---|---|---|---|---|---|
| **Project Objective:**<br><br>Maintain the water provisioning services supplied by mountain and steppe ecosystems by internalizing climate change risks within land and water resource management regimes. | Mean annual in-stream summer 30-day base flow maintained )not decreased) in two project sites[2] | Kharkhiraa River: 2.43 cubicmeter/second<br><br>Turgen River:1.98 cubicmeter/second<br><br>Ulz River: 0 cubicmeter/second[3]<br><br>(at Chuluunkhoroot) | | | | Kharkhiraa River: 2.43 cubicmeter/second<br><br>Turgen River: 1.98 cubicmeter/second<br><br>Ulz River: 0.10 cubicmeter/second | Hydrological data reported by existing and new monitoring stations | Hydrological reporting stations remain operational (this will be alleviated by project support) |
| | Ground and surface water quality improved or maintained in two project sites[4] | | Tur-gen (mg/l) | Khar-khiraa (mg/l) | Ulz (mg/l) | 5% improvement on average | Surface water monitoring reports submitted by national and target site stakeholders<br><br>Project reporting and evaluation | Impacts of climate change do not outpace project adaptation responses (this will be alleviated by the project's interventions targeted build resilience) |
| | | Suspended solids | 70.0 | 2.0 | 43.2 | | | |
| | | Permanganate COD | 0.3 | 0.5 | 6.8 | | | |
| | | $NH+_4$ | 0.28 | 0.07 | 0.31 | | | |
| | | Total mineral P | 0.36 | 0.014 | 0.21 | | | |
| | | Total Fe | 0.049 | 0.13 | 0.064 | | | |
| | | Soil nutrient, organic carbon (matter) pool | TBD | TBD | TBD | | | |

[2] In-stream base flow is a portion of stream flow that comes from the deep subsurface flow and delayed shallow subsurface flow during the summer (un-frozen) period.
[3] As described in the Annex, the current monitoring station for the Ulz is located at a channel without water. Baseline and target numbers will be modified during project year one to accurately reflect total basin water provisioning for the Ulz.
[4] The figures are July figures which are considered most representative. Missing data will be determined during Project Year One with Output 2.1 activity.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Biological indicators, e.g., insect and/or fish | TBD | TBD | TBD | | | |
| | | Temperature (Celsius) | TBD | TBD | TBD | | | |
| Component 1:<br><br>Landscape Level integrated land use and water resources monitoring and planning system focused upon reduction of ecosystem vulnerability to climate change<br><br>(Integrated Strategies/Management Plans for Target Landscapes/River Basins developed and under implementation) | Number of integrated strategies/management plans for river basins approved and adopted by National and Aimag Governments[5] | Operational integrated strategies/management plans for river basins(or sub-basins): 0 | | | | Operational integrated strategies/management plans for river basins: at least 2 | MNET and Project reporting and evaluation | Protected area expansion is approved by government structures (this will be alleviated through the participatory planning processes implemented in Component One) |
| | Number of Aimag governments monitoring, assessing, and reporting to MNET and relevant agencies (water authority, National Climate Change Coordination Office) on integrated river basin management measures. | Number Aimag Governments implementing integrated strategies/management plans for river basins: 0 | | | | Number Aimag Governments implementing integrated strategies/management plans for river basins:at least 3 | MNET and Project reporting and evaluation | |
| | Guidelines for IWRM address climate risks (and integrate adaptation measures and EBA approaches)<br><br>Total hectares included within protected areas | Current guidelines do not address adaptation and EBA issues explicitly<br><br>Altai Mountains / GLB: 37,420 km²<br>Kharkhiraa/Turgen Watershed: 800 km² | | | | Guidelines for IWRM address climate risks<br><br>Altai Mountains / GLB: 39,420 km²<br>Kharkhiraa/Turgen: 1,000 km² | National, provincial and district legislation | |

[5] By project close, the National Government and each Aimag within the Altai/GLB and Eastern Steppe landscapes will have adopted the EBA strategic process as formal policy

| | | | | | |
|---|---|---|---|---|---|
| | system in the two project sites[6] | Eastern Steppe: 42,676 km²<br>Ulz Watershed: 3,120 km² | Eastern Steppe: 44,676 km²<br>Ulz: 3,750 km2 | | |
| Outputs:<br>• Ecological and socio-economic Assessments (Baseline studies) as a basis for development o f Ecosystem-based Adaptation strategies for the target landscapes and River Basin Management Plans (Kharkhira/Turgen,Ulz<br>• Economic valuations completed comparing the landscape level costs and benefits of EBA.<br>• Ecosystem-based Adaptation strategies for the target landscapes and River Basin Management Plans (Kharkhira/Turgen, Ulz) completed and operational | | | | | |
| Component 2:<br><br>Implementing Landscape<br><br>level adaptation techniques to maintain ecosystem integrity and water security under conditions of climate change | Number of Soums in target area considering EBA measures (integrated River Basin Management) in their annual land-use planning and in Soum development plans and strategies. | Total number of Soums in target area considering integrated River Basin Management in their annual land-use planning and in Soum development plans and strategies: 0 | Total number of Soums in target area considering integrated River Basin Management in their annual land-use planning and in Soum development plans and strategies: 17 | Project reporting and evaluation<br><br>Monitoring by national and local authorities and project stakeholders | Capacity of Aimag and Soum level stakeholders will match project activity demands (this will be alleviated by a project capacity building strategy, including national/local mentoring program)<br><br>Proposed interventions are able to deliver EBA results (this will be alleviated by strategic and participatory planning |
| | Water use efficiency improved to maintain ecosystem integrity as measured by:<br>• Amount of surface water extracted for irrigation in project sites<br><br>• Number of monitored wells increasing ground-water consumption efficiency in project sites[7]<br>• Small scale Rain and snow melt Water | Total extraction for:<br>• Kharkhiraa/Turgen: TBD[8]<br>• Ulz: 0<br><br>TBD<br><br>Monitored/efficient wells:<br>• Kharkhiraa/Turgen: 0<br>• Ulz: 0 | Total extraction for:<br>• Kharkhiraa/Turgen: TBD<br>• Ulz: 0<br>(Approx. 20% decreased) (while maintaining sustainable agricultural practices through appropriate irrigation technology )<br><br>Monitored/efficient wells:<br>• Kharkhiraa/Turgen: 12<br>• Ulz: 70 | Monitoring by national and local authorities and project stakeholders<br><br>EBA strategies and plans<br><br>Project reporting | |

[6] Indicator may include national, provincial, and/or district designated protected areas.
[7] Total number of wells: Ulz project site (747), Kharkhiraa/Turgen project site (123). Note: These are total number of wells in entire Soum territory, not exclusively the watershed. The number of wells that are operational will be determined during project implementation.
[8] To be determined Project Year One.

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| | harvesting | No water harvesting activities | (Approx. 10% increase)<br><br>Number of small water harvesting reservoirs | and evaluation | implemented under Component One that will identify and prioritize actions based upon local needs.) |
| | Land use practices and climate change resilience improved as indicated by:<br><br>• Total hectares of riparian and wetland habitat restored with native vegetation within project sites<br><br>• Springs protected with livestock exclosures, Livestock watering and access to creeks managed with appropriate facilities/fencing<br>• Total area with improved pasture land management (livestock numbers within carrying capacity, rotational use, herd | Total hectares restored riparian/wetland:<br>• Kharkhiraa/Turgen: 0 ha<br>• Ulz: 0 ha<br><br>Total hectares with EBA grazing practices:<br>• Kharkhiraa/Turgen: 0 ha<br>• Ulz: 0 ha | Total hectares restored riparian/wetland:<br>• Kharkhiraa/Turgen: 1,250 ha<br>• Ulz: 2,250 ha<br><br>Total hectares with EBA grazing practices:<br>• Kharkhiraa/Turgen: 1,500 km2<br>• Ulz: 12,000 km2<br><br>Approx. 30% increase | Monitoring by national and local authorities and project stakeholders<br><br>EBA strategies and plans<br><br>Project reporting and evaluation | |

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| | structure, pasture irrigation, etc. )[9]<br>• Areas with Reforestation and improved forest management in Western target areas | TBD during baseline studies | TBD during baseline studies | | |
| | Decrease in average Rural Poverty rate for 17 Soums within the target watersheds.<br><br>Number of Small Enterprises established and operating successfully (tourism, processing dairy/ livestock products, agriculture, fuel efficiency, building blocks etc. )<br><br>Hydrological monitoring is strengthened | Current poverty rate:<br><br>Average Poverty headcount for Ulz basin 0.433,<br><br>Kharkhiraa/Turgen 0.495[10] (up-date according to 2011 Poverty Census)<br><br>TBD during socio-economic assessment<br><br>Monitoring posts for glacial run-off in Western project area: 0 | End of Project Rate: TBD<br><br>Approx. 10% average decrease<br><br>TBD during socio-economic assessment<br><br>At least 1 more monitoring post for glacial run-off in Western target area established | Aimag annual reports<br><br>UNDP census-based poverty map<br><br>Project reporting and evaluation | |

[9] Determined by total hectares not exceeding annual carrying capacity limits as measured by the national carrying capacity network. Project will ground-truth findings using finer-scale vegetation plots and water course investigations to appraise pasture biomass and water resources integrity at grazing management improvement sites. Total watershed area: Ulz project site (37,962 km2), Kharkhiraa/Turgen project site (5,264 km2)

10 Mongolia census-based poverty map, UNDP, 2009

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| | | | Water resources monitoring network expanded (at least 2 more gauges) in Eastern target areas | | |
| Outputs<br>• Capacities of rural communities for monitoring natural resources and climate change impacts and for adaptive management in two watersheds strengthened<br>• Ecosystem-based Adaptation strategies for the target landscapes (Great Lakes Depression, Daurian Steppe), and River Basin Management Plans (Kharkhira/Turgen,Ulz under implementation<br>• Suite of physical techniques to improve ecosystem resilience established in two critical watersheds.<br>• Regulatory and financial management techniques for improving climate change resilient livelihood strategies | | | | | |
| Component 3:<br><br>Strengthening Capacities/Institutions to support EBA strategies and integrated river basin management, their replication and mainstreaming in sector policies | River Basin Administrations established and strengthened in target areas<br><br>River Basin Councils and sub-councils established and strengthened in target areas<br><br>Guidelines for IWRM that integrate adaptation measures and EBA approaches are | Operational RBAs: 0<br><br>River Basin Councils established and strengthened in target areas: 0 | Operational RBAs: 2<br><br>River Basin Councils established and strengthened in target areas: at least 3 | | |

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| | developed and approved<br><br>Number of staff of relevant agencies and local governments trained in river basin management guidelines | No guidelines exist to date; Water Law (2012) includes provisions to develop guidelines<br><br>Number of staff of relevant agencies and local governments trained in river basin management guidelines:0 | Guidelines for developing Integrated River Basin Management Plans developed, approved and applied<br><br>Number of staff of relevant agencies and local governments trained in river basin management guidelines: at least staff of relevant agencies in 21 Aimags, and members of existing river basin councils, and staff of newly established river basin administration | Decree by Minister on Guideline adoption<br><br>Project reporting and Evaluation | |
| | Number of Soums replicating EBA measures and integrated river basin management principles and practices within the target eco-regions[11] | Total Soums involved in integrated river basin management: 5 | Total Soums implementing and replicating integrated river basin management :at least 20 | MNET (water, and/or river basin authority) and<br><br>Project reporting and evaluations | Development and implementation of<br><br>River basin management plans is included in budget planning and allocation |
| | National mainstreaming of EBA as indicated by:<br><br>• Official government policy documents adopting EBA principles/practices | Number of sector policy documents revised and amended to consider mainstreaming EBA, landscape level integrated water resources and land-use | Number of sector policy documents revised and amended to consider mainstreaming EBA, landscape level integrated water resources | National government budget analysis conducted as part of the project | (The GOM budget has and will likely increase significantly over |

[11] The EBA Strategies will be updated throughout the project cycle. The Strategies will report on emerging climate change adaptation practices within the region. This will include identifying and reporting on Soums outside of the target watersheds replicating interventions.

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| | • Amount of annual government spending to support application of EBA principles and practices nationally<br><br>• Number of National Climate Change Authority EBA policy documents mainstreaming EBA within sectoral decision-making frameworks. | management: less than 5<br><br>Total national annual investment in EBA: $ 0<br><br>Number of NCCA Policy Documents: 0<br>(2 documents (National Programme and Action Plan on Climate Change) exist, but do not explicitly address EBA (in this terminology) | and land-use management: considering priority actions, at least 7 (including pasture, agriculture)<br><br>Total national annual investment in EBA: $ 100,000<br><br>Number of NCCA Policy Documents (Adaptation Strategies) at least 3 | support valuation of ecosystem services studies. May include re-alignment of existing spending to support EBA implementation.<br><br>NCCA reports<br><br>Project reporting and evaluations | the project period). |
| Outputs<br>• Ecosystem-based adaptation approaches/integrated river basin management mainstreamed in national resource use planning and implementation mechanisms, and sector policies<br>• Institutional structure for river basin management integrating climate change risks (Administration and Council) established and operational in the target areas as model for replication<br>• Best practices are identified and program for up-scaling best practices developed and implemented. | | | | | |

**Annex 6. Annual Work Plan 2012 – 2013**

| Outcomes/Outputs/Activities | Q 3 | Q 4 | Q 1 | Q 2 | Q 3 | Q 4 | Progress Indicators |
|---|---|---|---|---|---|---|---|
| **OUTCOME 1: INTEGRATED STRATEGIES/MANAGEMENT PLANS FOR TARGET LANDSCAPES/RIVER BASINS DEVELOPED AND UNDER IMPLEMENTATION.** | | | | | | | |
| **Output 1.1. : Ecological and Socio-economic Assessments (Baseline studies) as a basis for the development of Ecosystem-based Adaptation strategies for the target landscapes (Great Lakes Depression, Daurian Steppe), and for the development of River Basin Management Plans (Kharkhira/Turgen,Ulz)** | | | | | | | |
| ***Activities*** | | | | | | | |
| 1.1.1. Generate detailed inventories (water, wildlife, livestock, forest, land use) and assessments of resource/ecosystem services condition in the target river basins | X | X | X | | | | Detailed inventories and assessments are completed (as baseline for project progress monitoring and for descriptive part of management plans) |
| 1.1.2. Produce detailed social and economic assessment (agriculture, livelihood, development sectors) for 2 target areas for the development of integrated strategies/river basin management plans | X | X | X | | | | Socio-economic assessment is completed. |
| 1.1.3. Develop Knowledge Management Strategy and support establishment and maintenance of databases in relevant agencies to improve information management | | | X | X | X | X | KM Strategy is discussed and initiated. |
| **Output 1.2: Economic Valuations completed comparing the landscape level costs and benefits of EBA.** | | | | | | | |
| ***Activities*** | | | | | | | |
| 1.2.1. Support establishment of Taskforce (Working Group) lead by NDIC to guide Economic Valuation Study design and execution. | X | | | | | | Taskforce established. Study design and execution modality approved. |
| 1.2.2. Prepare tender, and select contractor(s) to compile existing background information for the Economic Valuation Study, and to undertake (1st round of) Economic Valuation Studies. | | X | X | X | | | Background Information is compiled, and 1st economic valuation study is underway. |
| 1.2.3. Support national capacity development for economic valuations of EBA strategies and ecosystem services under climate change conditions | | | X | X | | | 1st series of trainings is completed |
| **Output 1.3: Ecosystem-based Adaptation strategies for the target landscapes (Great Lakes Depression, Daurian Steppe), and River Basin Management Plans (Kharkhira/Turgen, Ulz) completed and operational.** | | | | | | | |
| ***Activities*** | | | | | | | |
| 1.3.1. Prepare tender and contract expert(s) to undertake a climate change Vulnerability Assessment of the ecosystems in the target landscapes. | | X | | | | | |
| 1.3.2 Conduct the ecosystem vulnerability assessment. | | | | X | X | X | |
| 1.3.3.. Facilitate stakeholder collaboration for the development of Ecosystem-based Adaptation strategies for the target landscapes and River Basin Management Plans (for Kharkhira/Turgen, and Ulz) | | | X | X | X | X | 1st drafts of strategies and management plans are completed. |

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| **OUTCOME 2: IMPLEMENTING LANDSCAPE LEVEL ADAPTATION TECHNIQUES TO MAINTAIN ECOSYSTEM INTEGRITY AND WATER SECURITY UNDER CONDITIONS OF CLIMATE CHANGE.** | | | | | | | |
| **Output 2.1: Capacities of rural communities for monitoring natural resources and climate change impacts and for adaptive management in two watersheds strengthened.** | | | | | | | |
| ***Activities*** | | | | | | | |
| 2.1.1. Undertake Soum level needs assessment for capacity development, and develop capacity building programme for 2 target areas | X | X | | | | | Soum level needs assessment is completed. |
| 2.1.2. Design community based monitoring programme with tools and mechanisms to monitor and assess the health and status of their ecosystem based on current practices and experiences | | X | X | | | | Community based monitoring programme is designed. |
| 2.1.3. Undertake 1st series of trainings for communities on monitoring guideline tools, mechanisms and indicators | | | | X | X | X | Initial capacity building trainings conducted. |
| **Output 2.2: Suite of physical techniques to improve ecosystem resilience established in two critical watersheds** | | | | | | | |
| ***Activities*** | | | | | | | |
| 2.2.1. Identify priority areas, and undertake feasibility studies to implement adaptation measures to improve ecosystem resilience and services in each Soum | | | X | X | | | Areas and suitable techniques are identified. |
| 2.2.2. Support to and training in implementation of adaptation techniques to improve ecosystem services and resilience with community participation | | | | | X | X | Implementation of Adaptation Techniques has commenced. |
| 2.2.3. Support development of annual land use and pasture management plans that integrate adaptation techniques, discuss co-financing opportunities for implementation of plans, and support implementation | | | | X | X | | Land use and pasture management plans are developed and budgets are allocated |
| 2.2.4. Support to improve technical and human capacity of glacial run-off and water monitoring networks in target areas | | | X | X | X | X | Relevant agencies collecting data from new monitoring posts. |
| **Output 2.3. Regulatory and financial mechanisms for supporting climate change resilient livelihood strategies** | | | | | | | |
| ***Activities*** | | | | | | | |
| 2.3.1. Explore options to support climate change resilient livelihood strategies | | | X | | | | Options for climate change resilient livelihood strategies are identified |
| 2.3.2. Support activities to develop climate change resilient livelihood strategies through diversification, alternative incomes, value addition to local products | | | | X | X | X | Alternative livelihood strategies are being applied |
| **OUTCOME 3: STRENGTHENING CAPACITIES/INSTITUTIONS TO SUPPORT EBA STRATEGIES AND INTEGRATED RIVER BASIN MANAGEMENT, THEIR REPLICATION AND MAINSTREAMING IN SECTOR** | | | | | | | |

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| **POLICIES.** | | | | | | | |
| **Output 3.1: Ecosystem-based adaptation approaches/integrated river basin management mainstreamed in national resource use planning and implementation mechanisms in sector policies.** | | | | | | | |
| ***Activities*** | | | | | | | |
| 3.1.1. Conduct institutional capacity and needs assessment of NCC Authority, CCCO and related key agencies including legislative, financial and regulatory frameworks of EbA management and deliver recommendations for relevant agencies | X | X | | | | | Report and recommendations are complete |
| 3.1.2. Develop National level EbA Institutional Capacity Building Programme and Action plan | | X | X | X | | | Capacity building programme and action plan is developed. |
| 3.1.3. Support in implementation of Institutional Capacity Building Programme | | X | X | X | X | X | Implementation of the plan has commenced. |
| 3.1.4. Support review of soum and aimag level development plans/strategies/policies and develop recommendations to integrate EbA approaches | | X | X | | | | Review and recommendations delivered. |
| **Output 3.2: Institutional structure for river basin management integrating climate change risks (Administration and Council) established and operational in the target areas as model for replication.** | | | | | | | |
| ***Activities*** | | | | | | | |
| 3.2.1. Support to the establishment process of Integrated River Basin/Sub-basin Management Administrations and Councils for 3 river basins/sub-basins | | | | X | X | X | Reports on series of workshops and seminars are produced. |
| 3.2.2. Support to the development of a guideline to prepare Integrated River Basin Management Strategy and Action Plans integrating climate change risks | | | X | X | X | | Draft guideline is developed. |
| 3.2.3. Conduct capacity building trainings for administration/council officers | | | X | X | X | X | Reports on trainings are delivered. |
| **Output 3.3: Best practices are identified and program for up-scaling best practices developed and implemented.** | | | | | | | |
| ***Activities*** | | | | | | | |
| 3.3.1. Promote public awareness through media; newsletter, radio, TV and forums | | X | X | X | X | X | Reports and products |
| 3.3.2. Produce publications (guideline, workshop and study reports, manuals, updated flier) | | X | X | X | X | X | Books, manuals, compiled reports, flier, CDs |
| 3.3.3. Establish and maintain an "Interactive Climate Change Resilience Website" | | X | X | X | X | X | Active website |
| 3.3.4. Prepare 1st annual "State of the Ecosystem" report and disseminate to stakeholders and relevant agencies for further planning and monitoring of ecosystem state | | X | | | | X | Report on the State of the Ecosystems is produced and disseminated. |

**Annex 7. Decree by the Minister for Nature, Environment and Tourism on Establishment of the Project Steering Committee**

Unofficial translation from the Mongolian language

# DECREE OF THE MINSTER

# FOR NATURE, ENVIRONMENT AND TOURISM OF MONGOLIA

Date: 10 July, 2012 Number: A-263 Ulaanbaatar city.

**Subject: Establishment of a Project Board**

Herewith, a Project Board is being established for the "Ecosystem-based Adaptation Approach to Maintaining Water Security in Critical Catchments of Mongolia" project with the following considerations:

1. The Project Board membership is approved as listed in Annex 1 to this Decree.

2. Mr. N. Batsuuri, State Secretary, is appointed as a Chair of the Project Board.

3. Mr. N. Batsuuri, State Secretary, is authorized to provide overall policy guidance and to make management decisions to ensure smooth implementation of the project.

D. TSOGTBAATAR, MINISTER

Annex 1

Decree # A-236

10 July, 2012

**Project Board Members**

| *No* | *Names* | *Title* | *Responsibility* |
|---|---|---|---|
| 1 | Mr. N. Batsuuri | State Secretary, Ministry of Nature, Environment and Tourism | Chair |
| 2 | Mr. Tomas Eriksson | Deputy Resident Representative, UNDP | PB member |
| 3 | Mr. D. Dagvadorj | Special Envoy for Climate Change, Chairman of Climate Change Coordination Office of MNET, National Project Director | PB member |
| 4 | Mr. D. Otgonsuren | Revenue Division of Fiscal Policy Department, Ministry of Finance | PB member |
| 5 | Mr. G. Tamir | Senior officer, Mining and Heavy Industry Policy Department, Ministry of Mineral Resources and Energy | PB member |
| 6 | Mr. Sh. Baranchuluun | Irrigated crop production senior officer of Crop Production Policy Implementation and Coordination Department, Ministry of Food, Agriculture and Light Industry | PB member |
| 7 | Ms. Kh. Khishigjargal | Officer, Sustainable Development and Strategic Planning Department, Ministry of Nature, Environment and Tourism | PB member |
| 8 | Mr. Z. Batbayar | Deputy Director of Water Authority | PB member |
| 9 | Mr. D. Tseesodroltsoo | Deputy Director, National Agency for Meteorology and Environmental Monitoring | PB member |
| 10 | Mr. R. Gankhuyag | Director, Land Affairs, Construction and Urban Development Department of Ministry of Road, Transportation, | PB member |

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| | | Construction and Urban Development | |
| 11 | Mr. D. Tserendash | Director, Environment, Tourism, Geology and Mining Inspection Division, State Specialized Inspection Agency | PB member |
| 12 | Mr. Ch. Erdenebaatar | Governor, Khentii aimag | PB member |
| 13 | Mr. Ts. Janlav | Governor, Dornod aimag | PB member |
| 14 | Mr. B. Bat-Ochir | Deputy Governor, Uvs aimag | PB member |
| 15 | Ms. L. Otgontsetseg | Head, "Onon –Ulz river movement", NGO | PB member |
| 16 | Mr. Z. Ganbold | Head, "Kharkhiraa, Teel River basin council", NGO | PB member |
| 17 | Ms. Munkhjargal | National Project Coordinator of "Ecosystem-Based Adaptation Approach to Maintaining Water Security in Critical Catchments of Mongolia" project | Secretary |

## Annex 8 Draft Proposal for Economic Valuation Studies prepared by the Yale University Team

Mongolian Ecosystem Based Climate Change Impacts and Adaptation

Yale-UNDP

Abstract: The management of ecosystems remains an important component of the economy of Mongolia. Climate change is likely to impact Mongolia's ecosystems affecting their grasslands and water systems. This study will quantify the economic impacts of these ecological changes and measure the economics costs and benefits of alternative adaptation strategies to cope with these changes. The project will develop an integrated model that links climate change to ecosystem changes and changes in runoff. The effect of these changes on various sectors of the economy including livestock, water resources, mining, and tourism will then be quantified. The model will then be used to examine alternative management strategies to cope with climate change. The purpose of the analysis is to identify the potential damages associated with climate change and optimal adaptation strategies.

I. Introduction

Mongolia has a population of 2.9 million people with 1.564 million square kilometers. As such, it is one of the least densely populated countries in the world. However, vast parts of the country are uninhabitable with the Gobi desert in the south and rugged mountains in the north. A great deal of the country is semiarid, supporting a vast grassland with some mountain forests.

Agriculture is responsible for 21% of Mongolia's GDP and 12% of export earnings. However, the agriculture sector employs between 35% - 40% of Mongolia's workforce (MOFALI 2011). Cultivation of crops contributes 3% of the nation's GDP. The remaining 18% of agricultural production comes from livestock grazing. There are about 200,000 nomadic and semi-nomadic herding families who rely upon their livestock as both a source of capital and subsistence. Although Mongolia has herded livestock for thousands of years, traditional managed grazing regimes have largely collapsed in modern times raising questions about sustainability. Partly, the problem is a dramatic increase in the national herd which had doubled in the last three decades to 44 million head in 2009. Part of the problem is that the grasslands have been divided up in ways that no longer provide a balance of habitats in all seasons for herders. A recent cold winter (dzud) in 2010 led to the loss of 11 million head.

As a semi-arid nation, water is a key resource in Mongolia. Mongolia currently consumes 0.5 to 0.7 cubic kilometers of water (MARCC 2009). This is used for drinking water and to supply several sectors of the economy including mining, livestock, and potentially irrigation Even though this consumption level is low relative to the 40 $km^3$ of annual water flow, there is concern that many streams and rivers are drying up across Mongolia (MARCC 2009). The drying may be due to fluctuations in annual runoff. However, whatever is causing the drying, changes in runoff are likely to have important economic consequences.

This study plans to develop two models to capture these important impacts: a grassland model and a water model. The grasslands are key to the livestock industry and the tourism industry as they support a great deal of the wildlife in Mongolia. Water, in turn is also key to the livestock industry but also mining and drinking.

The analysis will examine two emission scenarios from the SRES series: A2 and B1 in order to understand how the outcomes in Mongolia might change as greenhouse gas emissions change. The emission scenarios will then be entered into several general circulation climate models such as the models examined in MARCC 2009. Rather than developing a single climate scenario, however, this study will examine several different climate scenarios that describe a range of possible climate outcomes. By examining the consequence of a plausible range of outcomes, decision makers can get a better sense of the uncertainty surrounding these forecasts.

For each climate scenario, an ecosystem model will be developed to examine the change to the grasslands. The model will predict the spatial extent of the grasslands by 2050 and 2100 according to each climate scenario. The model will also predict how the NPP (net primary productivity) of the grasslands are expected to change. This ecological model will form the basis for predicting changes to livestock and grassland based wildlife. For each climate scenario, an hydrology model will predict how runoff will change. For each major river system, the model will predict percentage changes in runoff in 2050 and 2100.

The changes to hydrology and the grasslands will then be used to conduct the economic analysis. Given the Mongolian economy, how will it be affected by the predicted changes? An analysis of livestock, mining, tourism, and drinking water will follow. Impacts in each climate scenario will be estimated. The predicted outcome with the current management strategy will be predicted first. We will then examine the economic rational of alternative management strategies. That is, we will examine the costs and benefits of adaptation.

## II. Methodology

### Natural Science Models

The first stage in the project will be to construct a set of climate scenarios. The analysis will examine the A2 emission scenario to get an estimate of what might happen if greenhouse gases are not mitigated over the next century. The analysis will also examine the B1 emission scenario to see how outcomes might change with a lower emission scenario.

For each emission scenario, the analysis will examine several general circulation models. We are looking for high quality predictions that span the range of likely outcomes predicted by the IPCC 2007a. That should include a range of global temperature increases as well as a range of possible precipitation changes (from drier to wetter). By examining the range of outcomes deemed plausible by the IPCC 2007a, the analysis can inform decision makers in Mongolia about the major different possible consequences that climate change might bring.

For each climate scenario, an ecosystem model will predict changes in the biomes of Mongolia. These changes were highlighted in MARCC 2009. One concern is the possible expansion of the desert from the south. Another change is the reduction in land subject to permafrost. Finally, there may be some changes in the border between the grasslands and forests. Coupled with these changes in biomes, we are also interested in predictions of what happens to NPP. NPP is measuring the underlying productivity of the ecosystem. As NPP increases (decreases) productivity increases (decreases) suggesting increases (decreases) in wildlife and livestock capacity. Changes in NPP will also signal possible changes in cropping.

For each climate scenario, we will also obtain predictions of changes in runoff in Mongolia's major river systems. Depending on a combination of precipitation and evaporation changes, the runoff will either increase or fall. This will determine changes in water supply which is an important input in to the economic water model which allocates water across different uses in Mongolia. There are 13 major river systems identified in the MARCC 2009. Form these, a representative sample wile b selected to conduct the economic analysis. A separate model will be estimated for each of the sampled river systems.

Economic models

A relatively simple analysis would examine the impact of climate change on the current Mongolian economy. However, the climate changes that are predicted to matter will not occur until 2050 or 2100. It is therefore important to anticipate how the Mongolian economy may change by this time period even without climate change. It is this future economy that will be affected by climate change. The economic analysis will begin by forecasting how each affected sector is likely to be different in these future periods. It is not possible to make such long term forecasts without uncertainty. We consequently will develop two alternative futures for each sector, one with optimistic and one with conservative estimates of change.

A livestock model will be developed to predict long term outcomes to the livestock population. The mode will be developed to capture the impact of changes in climate and the grasslands. The climate sensitive inputs include summer and winter temperatures, water supply, the extent of the grassland, and the productivity of the grassland. The model will determine how carrying capacity will change as these factors change.

The economic model would then evaluate the outcome of using the current management strategy in each future climate. This would include how available spring, summer, and winter habitat are divided across herds, the current approach to winter shelter and feed, and the predicted animal populations. This would yield an estimate of how climate change would affect the livestock sector without adaptation. The model would track the costs and the revenues and therefore the change in expected income to herders due to each climate scenario.

We would then use the model to examine alternative management strategies. For example, the model would explore dividing the land differently, alternative populations, supplemental feed, and supplemental water. Each strategy would be implemented in each climate to determine expected income. By comparing expected income with each strategy, it should be possible to determine which management strategy is best in each climate. By comparing incomes across management strategies, one can see what adaptations make economic sense in each climate scenario. The analysis will determine whether there are effective adaptation strategies available to the Mongolian herders to adapt to future climates. It is expected that the adaptation strategies will depend on exactly how climate changes.

The water model will examine selected river systems. A demand model will be developed that represents each major users of water in each of these river systems. For example, the model may contain a demand for residential use (drinking water), industrial use, mining, livestock, and possibly irrigation. Given the current supply of water in that basin and the current use of water, the model will solve for the economic benefits that are currently being enjoyed. The model will then be used to look at future water conditions. Changes in flow will result in a change in supply of water in each basin. Changes in temperature may also cause changes in demand for water by some uses. Given the current allocation rules for water, the economic value of water will be estimated for each climate scenario. This will provide an estimate of the initial impact of climate change if there is no adaptation.

The water model will then be used to examine alternative management strategies. For example, the model will examine the allocation of water across all uses. As water becomes scarce, the model will move water from low valued uses to high valued uses. That is, the model will explore whether there are alternative water allocations that could yield higher benefits. Changing water allocation is likely to be one important adaptation to climate change.

It is also likely that warmer temperatures may change water flows across seasons. Most of Mongolian precipitation is in snow in winter given the current climate. Currently, this is not released to streams until spring melt. However, with warming, the percent of runoff in winter may increase and the percent in spring and summer may decrease. If demands for water in the spring and summer are high, this could lead to seasonal shortages. One way to adapt to these shortages is to build high elevation dams to capture winter flow and store it until spring and summer arrive. The analysis will examine the costs and benefits of this adaptation option.

A survey of domestic and international tourists to Mongolia will examine their preferences. Tourists will be asked whether they are planning to visit the grasslands, forests , or deserts. The survey will help determine what seasons of the year tend to attract visitors. They will also be asked about their preferences for viewing wildlife, livestock, or cultural sites in Mongolia. The survey will help determine how climate change may alter tourism in the country.

III. Budget ($200,000)

A. Climate modeling: $5,000

It is expected that the analysis will rely on existing runs of climate models. The cost of this section is largely to download the results of these past experiments for use in this analysis. The climate models will generate temperature and precipitation changes as well as runoff changes.

B. Livestock Study

Ecological modeling: $15,000

Determine changes in fire, biomes, and grassland productivity. Again we are likely to rely on existing ecological modeling results. The costs will be largely from downloading these results to Mongolia.

Livestock modeling: $25,000

Determine changes in carrying capacity with changes in fire, grassland extent, and productivity.

Determine how changes in summer and winter temperature may affect herd populations.

Economic model of livestock: $25,000

Determine revenues and costs of outcomes depending on management strategy.

Analysis of management alternatives $25,000

Run alternative management schemes in different climate conditions.

Evaluate which schemes yield highest return

Write paper $10,000

Write draft of paper. Incorporate comments into final paper.

C. Water Model

Hydrology $10,000

Determine changes in flow by season by climate scenario for each studied river system

Economic Water Model $80,000

Determine demand function by each water use in each river basin

Determine how demand will shift in the future.

Develop economic model of river basin given water supply

Examine the economic impact of changes in supply given current allocations.

Examine the costs and benefits of adaptation through changes in water allocation

Examine the costs and benefits of hard structures (dams) as an adaptation strategy.

Write paper $10,000

IV. Timing

Develop scientific and economic models June-December 2012

Examine impacts of future climate scenarios January to March 2013

Examine adaptation to future climate March 2013 –May 2013

Write draft papers June 2013

Obtain comments July 2013

Final paper September 1 2013