Community Based Wildlife Management (CBWM) in the Altai Sayan Ecoregion of Mongolia
Feasibility Assessment
Opportunities for and Barriers to CBWM

Consultancy Report

Background Paper for the GEF Altai Sayan Biodiversity Conservation Project.
Implemented by UNDP
Executed by WWF Mongolia

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TERMS AND ABBREVIATIONS

Mongolian Language Terms

Aimag	Second level of Government; largest political territorial division in Mongolia (English equivalent: "Province")
Sum	third level of Government; second largest political territorial division in Mongolia (English equivalent: "district")
Bag	fourth level of Government; smallest political territorial division in Mongolia
Tugrig	Mongolian national Currency
Sum Khural	District Citizen Representative
Ger	Traditional Nomad Dwelling

Abbreviations

CBNRM	Community Based Natural Resources Management
CBWM	Community Based Wildlife Management
GEF	Global Environmental Facility
GTZ	Gesellschaft fuer Technische Zusammenarbeit
MAI	Ministry of Agriculture and Industry
MNE	Ministry of Nature and Environment
NGO	Non Government Organization
NP	National Park
PA	Protected Area
PDF	Project Development Facility
SCI	Safari Club International
UNDP	United Nations Development Program
WWF	World Wide Fund For Nature
Pers. Commun.	Personal Communication

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1. Introduction and Background

1 Community based wildlife management (CBWM) is widely recognized as one of the more suitable and socially desirable options for sustainable wildlife management worldwide. The concept of CBWM, aptly described by Johnstad[1], was first introduced to Mongolia as part of the German bilateral aid program in 1997 and as integral part of community based natural resource management (CBNRM). Several pilot projects have been initiated since by GTZ and other international aid organizations, all with focus on a protected area as core zone of a designated CBRNM unit and on the sustainable economic development of the corresponding support zones that allows for regulated and controlled resource use.

2 This participatory approach to natural resource management and sustainable biodiversity conservation has also been chosen for the current GEF (Global Environmental Facility) sponsored UNDP/WWF (United Nations Development Program/Worldwide Fund for Nature) project on biodiversity conservation in the Altai Sayan region. The Altai Sayan region was identified by WWF in 1995 as one of the globally most unique 200 ecoregions in the world in need of special protection. Subsequently, the WWF Program office Russia and the WWF country office Mongolia have launched a concerted effort for the protection of biodiversity in this ecoregion. In this context the WWF in close cooperation with UNDP as potential implementing agency of GEF projects have developed concept papers for GEF grant proposals in both countries for the ecoregion under consideration. This has resulted in the approval of Project Development Funds (PDF) for the preparation of full GEF projects in both countries.

3 The current assignment is financed through the Mongolian PDF that was approved for the Altai Sayan region. It is expected to provide baseline data on the opportunities and barriers to CBWM in the ecoregion of concern. This is in preparation of CBWM in two pilot project areas with focus on the sustainable management of Argali sheep as principal target species. This component forms part of the overall project on biodiversity conservation in the Altai Sayan ecoregion currently prepared under the auspices of UNDP and WWF.

2. Terms of Reference (ToR) and Approach

4 Terms of Reference. The consultant was contracted by the WWF Mongolia Country Office for 35 days in July and August 2001 in order to implement the tasks described below in the two pilot project areas that area designated for CBWM in the Altai Sayan Ecoregion, (a) the Khukhserkh Strictly Protected Area and support zone and (b) the Myangan Ugulzat proposed CBWM (see Annex 1 for detailed ToR). More specifically, the consultant was requested to:

[1] Johnstad Mark. 1998. A strategy for the implementation of community based natural resource management. Mongolian Ministry of Environment and GTZ. Archives GTZ, UlaanBaatar.

- implement a rapid assessment of the current conservation status of the Argali populations in the two pilot project areas of the Altai Sayan ecoregion;
- conduct a rapid assessment of the socio-economic/cultural situation in the two areas;
- identify and analyze problems adversely affecting Argali populations in the two study areas;
- assess current hunting practices and hunting impacts on Argali populations including quota designation and allocation, licensing procedures, legal and illegal harvest:
- based on the findings, design a profit sharing incentive system that benefits local people (to be based on a sound harvest model for the target species);
- design a co-management agreement involving the key stakeholders in CBWM.

5 **Approach.** The following feasibility assessment for CBWM is based on:

- extensive discussions with key representatives of the three Government levels (Central Government, Aimag and Sum) related to biodiversity conservation, hunting, law enforcement, protected areas and the CBWM concept;
- discussions with scientists from the Academy of Sciences and Universities involved in Argali research and Argali census;
- extensive discussions with stakeholders from the private sector (e.g., safari outfitters, tourism operators, NGOs and local herder families);
- a comprehensive review of archives and literature made available through the local WWF office, GTZ and the Ministry of Nature and Environment (MNE);
- a three weeks field visit to both areas proposed for CBWM;
- a one day SWOT workshop with key stakeholders in Argali and CBWM from the capital and the Aimag of Hovd.

6 It is pointed out that due the lack of supporting data it is not possible at this stage to design a "big game simulation model" as stipulated by the ToR. Available data are mostly anecdotal, based on information by local herders and stakeholders with vested interest in Argali range and the Argali species as trophy animal. There are no reliable statistics on population dynamics of the Argali and/or other wildlife species in the two study areas. Available census data appear highly biased and may not be used as basis for the designation of harvest quotas.

7 Against this background, the results are being described in accordance with the ToR. Recommendations are made regarding the establishment of the CBWM projects for the two proposed areas. This is followed by a numerical risk analysis and suggested milestones that details follow-up activities in order of priority. A record of persons contacted is attached as Annex 2.

3. Results

8 It should be noted that it is highly difficult to obtain any kind of reliable quantitative and qualitative data on the study areas, the actual range used by and/or available for Argali, other wild herbivores and/or livestock. Systematic ecological/biological baselines on the target species are generally lacking. The same

applies to hunting records and related statistics. Available information is mostly anecdotal and therefore has to be interpreted with caution.

9 The information presented in this report results mostly from communication with the different stakeholders complemented through personal field observations and information from the scanty written materials that could be located on the subject matter. In absence of supporting hard core data professional judgement had to be used for many of the conclusions drawn in this report and the recommendations made for follow-up work.

3.1 Policy and Legal Framework for CBWM in Mongolia

10 Although there is no specific law applying to CBWM in Mongolia the policy and legal framework conditions for CBWM are generally favourable thanks to the German sponsored CBNRM projects in the country. Legislation and policies relative to CBWM have been analyzed and described as part of the complex compendium on Mongolian environmental law by Wingard et al. (2001)[2]. There appears consensus, however, that the multitude of rules and regulations related to the environmental sector needs to be streamlined and updated. This applies in particular to the hunting law, one of the oldest in the world, dating back to the Ginghis Khan ruling. Current hunting regulations insufficiently cover the need for a holistic approach to sustainable conservation management of fauna and its habitat and insufficiently address the need for the compilation of comprehensive ecological baseline data as a prerequisite for the design of intelligent wildlife harvest strategies.

11 Also largely missing in the current legislation and policies are clear directives to regional and local authorities as to their responsibilities and obligations related to the sustainable use and management of renewable resources. Furthermore, the central policies and laws provide little/no incentives for participatory conservation management on a local level. It appears that there is little understanding for the need to recognize sustainable nature conservation as a mostly local responsibility that would encourage ownership development in the resource base.

12 Legislation pertinent to the implementation of CBNRM and guidelines on testing the concept of CBNRM in buffer zones of protected areas have been analyzed and formulated by the GTZ project.[3] Legislation is in place for the establishment and management of protected areas and corresponding buffer zones. The guidelines provided by the GTZ project provide the framework for a ministerial order that stipulates "…Some measure to be taken for the improvement of local people participation in nature

[2] Wingard James R. et al. 2001. Compendium of Environmental Law and Practice in Mongolia. GTZ Archives UlaanBaatar.
[3] Anonymous. 2000. Guideline on testing the concept of community-based natural resource management in bufferzones of special protected areas. GTZ Archives.

conservation work"[4] and a ministerial resolution related to the establishment of a working group to develop procedures and regulations in support of the ministerial order and to provide the framework for the implementation of CBRNM projects[5].

13 In summary, in spite of the described shortcomings there appears no legal and policy barrier to the establishment of the proposed CBWM pilot projects in principal, although there is a need for policy development on a central level that should provide much needed incentives to local authorities and local herders in order to fully embrace the concept of CBWM.

3.2 The Two Proposed CBWM Pilot Areas

14 The two areas selected for CBWM are located in the Altai Sayan ecoregion in the Aimag of Hovd. They form part of a prominent mountain ridge extending several hundred km from north to south. To the north the mountains border Russia, to the south the Gobi desert. To the west the mountain ridge is interlinked with mountains shared with Kazakhstan and China and to the east it is bordered by a large plain typified by lakes and wetlands. The elevation ranges from approximately 1,200m to 4,000 m. The climate is typical continental characterized by hot summers and cold winters with temperatures reaching 35^0 C below zero in January and 35^0 C above in July. Both areas are historically known to support substantial Argali and Ibex populations that have evolved over centuries with nomadic herders and their livestock sharing the same range. Both areas have been subject to Argali and Ibex trophy hunting for the past 40 years. The Myangan Ugalzat is well known for outstanding trophies of both species and supports substantially higher population densities of Ibex than the northern proposed CBWM area.

15 **i) Khukh Serkh CBWM**. The northern area "Kukh Serkh" centers on a strict nature reserve (Zapovednik) which does not permit any resource and/or other land use in its core area of approximately 25,000 ha (see Map 1). The Kukh Serkh Protected Area (PA) was established in 1977 with an original area of 65,000 ha. Since its early gazettment, the conservation unit has been downsized twice with strict ecosystem protection confined to its core area. In the year 2000 the administration of the Zapovednik was officially transferred to the Aimag of Hovd. In 1997 the former director of the Kukh Serkh[6] conservation area elaborated Some management guidelines for the protected area (PA) as per directives from the central government. This also included Some arbitrary stratification into different use zones that inadequately addresses the conservation needs for the area. The Zapovednik does not enjoy any infrastructure. The two rangers responsible for law enforcement and control of the conservation unit are poorly trained and don't have any equipment to carry out their control functions.

Insert map 1

[4] Mongolian Nature and Environment Minister Order on local people participation in nature conservation work. Ref. No: 41, Feb. 14., 2001.
[5] Ministerial Resolution, Ministry of Nature and Environment. Subject: Establishment of working group for CBNRM. Undated. GTZ Archives.
[6] Altai, former director of the Zapovednik Khukh Serkh

16 The total area proposed as CBWM covers approximately 200 000 ha sub-alpine and alpine grasslands located mostly in the Sums of Deluun and Hovd. The Sums of Deluun, Hovd and Duut would be subject to the cooperative to be created for this CBWM.

17 Grazing pressure on the Kukh Serkh Reserve by livestock is high and still increasing due to the combination of an increasing number of livestock and deteriorating range conditions outside the reserve. Three consecutive years of drought followed by the harsh winter of 2000 resulted in unusually high pressure by livestock on range that had not been utilized before (i.e., core zones of conservation unit) and/ or areas difficult in access. It also caused livestock losses of 30% and more, predominantly affecting cattle and yak although Some families have lost almost their entire stock[7] . Table 3.2-a shows the current livestock numbers by species for the Sums of Hovd and Deluun.

Table 3.2-a: Total Number of livestock by species on Sum level as recorded before the losses suffered during the 2000 winter. Source: Sum records.

Sum	Camels	Horses	Yaks	Cattle	Sheep	Goats	Total
Hovd	1,000	5,400	4,000	4,000	40,600	55,000	110,000
Deluun	600	10,000	6,000	6,000	96,000	92,400	211,000

18 Hovd Sum provides approximately 200,000 ha rangeland for a total of 110,000 livestock[8] (=1.8 ha/animal). This is believed to represent the maximum carrying capacity of the Hovd range for the current number of livestock in an average year with an average winter and average precipitation[9]. According to the same source, the total number of livestock in the Hovd Sum averaged 70,000 animals prior to 1965 (i.e., 63% less). In other words, prior to 1965 twice as much range was available per animal (i.e., 2,9 ha/animal) as compared to today, and at least twice the primary production as compared to the current conditions. Since 1965 the total number of livestock in the Hovd Aimag has been steadily increasing by an average of 30 to 40 %[10]. Assuming that livestock loss as a result of the extended drought period and the severe winter of 2000 averaged 30 %, the present number of livestock would equal the 1965 numbers. The difference is that the current range condition as a result of overgrazing is far less favourable than it was in 1965. This is supported through information received from local herders (i.e., According to Kharai [11] 4 ha range/cow are required under present range conditions to the east of Khukh Serkh compared to approximately 2 ha/cow in the early 70s).

19 According to the Governors of Hovd and Deluun the human population in the study area has been relatively stable for the past 40 years with an average of 5 persons per family (see Table 3.2-b). The average bag size per Sum is 50,000 ha, used by approximately 50 families each. With the exception of one Bag in the Hovd Sum

[7] Ansari, ranger of Kukh Serkh; personal communication 27 July, 2001
[8] Shaizan, representative of local citizen Hovd Sum; personal communication 26 August, 2001
[9] Darger Khan, Governor Hovd Sum; personal communication 26 August, 2001
[10] Shirendev, Vice Governor Hovd Sum; personal communication 31 July, 2001
[11] Kharai, herder of Hovd Sum, personal communication, 27 July, 2001

depending on agriculture, the other Bags support nomadic herder families. The population density in the Hovd Sum is 1.8 persons/km^2, which is insignificantly higher than in Deluun Sum. The average herder in Hovd Sum changes its location up to 8 times per year[12], in Deluun Sum on the average less than 6 times [13]. Herders from Deluun Sum have started to establish permanent winter camps along the perimeter of the PA, increasingly threatening the range integrity of the conservation area.

20 Herders from the Hovd Aimag have traditionally used the larger part of the Khukh Serkh PA prior to its official establishment as Zapovednik in 1977. Except for the designated core area, herders who traditionally used the PA area, have been granted continuous user rights for parts of the Zapovednik. In absence of proper control and law enforcement, however, and as a result of the extended drought period, increasingly more families with their livestock infringe on the PA, frequently penetrating far into the core area[14].

Table 3.2-b: Sum related statistics of relevance.

Hovd Sum	Quantity	Deluun Sum	Quantity
Total area in ha	282,000	Total area in ha	559,000
Total range available in ha	200,000		
# of livestock/ha range	1 animal/1.8 ha		1 animal/ 2.6 ha
Bags	5	Bags	10
Bags dependent on livestock	3	Bags dependent on livestock	9
Bag dependent on agriculture	1		
Families	1,000	Families	1,800
Total population (=1,8 persons/km^2)	5,000	Total population (=1,5persons/km^2)	8,400
Average family	5 persons	Average family	4.8 persons

21 **ii) Myangan Ulgazat CBWM.**
The southern proposed pilot area for CBWM covers approximately 800 000 ha sub-alpine and alpine grasslands located in the Sums of Most, Tsetseg and Altai which also would be the Sums subject to the cooperative to be created for this CBWM (see Map 2).

Map 2

22 Grazing pressure by livestock in the entire area is high for the same reasons as described for the Khukh Serkh proposed CBWM area. Due to the adverse climatic conditions of the past few years, livestock has penetrated into remote mountain areas in

[12] Moldatai, Kharai, typical Kazakh herders of Hovd Sum, personal communication 27 July, 2001
[13] Onorkhan, ranger of Khukh Serkh Zapovednik, personal communication 29 July, 2001
[14] Ansari, ranger of Khukh Serkh PA, personal communication July 2001

search of forage. Livestock loss in this area as a result of the harsh winter of 2000 was as high as described for Khukh Serkh. Table 3.2-c specifies the livestock in the Myangan Ugalzat region.

Table 3.2-c: Total Number of livestock by species on Sum level as recorded before the losses suffered during the 2000 winter. Source: Sum records.

Sum	Camels	Horses	Yaks	Cattle	Sheep	Goats	Total
Tstseg	807	4,285	2,915	3,000	55,564	39,123	**105,694**
Altai	1,200	4,100	2,000	2,000	38,000	40,000	**87,300**
Uench	1,600	6,000	5,900	700	42,000	36,000	**92,200**
Must	1,000	6,000	1,000	9,000	64,000	35,000	**116,000**

23 Key herders in the Myangan Ugulzat area expressed great concern about the poor range conditions as a result of the adverse climatic conditions characterizing the past few years[15]. The herders unanimously agreed that the adverse climatic conditions have forced nomadic herders to search for new grazing lands located in remote mountains that were not used by these families and their livestock in the past. Sum Governors[16] and herders also expressed concern about the increasing number of families and livestock from other Sums who are forced onto range traditionally reserved for herders from the Sums of the proposed CBWM area. Of special concern are traditional winter ranges for herders that are now utilized during the summer months, leaving little standing crop for livestock in winter. Although the total number of livestock in the proposed CBWM increased by approximately 30% since democratization, this increase appears to have been offset by livestock losses during the 2000 winter.

24 Herders interviewed for this project suggested that there is no need for more than 200-animals/average family in order to maintain traditional lifestyles. This resembles approximately the current number of livestock owned by an average family in the Myangan Ugulzat region. It is noteworthy, that the nomadic herders in this area seem to change their locations significantly more frequently (i.e., 30-45 times per year) than their neighbours in the Kukh Serkh proposed CBWM area (4-8 times per year). Whether this reflects better range management/animal husbandry practices or differences in range quality is not known. It also is noteworthy that herders in general were content with their nomadic lifestyles and the current land tenure (or lack thereof); all herders questioned like to continue their tradition to be passed on to the next generation. Families with more than three children, however, see the need to facilitate a higher education for Some of their offspring in order for them to pursue professional careers. This may be indicative of the general awareness by herders with respect to the limitations of available range that does not permit any significant population and/or livestock increase.

25 The wide variation in livestock numbers per unit area in the three Sums of Myangan Ugulzat region (see Table 3.2-d) is believed to reflect range availability and range quality. The Altai Sum for example averages 1 animal per 15 ha compared to 1

[15] Tulgaa, Naidav, Chimed, Battogtokh, key herders at Myangan Ugulzat, pers. commun., Aug. 2001
[16] Ganzorig, Vice Governor Tsetseg, Ragshaabazar, Governor Most, pers. commun., July 2001

animal per 3 ha in Most Sum. This is explained by the larger part of the Altai Sum being extremely dry (i.e., Gobi desert) and unsuitable for livestock. Lack of water and very poor soil result in an unusually low primary production compared to the Myangan Ugalzat Mountains characterizing the larger part of Most Sum. Only the northern, mountainous section of the Altai Sum provides suitable livestock range. As may be expected, this area receives an unusually high livestock pressure throughout the year. The difference in climatic conditions and land use potential may also be reflected by the per capita comparison of the Sums of interest: Altai Sum with 0.2 persons/km^2 vs. 1.1 persons/ km^2 in the Most Sum which has the highest human population density of the three Sums proposed for the CBWM cooperative (see Table 3.2-d).

26 According to information received from the three Sums the human population in the study area has been relatively stable for the past 40 years with an average of 4-5 persons per family (see Table 3.2-d). The average bag size per Sum in the Myangan Ugalzat area is significantly higher than in the Khuk Serkh region, a reflection of the large areas that are uninhabitable because of lack of water (i.e., desert and semi-desert). Most people depend on livestock for their livelihood, although small coal and mineral mines provide alternative income to families from Tsetseg and Altai Sums.

Table 3.2-d: Sum related statistics of relevance

Ttsetseg Sum	**Quantity**	**Altai Sum**	**Quantity**
Total area in ha	346,718	Total area in ha	1,373,000
# of livestock/ha	1 /3.2 ha	# of livestock/ha	1/15.7 ha
Bags	5	Bags	4
Bags dependent on livestock	3	Bags dependent on livestock	4
Bag dependent on coal mine	1		
Families	579	Families	676
Total population (=0,8 persons/km^2)	2,759	Total population (=0,2 persons/km^2)	3,192
Average family	4.7 persons	Average family	4.7 persons
Uench Sum	**Quantity**	**Must Sum**	**Quantity**
Total area in ha	700,000	Total area in ha	392,000
# of livestock/ha	1/7.5 ha	# of livestock/ha	1/3.4 ha
Bags	5	Bags	5
Bags dependent on livestock	5	Bags dependent on livestock	4
Families	980	Families	937
Total population (=0,7 persons/km^2)	4,600	Total population (=1,1 persons/km^2)	4,500
Average family	4.7 persons	Average family	4.8 persons

3.3 Baseline Data on the Altai Argali.

27 To date, no comprehensive research on the Altai Argali has been implemented. Studies have been sporadic and remain largely inconclusive. No systematic research data

are available on population structure, population dynamics (i.e., fertility rate, mortality and mortality factors) dietary needs, feeding behaviour, habitat requirements, seasonal habitats and movements, important biological events (i.e., rutting and lambing), habitat partitioning with livestock, identification of critical habitat requisites, range productivity, range carrying capacity, etc. The need for high quality ecological baseline data as prerequisite for meaningful management is obvious. This need was generally recognized at a recent WWF sponsored workshop on Argali management in Ulaan Bataar[17].

28 In the past, work on the Altai Argali has focused mostly on population census as basis for setting harvest quotas for trophy hunting. No Argali census and/or assessment of Argali distribution were carried out prior to 1970[18]. In 1976 Mongolia's Academy of Science took the lead in conducting the first countrywide population survey of Argali in an attempt to assess its relative abundance and geographic distribution[19]. Three categories of the relative local abundance of Argali have been used ever since: (a) abundant, (b) rare and (c) very rare. It is not quite clear, however, how the categories relate to absolute population survey data.

29 Since 1976 censusing of Argali has been conducted by different persons, institutions and organizations, mostly in areas were Argali have been subject to trophy hunting. Most census has been done on the ground using different survey techniques of questionable quality that do not permit comparison of survey results. It is assumed that survey results are biased as to total numbers, herd composition, recruitment and fertility rates as a result of personal survey bias and interpretation. There is little doubt that available survey data are generally of questionable quality and reliability, insufficient for a meaningful identification of harvest quotas. This was generally recognized by the participants of the November 2000 Argali workshop in Ulaanbaatar.

30 Surveys and other work on Argali in the Altai Sayan ecoregion carried out to date have been summarized by Davkharbayar et al.[20]. The information provided in this paper is confusing. Density estimates expressed as "head/square mile" is difficult to interpret and may not necessarily permit the comparison of densities in different areas. Much of the information provided is contradictory and the overall census bias may be high. Census data obtained from "scientific" surveys are mostly mixed with anecdotal information collected from Sum inspectors, hunters and local herders. The credibility of such database is questionable.

31 The most recent and seemingly first systematic country-wide population census of Argali was carried out in June 2001 under the leadership of the Institute of Biology of Mongolia's Academy of Sciences. Safari International (US $ 7,000) and local outfitters (US $ 20,000) sponsored the surveys. It is believed that the census was mostly in

[17] Workshop on Argali conservation. Ulaanbaatar October 2000. WWF Archives.
[18] Anon., Report on Argali sheep conservation activities undertaken in Mongolia between 1993-2000. WWF Archives.
[19] IBID
[20] Davkharbayar, Atai and Beibet. 2000. Study on Argali distribution, location and resources in Some parts of the Mongolian side of the Altai Sayan Ecoregion. WWF Archives

response to the current ban by the US authorities on the import of Argali trophies. The Argali is classified by the USA as "threatened" on its endangered species list, imports being subject to a CITES permit. Under the current Act, Argali trophies may not be imported into the USA as long as it cannot be shown that Argali as a "hunted species" is actively managed on a sustainable basis and that the money generated from hunting fees is used for conservation management[21].

32 The July 2001 country-wide Argali survey was based on the same systematic random distribution sampling technique in order to minimize survey bias and to facilitate comparison of census results. It is suggested, however, that the census bias at least for the Altai Ecoregion may be very high for following reasons:

- The chosen census technique assumes that Argali in summer are evenly distributed throughout their home range (this is a false assumption because of sex segregation of Argali from spring to fall and an uneven distribution due to heavy pressure by livestock, herders and their dogs as well as poaching).
- Observer groups are not homogenous and observers are generally in-experienced, resulting in a presumably unusually high oversight, especially when animals are bedded down.
- Observations are made mostly during the days, not during daily activity peaks when animals are easier to spot (This is due to long travel distances from base camps where observers spend the night).
- Observers pre-classify ranges according to information by local herders (This information may be highly biased).
- Problems in aging and classifying nursing bands and bachelor groups (because of inexperienced observers).
- Extremely difficult and inaccessible terrain which does not allow visual observations from chosen vantage points as stipulated by the survey technique, and which does not permit the use of linear survey transects (Circumstantial evidence suggests that Argali may have been concentrated at the time of the census in the most inaccessible high mountains as a result of livestock pressure and other harassment).
- Absolute census data may not be extrapolated as stipulated by chosen survey technique (because the sample areas are selected in favour of accessible terrain).
- Summer is the wrong time of the year to census Altai Argali (census should be done when Argali concentrate for the rut and on the winter range, which is in October/November).

33 The Academy of Sciences is the designated institution in charge of periodic census of game animals as basis for setting annual harvest quotas. However, since democratization in 1990 no funding has been made available by the central government for this purpose and revenues generated from hunting and culling of wildlife is not returned to conservation management and/or wildlife population surveys.

[21] Reading Richard P., S. Amgalanbaatar et al. 1997. Argali surveys in Mongolia' s South Gobi. Oryx Vol 31 No 4, Oct. 1997.

3.4 Conservation Status of Argali Populations in the Two Pilot Areas.

34 There is consensus by local people and the scientific community that numbers of Altai Argali are low and that populations are declining throughout their geographic range in the Altai Sayan ecoregion. According to local herders and stakeholders familiar with the two areas of interest Argali were abundant in both areas until the early to mid-90s. Nursing bands and bachelor groups ranging from 30-50 animals and more were observed regularly by herders throughout the Khukh Serkh and Myangan Ugulzat mountains from spring to fall prior to 1990. From 1995 to present sightings have become less frequent, although herders have substantially expanded their range, penetrating deeply into traditional Argali home ranges.

35 In 1997 an Argali census in the Khukh Serkh PA and support zone resulted in an estimate of 1200 animals. The survey took place in early summer and was implemented with the assistance of Russian scientists from Siberia [22]. The circumstances and methods used for the survey are unknown. Informed people believe that the estimate for whatever reason was largely inflated[23].

36 A four days reconnaissance of the area by the consultant in late August revealed not a single sighting, although numerous Argali bedding sites and other signs were observed concentrated on high elevation scree slopes.

37 The official Argali census from early August 2001 that covered parts of the Khuk Serkh range resulted in sightings of one bachelor band of approximately 50 animals (mostly mature rams of older age classes) and several small nursing groups[24], totaling approximately 50 (unclassified) animals. The grand total for the area was 100 animals. It will be difficult to relate this number to the Kukh Serkh range at large. The sample area was selected based on recent sightings by local herders. In other words, the selection of the sample area was subjective in favor of possible sightings and not designed by random as required by the chosen survey method. Therefore the data cannot simply be extrapolated without compounding the bias.

38 The official survey results suggest that the total Argali population for this area is well below the 1997 estimate. A conservative estimate that is based on personal observations by the consultant, complemented through information received from local herders, indicate a population total of 300-400 animals. Local herders[25] report that practically no lambs have been observed in 2001. This may suggest a high post-natal lamb mortality as a result of unfavourable weather and/or poor range conditions. It may also be the result of an unusually low fertility rate. Possible causes for low fertility could be disturbance of sheep during the rut (i.e., harassment by livestock and herders), or wide dispersal of animals during the rut as a result of poor range conditions. Records from the

[22] Ganbold, Director of Hovd Aimag Conservation Areas, personal communication 25July, 2001.
[23] Onorkhan, Ranger of Khukh Serkh Zapovednik, personal communication 29 July, 2001.
[24] Amgalan, Group leader of survey team for Khukh Serkh range, personal communication, 15 August, 2001.
[25] Moldatai, Kharai, Ansari, key local herders, personal communication July 2001.

80s and early 90s show lamb/ewe ratios of 45:100 ewes for this area[26]. At this point it is unknown whether the Khukh Serkh population is stable, declining or increasing. Circumstantial evidence, however, insinuates that the population may still be declining.

39 The scenario in the Myangan Ugalzat area appears quite similar to the Khukh Serkh PA and much for the same reasons. Once famous as the mountain of 1000 Argali, sightings have become increasingly rare. Local herders who have used this range all their life report that Argali are now using the remotest and most inaccessible areas, which were rarely used before[27].

40 Frisina and Boldbaatar[28] who surveyed the Myangan Ugalzat area in 1997 cautiously suggest…" that the data collected seem to indicate Argali populations are abundant in those portions of the Altai mountains surveyed". The authors also admit that observations were biased to habitats dominated by rams during August, the time of the survey. The data presented by Frisina and Boldbaatar, however, should be interpreted with caution because of the low and biased sample size that does not permit extrapolation of the data covering the entire range.

41 According to Zandanbazar[29] the manager of a Juulchin hunting camp who stays in the area from early May to the end of October every year, the lower mountains of the Myangan Ugalzat area appear to be traditional summer range for Argali nursing groups, whereas bachelor bands are commonly found in higher elevations. Zandanbazar estimates a total of 4 to 5 nursing groups (30-40 animals per group) to be using the Tsetseg area and 10 bachelor bands (10-15 animals per group). This would indicate a current population total of approximately 250-350 animals. The same source indicates poor recruitment in 2001 with an extremely low lamb:ewe ratio. This is supported through observations by Amgalanbaator and his team for the July/August census in this area of the current year: only 50 Argali were observed in total in the entire Myangan Ugalzat region and not a single lamb. Frisina and Boldbaatar (1998) report a lamb:ewe ratio of 14.7-100 for the 1997 survey in the area of concern.

42 Battogtokh[30], the manager of the Juulchin hunting camp run by the Altai Sum, estimates a maximum of 80 Argali for the Altai section of the Myangan Ugalzat mountain. Munkhdalai[31] indicates that a maximum of 50 rams use the high elevation ranges of the Uench section of the proposed CBWM area. The inspector of Most Sum[32] estimates a population total of 200-300 Argali for the Most section of the Myangan Ugalzat Mountain (i.e., the major part of the mountain located within the Most Sum

[26] Anon. 2000. Report on Argali sheep conservation activities undertaken in Mongolia between 1993-2000.
[27] Battulga, Dashimed, key local herders from Most Sum, personal communication, 1 August, 2001
[28] Frisina R. and Boldbaatar. 1998. 1997 population surveys for Argali (Ovis *ammon*) in Mongolia's Altai and Hangay Mountains. WWF Archives
[29] Zandanbazar, Hunting camp manager of Juulchin camp Tsetseg Sum, personal communication , 2 August, 2001
[30] Battogtokh, Hunting camp manager Juulchin cam Altai Sum, personal communication 3 August, 2001
[31] Munkhdalai, Inspector Uench Sum, personal communication, August 2, 2001
[32] Oodos, Inspector Uench Sum, personal communication, August 2, 2001

boundaries). He reports that from 1990 to 1995 the Argali population increased to approximately 800 and that it has been declining ever since.

43 Based on available information it is very difficult to estimate the current population size of Argali for the proposed Myangan Ugalzat CBWM. The 2001 census was very low and the census results may not be extrapolated to areas that have not been sampled. This is because the sampled area was subjectively selected in order to increase the likelihood of sightings instead of a random selection of sample areas as required by the survey technique chosen. All information considered, a conservative estimate of the resident Argali population for the proposed CBWM Myangan Ugalzat may be 400-500 animals, well below figures offered by Frisina and Boldbaatar for their 1997 survey.

3.5 Possible Causes for Declining Argali Populations.

44 **Habitat deterioration.** There appears consensus that range deterioration in the Altai Sayan ecoregion is the principal root cause for the declining Argali populations in this area. Three consecutive years of drought in the late 90s combined with an approximately 30 % increase in livestock numbers between 1990 and 2000 seems to have taken its toll on the range in both study areas. Every herder and local person interviewed for this project blamed the extended drought for the currently poor range condition in the two study areas.

45 Research on bighorn sheep elsewhere[33] shows that sheep like most other wild animal species are subject to natural population fluctuations. Such fluctuations may be caused by climate (i.e., climate also fluctuates), or by populations outgrowing the level of carrying capacity of its habitat. It is known that Rocky Mountain Bighorn populations in North America are subject to seven to 10 year population cycles characterized by a population crash that follows a period of population growth. This seems to occur when a population exceeds the carrying capacity of available winter range. It has been shown that high population densities of gregarious species such as wild sheep easily leads to an unnaturally high build-up of parasites (i.e., lungworm) and transfer of contagious diseases (i.e., pneumonia). Any additional stress factor such as a severe winter or extended drought may ultimately trigger a population crash[34].

46 If the extended drought followed by a harsh winter are the root causes for the declining Argali populations in the Altai Sayan region, it may safely be assumed that the populations will recover under more favourable climate. Climate records from both study areas seem to indicate that the drought period of the late 90s was part of a natural cycle (see Annex 3). Available data on precipitation and mean temperatures show that precipitation in the year 2000 and average temperatures seem to have normalized.

[33]. Schuerholz Goetz, 1985. Ecology of the Ewin Bighorn Sheep Population in the Canadian Rocky Mountains. Report on a five year research project, Shell Resources Ltd. Archives. 467 pages.
[34] IBID

47 A comparison of the total precipitation between the Khukh Serkh range and the Myangan Ugalzat region for three randomly selected years of the past three decades actually shows a steady increase of the precipitation from 1980 to 2000 (see Fig. 3.5-a).

Insert figure excel chart

48 It is noteworthy on this chart that highest precipitation has been recorded from the Duut meteorological station being located to the west of the Khukh Serkh mountains (i.e., lee side) and the lowest for the Buyant station, located in the rainshadow of the mountains. This clearly is reflected by the difference in plant growth between the windward side of the Khukh Serkh range and the rainshadow side as could be substantiated by the consultant through the rapid range reconnaissance implemented for this study. Ground cover (i.e., herb/grass layer) along the eastern slopes of the Khukh Serkh mountains range averaged 10 to 50 % with low productivity, low species diversity and several indicator species for dry conditions (i.e. *Artemesia* spec.). This contrasted distinctly from range studied east of the Khuk Serkh mountains. Range that had not been subject to intensive grazing by livestock until the time of the reconnaissance showed lush growth with up to 100 % ground cover and seemingly large species diversity.

49 A similar pattern in the distribution of precipitation with results similar to those described for the Khukh Serkh range is found for the Myangan Ugalzat mountain. Tstseg Sum seems to receive substantially less precipitation than Most Sum (see Figure). In this context, however, it seems prudent to point out that climate data provided to the consultant by the Hovd Aimag and Government sources from the capital[35] were difficult to interpret as a result of language barriers and data inconsistency. Figure should therefore be approached with caution.

50 **Competition with livestock.** There is no doubt that the extended period of drought that has dramatically reduced range productivity has led to an increased competition for limited forage between Argali and livestock. Signs of range overutilization by livestock are apparent everywhere. The drought has forced local herders to penetrate further and further into Argali habitat and to use traditional Argali range for longer time periods than before. This problem is aggravated through the increase of livestock and changing herd composition in favour of goats in both study areas, compounding the pressure on the already limited range available. The increase of the total number of livestock in the Hovd Aimag between 1986 and 2001 is 44 % (see Figure 3.5-b). Figure 3.5-c illustrates that the increase of livestock since 1985 in the Tstseg Sum alone has been close to 40 %.

Insert Figure3.5-b (1 page)

51 As shown by Figure 3.5-b the number of goats in the Hovd Aimag has nearly tripled since 1986. This may indicate an increasing demand for highly prized Cashmere wool but it may also be indicative of a deteriorating range that suites goats better than

[35] Hydrometerological and Environmental Monitoring Agency, personal communication, 16 August 2001

other livestock. Total sheep numbers in the same time period have increased less dramatically than goat (20 %). There is an increase in horse numbers (30%), yak and cattle (20%). The total number of camel has actually decreased by nearly half in this time period. The latter may be indicative of herders making increasing use of trucks when changing locations. Traditionally, camels have been the major beast of burden for nomadic herder families before trucks were used.

Insert Figure 3.5-c(Tsetseg)

52 There is Some concern about growing horse numbers. Horses make increasing use of alpine and sub-alpine grasslands where they are found from early spring to late fall on typical Argali range. Although the growing number of horses may be of concern regarding potential forage competition with wild ungulates, it is more the disturbance caused by herders and their dogs while checking up on their horses. Most of the herders carry guns and are believed to hunt legally and illegally while in the mountains. It is this harassment that prevents wild ungulates such as Argali to share the same range with the horses.

53 There is clear evidence that Argali and Ibex have grown very shy, a typical indicator of harassment and disturbance. When asked about wild ungulates and livestock using the same range, herders admitted that Argali, Ibex and livestock were frequently seen grazing together in the past and could be approached relatively easily. This is a definite sign of habituation that is only possible in absence of harassment such as discharge of firearms, dogs and vehicles. Of grave concern is the growing use of motorcycles for herd control that have grown popular amongst herders.

54 It is common believe that livestock and wild ungulates in the study areas have evolved in harmony over centuries. It is assumed that range overlap at certain times of the year between Argali and domestic animals has been a natural phenomenon for centuries. Older and experienced herders interviewed for this project who have traveled the two study areas since early childhood unanimously agree that wild sheep freely mixed with livestock for the better part of the year, a phenomenon experienced until the early 90s when sightings started to become less frequent.

55 It is suggested that although habitat partitioning between Argali and livestock may have taken place for centuries, that there must have been either sufficient winter range available for both or -and that is more likely- that Argali historically used distinct winter ranges that were kept free of livestock at all times of the year prior to the noticed declining Argali populations. It should be the primary goal of the CBWM project to re-establish the equilibrium that my have typified the Altai Argali range for centuries.

56 Informed local stakeholders report that Argali have been pushed into remote and marginal habitats that are mostly inaccessible by livestock. It is evident that on marginal ranges Argali have little opportunity to get adequately conditioned for the winter. This may affect fertility rates and winter survival. Winter mortality, especially in high snowfall winters, may assumed to be high under such conditions, mostly affecting lambs and rams in their prime. Mature and in particular older rams which generally dominate

the rut loose a substantial percentage of energy reserves during the rutting season and will enter the winter poorly equipped unless high quality forage is readily available on the winter range[36].

57 Research from other parts of the world and the consultant's own research clearly show that good quality winter range is critical to the survival of bighorn sheep inhabiting mountains in high snowfall areas[37]. Bighorn sheep -Argali is presumably no exception- depend on snow-free areas in winter, typically slopes exposed to high radiation and strong winds that prevent snow build up. Research by Schuerholz[38] indicates that fall range may be of equal importance to bighorn sheep because it conditions the animals for the winter. In other words, high quality forage in fall (i.e. high protein content) and sufficient forage on the winter range are critical to bighorn and thin-horn sheep survival. It may safely be assumed that this also applies to Argali sheep. Furthermore, it is suggested that herders may cause disturbance of sheep on traditional rutting grounds as and their livestock may result in low fertility rates. Lambing areas are other critical habitat types that are highly sensitive to disturbance.

58 Although supporting data are lacking, it is assumed that livestock currently uses traditional Argali winter range at Some point between spring and fall in both proposed CBWM areas[39]. The damage that can be done if six domestic species (i.e., goats, sheep, cattle, yaks, horses and camels), each with distinct forage preferences, utilize sheep winter range for any length of time, is evident. The entire annual growth (=standing crop) may be destroyed on such ranges leaving very little for the wild ungulate. Compounding the problem is that sheep winter range by nature is frequently found on poor sites of low productivity as a result of steep slopes and high radiation. This implies that Argali of both study areas may increasingly be forced onto marginal winter ranges exposing already vulnerable populations to additional stress. It should be noted that weakened specimens are also more susceptible to predation that may explain the reported wolf attacks on Argali in the Khukh Serkh area.

59 Reports from Hovd Sum indicate that Argali and Ibex used to be plentiful along the eastern slopes of the Khukh Serkh PA during the 80s[40] and could be seen throughout the winter on south east facing slopes. Range conditions at the time were good and grazing pressure by livestock was low. Apparently, Argali are not anylonger found on these sites, presumably having been pushed out by livestock and being forced into the most inaccessible high mountains that characterize the core area of the PA as a result of deteriorating range. Onorkhan[41] reports that Argali used to be plentiful in the western section of the PA, using the highly productive alpine meadows from spring to fall and lower elevations in winter. For the past years sightings have become increasingly rare and

[36] Schuerholz, 1985
[37] IBID
[38] IBID
[39] Local herders in both study areas support this assumptions
[40] Bakhad, Inspector Hovd Sum, Ansari Ranger, personal communication 26 July, 2001
[41] Onorkhan, Ranger of Khukh Serkh Zapovednik, personal communication 29 July, 2001

only few animals seem to use the traditional low elevation winter range which are now crowded by livestock.

60 **Other mortality factors.** No research data on natural mortality of Argali from the two study areas are available. Information on mortality factors are mostly anecdotal and therefore of little value. However, there is reason to believe that the natural mortality of Argali populations in both study areas may have been high during and following the severe winter of 2000 that also caused livestock losses of 30 % and more. It has been speculated that Argali entering the winter season with low body reserves not survive a harsh winter, especially if winter range is sparse as a result of overgrazing by livestock and/or high snowfall. Although Argali dying in late winter on low elevation ranges shared with livestock have been reported [42] for the severe winter of 2000, it is not possible to draw any conclusion from single observations. Suffice it to say that a relatively high sheep mortality as a result of range competition with livestock following the extended drought period that culminated in a severe winter with extremely low temperatures and high snowfall may have occurred.

61 Poaching and subsistence hunting is mortality factor that should not be underestimated. Dulamtseren[43] points out that poaching by poor people was the principle reason for rapidly declining Argali populations in the study area during the 60s, although there is no statistical evidence in support of this theory. The herders interviewed in the Khukh Serkh area for this project claim to actively protect Argali and deny any knowledge of illegal hunting activities involving Argali[44]. Ranger Ansari who is responsible for controlling the western section of the PA believes that Argali poaching takes place in the core area of the Khukh Serkh PA. According to Onarkhan, the ranger responsible for the eastern section of the PA, there has not been a reported case of Argali poaching for the past 13 years in his area of responsibility. However, the ranger and the consultant during the two days range riding the area caught three poachers. Amgalan[45] reports that his group counted at least 10 herders with rifles in the core area of the PA although none was seen with a dead animal.

62 For the past 10 years there has been very little control of the Khukh Serkh Argali range by PA personnel due to the lack of funds and equipment. The two rangers officially in charge of protecting the former Zapovednik have no mobility and little incentive to patrol the area on foot. Poachers may therefore safely roam the mountains without danger of getting caught. Oyundari[46] expresses concern about local people traditionally hunting Argali for meat in the believe that it is "good for pregnant women.

[42] Onorkhan, Ranger of Khukh Serkh Zapovednik, personal communication, 29 July, 2001
[43] Dulamtseren, Director of Inst. of Biology, Acad. of Sciences, personal communication, 19.July, 2001
[44] Moldatai, Kharai, herders in the Khukh Serkh area, personal communication, 26/27. July, 2001
[45] Amgalan, Biologist in charge of 2001 Argali census in Khukh Serkh, pers. commun., 17. August, 2001
[46] Oyundari, Department of International Cooperation, Ministry of NE, pers. commun., 20.July 2001

63 Hunting Safari Outfitters interviewed in the Myangan Ugalzat area claim to be the best guardians of Argali sheep in their area of influence. Hunting guides and camp managers have obviously a vested interest in the sustainable protection of Argali sheep that provide their livelihood. According to the hunting camp managers and guides of the Myangan Ugalzat area[47], poaching Argali by locals is considered severe with a major impact on Argali behaviour and population numbers.

64 Hunting of Argali by Mongolian nationals is not permitted by law. Any legal hunting is done by foreigners on a license basis. Although trophy hunting may have been excessive in earlier years, no more than 10 to 20 licenses/a for trophy rams have been issued in the past decade for the Altai Sayan region. 12 licenses were awarded for Altai Argali in 2000. It may therefore be safely assumed that trophy hunting has a minor impact on overall Argali mortality, although continuous selection of trophy rams may adversely affect rutting behaviour, recruitment, and group behaviour of bachelor bands, especially if seasoned group leaders are harvested.

65 Some people believe that a domestication attempt of Argali on official order by the Mongolian Government in 1987 may be ultimately responsible for the currently low population density of Argali in the Myangan Ugalzat region. In 1987 the Government passed a policy stipulating the domestication of wild sheep for whatever economic reasons. During the following lambing season 13 Argali lambs were live captured shortly after parturition and reared in captivity, resulting in the ultimate death of all lambs caught. Jambalsuren and Galbadrakh[48].claim that a large part of the resident Argali herd left the area for good following the disturbance on the lambing grounds and that the population never recovered "from this shock".

66 Judging by research elsewhere and the experience with large scale sheep transfer and live capture of bighorn sheep in North America[49] it is very unlikely that the one-time disturbance as caused through the lamb-capture could have a long-term effect on the resident Argali population.

67 It has been suggested that the Argali range is expanding as a result of increased livestock pressure and poor range conditions and that Argali are found now in locations where they have not been seen before[50]. If this holds true than the question is why such ranges have not been colonized before. The logical answer would be that sheep may have ventured into those areas before but could not establish viable populations because of adverse conditions. It therefore seems safe to conclude that sheep, which are found now on these new ranges, will disappear again in time, the same as what may have happened before.

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[47] Zandanbazar, Purevdorj, Battogtokh, guides and outfitters Juulchin Safari, pers. comm., July/August 2001

[48] Jambalsuren, Inspector Tstseg Sum and Galbadrakh, Ranger of Tsetseg lake Reserve, personal communication, 1 August 2001

[49] Schuerholz, 1985 and 1996. Report on the success of live capture of rocky mountain bighorn sheep. Line Creek Resources Ltd. Line Creek Archives.

[50] Amgalanbaator, Argali specialist, Academy of Sciences, personal communication , 19 July, 2001

68 Local people from Myangan Ugalzat insist that sheep from this area have moved south as a result of poor range conditions and are found now in the mountains straddling the international border with China. This theory is also very unlikely since sheep would have to cross several hundred km through the Gobi desert and open areas that offer little protection.

3.6 Law Enforcement

69 Enforcement of hunting regulations and monitoring of hunting activities are the responsibility of the "Environmental Protection Agency" of the Ministry of Nature and Environment. The total annual budget of the Department is $ 32,000. The Department is represented in each Aimag and Sum. The regional and local representatives are employees of the respective Aimag and Sum respectively.

70 Sum inspectors report to the Aimag representative of the national Environmental Protection Agency. There are 80 inspectors in total in all of Mongolia. Inspectors do not wear uniforms and have no insignia that would show their profession due to lack of funds. Inspectors are insufficiently trained and have no equipment to properly comply with their multi-layered functions Inspectors sporadically receive in-service training but not more than 2 days/year in order to be familiarized with new laws, rules and regulations[51]. Inspectors receive a wage of US $ 40-50/month and a $ 2 daily subsistence allowance when in the field. Although officially inspectors are suppose to spend at least 30% of their time on patrol, informed sources indicate that in reality it is much less. There is little incentive for inspectors to implement patrols without mode of transport and/or other field equipment.

71 Actual field control and law enforcement is the principle task of the Sum inspectors who are responsible for law enforcement of all land outside protected areas. Inspectors are responsible for the enforcement of environmental laws, the forestry code, land tenure issues, grazing and range code, hunting law, etc. According to Badam[52] local inspectors spend less than 10 % of their time on enforcement of hunting laws and range patrol. Mostly without vehicle and/or horses, local inspectors have little opportunity to patrol their areas of responsibility efficiently, especially areas as large as for example the Altai Sum with more than 1 Million ha, or Sums typifies by rugged mountainous terrain that generally is very difficult in access. Since inspectors lack the most basic equipment there is very little control during times of adverse weather conditions (i.e., winter, stormy days etc.). Consequently, there is little chance to apprehend poachers, especially herders who live in the mountains and who all own and carry guns.

3.7 Local Framework Conditions for CBWM.

[51] Badam, Senior inspector MNE, personal communication, 19 July, 2001
[52] Badam, Chief Inspector MNE, personal communication, 19. July 2001

72 Both areas proposed for CBWM are characterized by a rural pastoral lifestyle of its predominantly nomadic herders. Livestock and wild herbivores have evolved together on rangelands that may have reached a natural climax stage for a long time. It may be asSomed that number and composition of livestock in the past was adjusted to the carrying capacity of the available range. It may also be asSomed that this system has been subject to periodic fluctuations, mostly as a result of changing climate as experienced only recently.

73 Herders in both areas appear very much in tune with nature and are fully aware that their livelihood depends on the range quality and good stewardship. Good range stewardship comes natural to the local herders, the knowledge of sound range management having been passed on from generation to generation. Good range management is typified by constantly moving livestock (range rotation) in order to prevent local range overutilization. Good herders in the area change their location more than 40 times per year.

74 Democratization and privatization have Somewhat alterd the pattern. While most herders want to maintain their traditional lifestyle and seem satisfied with 200 to 300 animals per family, others have tried to maximize livestock numbers at the cost of the range and the wildlife it supports. Several herders interviewed expressed deep concern about the deteriorating range and the effect it has on their livestock and wildlife. All herders interviewed consider Argali and other wildlife an integral part of the system that needs to be protected. Although the current legislation prohibits hunting of Argali and Ibex by Mongolians, most herders seem to accept the law and protect wild ungulates without receiving direct benefits.

75 Against this background all herders and local stakeholders interviewed fully embrace the concept of CBWM and are prepared to cooperate. There is a legitimate scepticism, however, regarding commitment by the central government and its willingness to delegate management responsibilities for the big game species to the CBWM group and to pass on licenses and revenues received from foreign hunters directly to the CBWM group.

76 Hovd Aimag Government officials including the Governor and Vice-Governor are fully supportive of the proposed CBWM and promised to lobby for the implementation of the proposed pilot projects on the central Government level. There also is a strong commitment on the Sum level Government. This includes all Sums approached and to be included in the two CBWM projects. Sums clearly recognize the benefits of CBWM to their communities and constituents and are willing to fully support the projects.

77 This applies in particular to Most Sum which has taken a pro-active role to wildlife conservation with focus on Argali protection. In an effort of self-help the Sum has formed a natural resource protection committee with designated voluntary rangers who operate under the guidance of the local inspector in an effort to provide sustainable protection of Argali. The committee was formed in 1997. It is chaired by the Vice

Governor of Most Sum. It is composed of four representatives of each Bag totaling 20 persons with vested interest in conservation. The Committee members act as voluntary wildlife wardens reporting to the Sum inspector on Argali sightings and incidental observations such as Argali movements, herd size and composition, habitat use etc.

78 On recommendation of the committee Most Sum council has submitted a petition to the Aimag Government in favour of converting Myangan Ugalzat into a national park in order to provide sustainable protection to the mountainous ecosystems with their resident Argali[53] and Ibex populations. According to the Governor of Most Sum, the proposal is endorsed by herders and other constituents. The Most Sum has fully embraced the concept of a CBWM pilot project and may well assume a leadership role in the promotion of this undertaking.

3.8 Trophy Hunting

79 There are two major reasons why the Altai Argali sheep has been chosen as the principal target species for CBWM in the two pilot project areas: (a) Argali is a highly desired and one of the most highly prized trophy animal in the world and therefore of great economic interest to CBWM; and (b) the conservation status of the Altai Argali is unknown; there is great concern about declining populations that may not sustain trophy hunting unless concerted conservation efforts are able to reverse the negative population trend. It is believed that the latter will only be possible with the support of local herders who should become the prime beneficiaries of trophy hunting in exchange for sacrifices to be made for conservation management.

80 The reason for the high market value as trophy animal is that the Argali is one of the largest wild sheep species in the world and the demand is higher than the supply. In a market economy the demand sets the prize. The average cost of an Altai Argali is a staggering US $ 40,000 and that may not be the ceiling in the future.

81 At present, trophy hunting of big game species in Mongolia is the privilege of foreign hunters. Nationals are not allowed to hunt big game animals by law. Trophy hunting by foreigners was first introduced in 1964 and has taken place ever since. It is considered an important earner of foreign currency in a country with little resources. The central government receives US $ 18,000 in resource use and license fees for Altai Argali and US $ 900 for an Ibex respectively. Until 1999, licensing was the responsibility of the "Environmental Protection Agency" (i.e., one of the three agencies of the MNE). It is now the responsibility of the "Policy Implementation Department" (i.e., one of the five Departments of the MNE).

82 According to Banzragh[54] trophy hunting peaked in the 80 when 120 to 200 licenses for trophy rams were issued per year. This quota was based on a population estimate of Argali that resulted from of a country-wide survey implemented by the

[53] Petition by the Sum submitted to the Hovd Aimag, August 2000
[54] Banzragch, State Secretary, MNE, personal communication, 20 July, 2001

Institute of Biology from the Academy of Sciences in 1975. The grand total the includes Altai and Gobi Argali was estimated at 40,000 in 1976[55]. Between 1976 and 1986 the Institute of Biology continued to compile data from all Sums were Argali had been reported. Based on such mostly anecdotal data and sporadic localized census the total population of Argali was estimated to be 55,000 animals in 1986. For the following ten years the Institute of Biology continued to collect quantitative data on the species and several surveys were carried out in locations subject to hunting. Based on these surveys it was concluded that total numbers were increasing between 1985 and 1995[56].

83 As described earlier, several localized surveys including the two study areas were implemented since 1995, mostly sponsored by international hunting organizations and safari outfitters. Although the survey results seemed to indicate that the Altai Argali was "abundant" in the surveyed areas, other researchers [57] report that …"numbers of Altai Argali may be low and declining".

84 No statistics on hunting permits issued prior to the year 2000 could be obtained for this project from the Environmental Protection Agency of the MNE. The only statistical information on issued licenses was provided by the Policy Implementation Department for the year 2000 (see Annex 4). Badam[58] recalls that following a period of heavy Argali hunting in the 70s and 80s with up to 140 permits/a, the Government chose a more conservative approach to Argali hunting as of the early 90s. As shown by Table 3.8-a an average of 8-19 permits for Altai Argali per year were issued between 1995 and 2000. According to Badam 15 permits were issued in 2000 although the official record shows 12 permits having been issued (see Annex 4).

Table 3.8-a: Hunting permits issued for Argali by the MNE.

Year	Number of Licenses Altai Argali	Number of Licenses Gobi Argali	Total Number Of Licenses Argali
1995	8	12	20
1996	14	6	20
1997	19	11	30
1998	12	23	35
1999	11	34	45
2000	15	25	40

85 The impact of trophy hunting on the Altai Argali is difficult to judge without access to sound statistics on Argali populations. Long years of management experience with trophy hunting of bighorn sheep in North America shows that a stable sheep population can sustain a 4 % harvest of the male population if hunting selects for rams

[55] Anon., 2000. Report on Argali sheep conservation activities undertaken in Mongolia between 1993-2000.
[56] IBID
[57] Reading R.P. and Amgalanbaatar et al., 1997. Argali *Ovis ammon* surveys in Mongolia's South Gobi. Oryx, 31 (4), 285-294
[58] Badam, Senior Inspector MNE, personal communication 19 July, 2001

older than 8 years only. Management experience stipulates that the ultimate management goal should be maintaining a mean age of 7 years for the male population. A harvest rate larger than 4 % disturbs the age structure of the male population that has an adverse impact on the population at large.

86 Against this background following conclusions may be drawn: assuming that the proposed Khukh Serkh CBWM currently sustains a stable Argali population of 400 animals with normal sex and age structure and normal recruitment and juvenile survival and a normal natural mortality of 10 %, then 8-10 rams older than 8 years could safely be harvested per year without adversely affecting the overall population.

87 Translated to Myangan Ugalzat: a population of 500 could sustain a conservative harvest quota of 10 rams older than 8 years. The quota issued for the current year for this area is 7 rams[59] . In other words, the current quota seems conservative and quite reasonable assuming that a male population of 200-250 exists for this area. However, it would be prudent to verify population structure and population condition of Argali for both areas prior to embarking on the planned CBWM.

88 The current procedure of setting quotas for trophy hunting is not satisfactory. The local Government recommends quotas to the Central Government. Proposed quotas are based on guesstimates and information received from local herders. For species classified as "endangered" the hunting law stipulates population surveys by professional organizations. Such surveys are assumed to be more systematic resulting in more reliable census data than estimates by local herders that are mostly based on chance sightings. Until 1990 Argali census was the responsibility of the Academy of Sciences. Although this arrangement may officially be still in place, no funding is made available by the central government to implement population surveys on a fixed schedule basis. It appears that at present census takes place only if outside funding from international hunting/sheep affiliated organizations or from local outfitters with vested interest in sheep management is made available.

89 The Policy Implementation Department of the MNE is responsible for scheduling census of rare and endangered species that are subject to trophy hunting. Officially, the Central Government provides funding for mandatory population surveys of such species; funding, however, is sporadic and insufficient[60]. The Department also issues and allocates licenses for such species (i.e., Argali, Ibex, Black-tailed gazelle, White-tailed gazelle, Elk, Wild boar, Roe deer and Wolf) to be hunted only in areas that have been surveyed. Argali and Ibex hunting that currently takes place in both study areas is based on the previously mentioned 1997 surveys[61]. The Department of Policy Implementation is advised on matters regarding Argali management by the National Argali Committee, composed of the director of the Policy Implementation Department of the MNE and two other Government representatives and one representative of the Prime Ministers office.

[59] Delgersuren, Juulchin Hunting Safari, personal communication 19 July, 2001
[60] Ganzorigt, Chief of Policy Implementation Department, personal communication, 20 July 2001
[61] Dambaa, Ex Governor of Hovd Aimag, now Mongol Tour, personal communication, 25 July, 2001

90 Trophy hunting by foreigners is organized by local safari outfitters. There are currently 26 hunting outfitters in Mongolia all competing for a limited number of highly prized species tags. Outfitters are legally obliged to enter into a hunting agreement with the Aimag and Sum where the hunt will take place prior to applying for licenses with the MNE. Contracts with Sums are negotiated on an annual basis. There is no hunting in protected areas. Outfitters may only receive requested licenses for their clients if a written agreement between the outfitter and the local authorities is in place. Delgersuren[62] reports that approximately 200 licenses for Argali were requested by the 28 outfitters for the year 2000 of which only 40 were allocated by the MNE to 18 different outfitters (see Table 3.8-b).

Insert table 3.8-b excel table Licenses issued for trophy animals in the year 2000

91 Twelve permits were issued for Altai Argali and 28 for Gobi Argali. Of the 12 Altai Argali seven were allocated to the Myangan Ugalzat area. According to the same source, several outfitters receiving quotas have no infrastructure and/ or market access to foreign hunters. And frequently such outfitters sell their licenses to larger outfitters that have the capacity to accommodate more hunters but did not receive sufficient licenses from the MNE.

92 Although the new hunting law (amended in May 2000) specifies the selection criteria to be applied to outfitters when allocating quotas, the allocation process is not transparent and there is need for improvement[63]. Outfitters applying for licenses for foreign clients must have *inter alia* proven financial capability in order to pay for the licenses, proven access to foreign markets, well trained professional staff and clean legal track record.

93 At present, "Juulchin" is the largest outfitter in the country. Juulchin was the former Government agency responsible for foreign trophy hunters since 1964. In 1992 the agency was privatized and turned into a shareholding company. As shown by Table 3.8-b Juulchin was allocated approximately 230 licenses for 10 different species in 2000. Of the total allocation 2 permits for Altai Argali and 102 for Altai Ibex were issued that were mostly hunted from the four hunting camps that are maintained by Juulchin in the Myangan Ugalzat area. Delgersuren[64] claims 100 % success on all trophy hunts. Although there is no age and/or size restriction on any of the trophy animals, only large trophies are harvested according to the outfitters questioned. The hunting season on trophy species is from June to mid-November. Juulchin operates eight hunting camps in the high Altai region (4 in Altai Sum, 2 in Uvs Sum, 1 in Olgy Sum and 1 in Tsetseg Sum) of which 4 are located in the proposed Myangan Ugalzat CBWM area (see Map 2).

94 According to the number of licenses issued Mongol Safari appears to be the second largest outfitter (see Table 3.8-b). In the year 2000 approximately 85 licenses were allocated to Mongol Safari; 3 for Gobi Argali and 42 for Ibex. The company did not receive a permit for Altai Argali but 41 permits for Altai Ibex. Mongol Safari operates a

[62] Delgersuren, Representative of Juulchin outfitters, personal communication, 19.July 2001
[63] Geelegnyam, Representative of Mongol Safari, personal communication, 20 July 2001
[64] Delgersuren, Representative of Juulchin Outfitters, personal communication, 19 July 2001

hunting camp in the area of Most Sum since 1996 and another camp in the Altai Sum. Four of the current hunting camps located in the Altai Sayan ecoregion are found in the proposed Myangan Ugalzat CBWM area

95 At present no outfitter camp is located in the Khukh Serkh proposed CBWM area, although hunting for Argali and Ibex by foreign trophy hunters takes place[65]. No records on hunting activities in this area were available for this study. As indicated by the Chief inspector from the Hovd Aimag[66] outfitters generally don't comply with official rules obliging the outfitter to provide Aimag and Sum Inspectors with hunt details prior to the event and to supply the local inspectors with a completed hunter return form within 7 days of completion of a hunt. One copy of the completed form supposedly is submitted to the Environmental Protection Agency of the MNE. However, no such records could be located in the MNE's archives.

96 According to representatives of Juulchin and Mongol Safari approximately 50 % of their clients are American and 50 % from European countries. Traditionally, sheep hunters are mostly Americans (up to 90 %) and Ibex hunters mostly Europeans. Key outfitters such as Juulchin and Mongol Safari maintain business contacts with hunting agents abroad but also market hunts directly at international tradeshows and through mailing lists.

97 The economic attraction of trophy hunting is apparent when studying the Table 3.8-b. Considering that an Argali hunt sells for approximately $ 40,000s and an Ibex hunt for an average of $ 4,000, Juulchin grossed about $ 400,000 for the two species alone in the year 2000. Most of these hunts were conducted in the Myangan Ugalzat study area. Of the $ 400,000 charged approximately $ 130,000 was retained by the Central Government as "natural use fee" and license fee. Currently 70% of these fees enter the national treasury; the remainder is given in equal parts to the Aimag and Sums where the hunts take place. At current, none of the revenue generated through trophy hunting is channeled to local people and/or used for the management of the hunted species. Apart from the mandatory 15 % of fees provided to the Sum that offers the hunting opportunity, very little other benefits result from a hunt, and practically none for the local herders who are the actual stewards of the Argali habitat.

98 Hunting camps are usually owned by the Sum in which the hunt takes place. Outfitters generally do not own hunting camps and/or the Gers used as accommodation of hunters and staff. Outfitters own equipment and provide their own supplies. Horses and related gear are usually rented from local herders. The average hunting camp is run by a camp manager assisted by one to two wranglers, one cook, one skinner and four hunting guides. Most employees are supplied by the Sum. The staff receives a lumpsum payment of $ 1000 per Argali and $ 200 per Ibex to be split between the camp employees. Outfitters do not seem to use satellite camps. All base camps have road access. Hunting is done by jeep, on horseback or on foot. Hunters need CITES permits for the export of

[65] Onorkhan, Ranger Khukh Serkh Zapovednik, personal communication , 29 July 2001
[66] Baduan, Chief Inspector Hovd Aimag, personal communication, 6 August 2001

trophies. The permits are issued by the Environmental Protection Agency of the MNE. Outfitters are obliged to pay 30 % of all licenses purchased from the Government by the 1st of July, the balance is due at the end of the hunting season and not later than mid-November.

3.9 Choosing the Two Pilot Areas for CBWM.

99 Although the focus of the two CBWM pilot projects may be on Argali, one of the most charismatic and flagship species of the Altai Sayan ecoregion, the approach to CBWM should be holistic, addressing ecosystems as ecological entities rather than single species. It should be noted that good habitat or system management is also good species management that benefits all species of flora and fauna in the targeted ecosystems. In other words the principal long-term goal for the selected pilot areas should be the maintenance of ecological system integrity. This also implies that ecologically viable entities have to be identified that can support viable populations of the target species. In other words the areas selected for CBWM should be large enough in order to achieve this goal.

100 The general conditions for both areas selected for the pilot projects are very favourable. The core area of the northern Khuk Serkh CBWM is a Strict Nature Reserve (former Zapovednik) that enjoys legal protection and does not permit extractive resource use. A protected area as nucleus of a CBWM unit is a great asset by providing a permanent reservoir of the resources to be utilized in the support zones. This implies that the PA should be large enough to cover critical habitat requisites characterizing the target species population home range.

101 The same applies to the Myangan Ugalzat CBWM area that is if the nucleus can be converted into a designated National Park with all its implications. In summary, the choice in favour of the two selected pilot areas appears sound for the following reasons:

102 **i) The Khukh Serkh Area:**

- The core area of the proposed CBWM unit is a strict nature reserve that enjoys legal protection. This is a critical prerequisite for a successful CBWM as long as enforcement is in place and herders are cooperative.
- The area is historically known to support a viable Argali population. The 1997 census suggests a resident population of 1200 Argali. Current census results, however, suggest that the actual Argali population may be substantially lower. However, with proper protection and improved range conditions a declining Argali population may recover rapidly, allowing for a sustainable harvest.
- There would be three Sums involved that share administrative boundaries with the PA as core zone of the proposed CBWM area. The three Sums are enthusiastic about the project and highly supportive.
- The area offers good potential for Ibex hunting.
- Due to its relative proximity to the Aimag Center and due to its scenic beauty the area is ideally suited for nature based tourism.

103 **ii) The Myangan Ugalzat area:**

- Most Sum has taken a pro-active role in favor of the sustainable Argali protection in the area of 1000 Argali by proposing the core area as designated national park.
- A new protected area (i.e., national park) would fit well into the ambitious Government conservation plans to expand its protected area system. The Government has pledged 30% of its area for conservation.
- Geographically, the Myangan Ugalzat area as designated National Park would provide a critical stepping stone for the much needed ecological connectivity of PAs in an effort to protect the unique biodiversity of the Altai Mountain range. At current there is no PA located between the Khukh Serkh Zapovednik and the Gobi Reserve that straddles the Chines border to the south.
- The Vice Minister of the MNE has shown a positive response to the NP proposal by Most Sum.
- Most Sum has voluntarily established a technical committee in order to address conservation management needs in the Sum and to assist the local inspector in law enforcement.
- The Argali population of the Myangan Ugalzat Mountain needs protection and proper management for its long-term survival. The area still seems to support a viable Argali population, also numbers at present may be down.
- The area that has been proposed for CBWM supports viable populations of Ibex as another highly desirable trophy species.
- The three Sum Governments that would be involved in CBWM are fully supportive of the project.
- Key cal herders interviewed are very concerned about the welfare of the resident Argali. They all favour conservation management.
- The area has an excellent potential for the sustainable production of medical plants, which are intensively utilized by local people.
- The area is currently heavily utilized by hunting safari outfitters that show interest in CBWM participation.
- The area has good potential for long-term nature based tourism.

104 In summary, both areas will have a strictly protected core area that will safeguard the Argali and Ibex habitat. Fringe benefits of a GEF funded project for both areas would be:

- the production of sound participatory state-of-the-art management plans;
- infrastructure development for the two core areas and capacity development on all levels to allow for CBWM and CBRM in general;
- environmental education and awareness development;
- financing the implementation of the management plans;
- active stakeholder involvement in planning, decision making and management;
- tangible benefits to local herders and other constituents participating in CBWM.

4.0 SWOT Analysis

105 A SWOT analysis (i.e., Strengths, Weaknesses, Opportunities and Threats) was carried out for this project with the participation of stakeholders from the three Government levels, the private sector and NGOs (see Annex 5 for participant list). The SWOT analysis served two major objectives, (a) to bring the different stakeholders together from the project areas and the central Government in order to initiate communication between the different players; and (b) to identify and discuss the potential barriers to and opportunities for CBWM in the two selected pilot project areas. As shown by Table 4.0 the opportunities for CBWM are promising for both areas.

106 The legal framework for local communities to use and benefit from natural resources is in place. Both areas support viable Argali population and the interest in CBWM in both areas appears high. The potential benefits to local herders and other constituents of the Sums are recognized. The Hovd Aimag and local governments are committed to CBWM and willing to provide all support necessary.

107 It is generally acknowledged that trophy hunting for Argali and Ibex represents one of the most attractive opportunities to generate revenue in isolated area such as selected for CBWM. The profit margins are quite high compared to the initial investment and/or infrastructure. Infrastructure requirements for CBWM in particular are very low and most of the infrastructure needed is currently provided by the Sums through their established hunting camps. There are several well-established operators and guide outfitters with market access for hunting clientele and non-consumptive tourists to choose from.

108 The need for capacity building on all levels and for all aspects of CBWM is generally recognized. Also that there is a lot of preparatory work to be done in order for CBWM to become operational. This includes the compilation of reliable statistical information on the target species in order to set sound hunting quotas, biological/ecological research, range productivity studies, and work with herders on livestock improvement, range stratification, rotation and use. It also is recognized that participatory land use planning and practical management plans are needed for both areas in order to provide directive to the decision makers.

Table 4.0: SWOT Analysis for the feasibility assessment of CBWM in Mongolia for the two pilot project areas Khukh Serkh and Myangan Ugulzat, 15 August 2001.

Strengths	Weaknesses	Opportunities	Threats
Sufficient policy and legal framework for resource protection	Unknown size and structure of Argali populations	Strengthen authority of local government regarding licensing procedure	Determination of harvest quotas scientifically unsound
Strong commitment by local herders to	Insufficient returns of trophy fees to local communities	Create impartial national committee	Declining Argali populations

CBWM concept Existing legislation for resource utilization in support zones of PAs Well established Safari companies with ready market access Good potential for trophy hunting Good potential for nature-based tourism Proposal by Most Government to establish NP Most Sum established self-help council for conservation management in Sum area Most sum council has established voluntary hunting wardens Legal existence of Strict Nature Reserve Khukh Serkh with all implications Existence of rangers At Khukh Serkh	No trophy fees committed to conservation Little consideration of local communities No funding of ecological baseline research No authority of local Government to monitor trophy hunting activities No economic alternative for local herders No legal right for local herders to carry firearms Issuing process of trophy hunting licenses not transparent Lack of hunting law enforcement Insufficient ecological/biological baseline data to identify harvest quotas Unknown health status and conservation status of Argali populations	to set harvest quotas objectively based on science Train community youth traditional and ethical hunting Identify carrying capacity for livestock of available range Identify critical range types for Argali and other target species Improve livestock quality Adjust size and composition of livestock herds according to area specific carrying capacity Implement periodic census of target species populations (four year cycle) Implement environmental awareness/education campaign in target areas Elaborate and implement management plans for both proposed CBWM areas Develop revenue	Uncontrolled poaching in both CBWM areas Lack of enforcement of hunting laws License fees not used for Argali conservation management Insufficient return of trophy/license fees to local communities Hunting permits not issued to local communities Lack of conservation incentives for local herders No tangible benefits to CBWM communities from trophy license fees Poor quality range for Argali as a result from intensive livestock pressure and range over-utilization Potential disease transmission between livestock and Argali Disturbance of

	Lack of knowledge By communities of CBWM Lack of public awareness Unknown mortality rate and –factors of Argali Insufficiently trained and equipped rangers No infrastructure and no equipment for Strict Nature Reserve Insufficient legislation regarding protection and utilization of natural resources	generating alternatives for herders Provide communities of CBWM with major part of trophy license fees Develop capacity in all areas of CBWM to involved communities Update hunting law and legislation for wildlife management	Argali by trophy hunters Unknown critical habitat and habitat requisites to protect for Argali Adverse climatic conditions Insufficient pasture area/gangland for current livestock herds

109 As indicated by Table 4.0 numerous barriers to CBWM were identified. Most of them can be eliminated (i.e., described as "Weaknesses" in the SWOT analysis), others need a strong commitment by the authorities to be overcome (i.e., "Threats"). The most serious barriers to CBWM are related to the willingness of the Central Government to fully cooperate. This implies, that the Central Government is willing (a) to provide the CBWM cooperatives to-be-formed with the legal management mandate for the targeted resources and the legal user rights; and (b), most important, to return to the CBWM cooperatives the bulk of the revenues generated through the sale of user fees and species license tags that currently enters the central treasury.

110 In summary, CBWM appears feasible in both pilot areas if the Central Government is truly committed to CBWM and will meet the required conditions. From a local and regional perspective, CBWM has been recognized as appropriate tool to safeguard viable populations of the target species, at the same time providing tangible benefits to local communities and herders as key stakeholders of CBWM.

5.0 Proposed CBWM structure for the two pilot areas

111 **Overall Structure**. It appears that the legal structure of a cooperative would be the best fit for the proposed CBWM projects. Cooperatives in Mongolia are regulated by the "Cooperative Law" that forms a sound basis for the creation and governance of such structures. Advantages and disadvantages of cooperatives vs. a private organization have been described exhaustively by Johnstad[67].. The same author provides a comprehensive overview of the Cooperative law and other legislation pertinent to CBWM (i.e., Hunting law, Habitat law, Support Zone law, Protected Area legislation, etc.). Johnstad also indicates the need for a cooperative to create its own charter that regulates the cooperative's rights and responsibilities.

112 The organizational structure of the CBWM and different reporting lines is illustrated by Figure 5.0 It may be described as follows:

Insert Orgchart Figure 5.0 full page

113 **Ministry of Nature and Environment**. The MNE should have the ultimate responsibility for any CBWM cooperative. The MNE has the legal mandate for sustainable biodiversity conservation and environmental protection in the country. This implies policy development and implementation, strategic planning for and management of renewable resources and enforcement of legislation that applies to natural resources management/protection and environmental protection at large. The MNE is also the signatory to and national guardian of international conventions (i.e., Biodiversity Convention, Washington Convention on trade of endangered species, Ramsar Wetland Convention, CITES etc.).

114 At present, the Policy Implementation Department of the MNE issues resource use and hunting permits directly to outfitters who have entered hunting agreements with the Aimag and Sums were the hunting activities are planned to take place. In order to provide the required incentives for CBWM it is suggested that the MNE enables a legal transfer of the current management mandate for the targeted resources to the CBWM cooperative. The cooperative also should receive exclusive use and access rights to the CBWM area.

115 **National Technical Advisory Board for CBWM**. The Board should be composed mostly of members from the scientific community, impartial to the marketing aspects and revenue generation from wildlife. The Board should be spearheaded by a member of the Academy of Sciences. Also represented should be the MNE, preferable a delegate from the Policy Implementation Department. There is no need for a representation of the private sector on the Board. It would be prudent to invite at least one representative of an environmental NGO to be part of the Board.

116 The principal responsibility of the Board would be to organize and supervise regular wildlife census of identified target species. Based on the census results the Board would identify species specific harvest quotas. The Board also would identify, organize

[67] Johnstad, Marc. 1998. A Strategy for the implementation of Community Based Natural Resource Management. GTZ Archives.

and supervise studies needed for the sustainable management of target species and their habitat.

117 The Board would closely cooperate with the Department of Policy Implementation with regards to policy development and policy review related to CBWM and the target species. The Board would recommend annual harvest quotas to the Policy Implementation Department of the MNE. The Board would cooperate with the Sum CBWM Council. In liaison with the Sum Council and in close cooperation with the head of the Range Management Unit of the CBWM Cooperative the Board would design, organize and assist in the implementation of regular population surveys of the target species to be conducted under the auspices of the Board. The surveys should be co-financed by the MNE, the CBWM Cooperative and the actual user of the resource if other than the Cooperative. The Board would also establish and maintain a working relationship with international organizations with interest in the sustainable management of Argali in order to receive additional financing for baseline research and census.

118 **Sum CBWM Council.** The CBWM Sum Council would be composed of members of the Sums participating in the CBWM Cooperative. Major functions of the Council would be to approve annual budgets and work programs produced by the CBWM Cooperative and to decide on how revenue would best be used for the benefit of the target resource and the stakeholders of the Cooperative. The Council would receive the licenses for the target species that are allocated by the MNE to the CBWM area. The Council would retain 70 % of the revenues collected from the sale of user fees and species tags from foreign trophy hunters. 30 % of the revenue would be returned to the MNE to be used for biodiversity conservation in the country.

119 In close cooperation with the National Technical Advisory Board on CBWM the Council would identify respective specialists from the Cooperative to assist in the design, organization and implementation of baseline research needed for sustainable range and species management, monitoring and regular census of target species. The Council would be directly reporting to the MNE in the capital.

120 **CBWM Cooperative**. The Cooperative Executive is responsible for all aspects of the proposed CBWM programme development and implementation. This includes assistance in range, livestock and wildlife inventories, management and monitoring, marketing of targeted resource use, logistics and infrastructure development for CBWM, public relations, awareness building, capacity development for herders and range use, tourism and hunting guides and all other personnel related to hunting and tourism, annual budgeting and workplans, cooperation with the National Technical Advisory Board and other stakeholders, law enforcement etc.

121 It is evident that outside technical and financial assistance is needed for setting up the cooperative and to develop the capacities to fulfill the diversified tasks. It appears prudent for the cooperative to enter agreements (i.e., sublease use rights such as hunting and nature-based tourism programs) with well-established outfitters and tour operators and to together develop capacities to cater to hunters and tourists. Capacity development

is critical in order to meet international standards in a highly competitive market. A Cooperative may also assess the opportunity for direct marketing. Joint venture agreements may be another option to be pursued.

122 The priority function of the rangers as integral part of the CBWM is law enforcement, although rangers should participate in many other activities implemented by the CBWM. Rangers would be a critical link between herders and the Cooperative. Rangers should work on awareness building and participate in capacity development for herders regarding range use as related to CBWM. Rangers should closely interact with local inspectors as official representatives of the MNE's Environmental Protection Agency. Because rangers as employees of the Cooperative do not have the jurisdiction to apprehend criminals and to process violations, this has to be handled by the Sum inspectors who report to the Aimag inspector.

123 The cooperative has to develop its own charter of rights that identifies its responsibilities, functions and organizational links but also what legally can and what cannot be done by a CBWM cooperative. It is understood that the Cooperative has to comply with existing framework legislation and policies developed by the MNE and the Aimag. It is apparent that the creation of a cooperative is a long-winded process that requires careful participatory planning and substantial capacity development on a local level. This may only be achieved with outside assistance as suggested by this proposal.

6.0 Establishment of Support Groups

124 It is strongly suggested to establish local support groups in preparation of the CBWM Cooperative. Support groups should be composed of local stakeholders such as community leaders, teachers, and herders with a high social standing in the community, local NGOs and representatives from local Government (i.e., inspector). Support groups could play a key role for the successful establishment of a Cooperative and for the implementation of the subsequent programs. It is essential that the support groups have a strong leadership and sound understanding of the CBWM concept and requirements and develop good communication skills. Support groups can become a key link between local herders and the Sum Council in charge of forming the Cooperative. Support groups are vital for awareness building and to convey the concept of CBWM to their fellow constituents. Other functions may include participation in environmental awareness campaigns and activities related to the educational programs as implemented through local schools. Support groups may also assist in the compilation of salient baseline data (non-academic) for the area of interest in preparation of management plans. Support groups should take part in the elaboration of planning documents, in particular the integrated management plans for the CBWM areas. Support groups also may stay involved in or implement specific pilot projects identified in the management plan.

7.0 Conditions for Successful CBWM.

125 There are numerous conditions to be met before the proposed CBWM project can be launched. It is obvious that a strong commitment by the Government of Mongolia is needed to make such an ambitious undertaking work. Most importantly, the Government has to agree to shift the management mandate to the Sum Council that is responsible for the CBWM Cooperative. This also implies that the Sum Council directly receives the annually allocated quota for the target species by the MNE and also is empowered to collect the user and license fees directly from the hunters. This resembles a major policy change that may require the approval of the Mongolian Parliament.

126 It is critical that local stakeholders, especially herders currently utilizing critical Argali range, are fully cooperative. Herders as members of the Cooperative have to agree to a reduction in livestock numbers and restrictions in range use if required in order to maintain viable wildlife species and to protect the ecological integrity of the CBWM area. This does not imply by any means that herders would have to give up their current lifestyle. To the contrary, the current system practiced by the nomadic herders is sound range management in principle and an integral part of a highly attractive socio-cultural landscape that should be capitalized on for tourism development.

127 Strong commitment is also required by the Sums participating in the CBWM. The Sum Council together with the Cooperative have to design a system that justly provides tangible benefits to the local herders. It is suggested that herders as members of the Cooperatives may only be convinced about a CBWM model if tangible benefits can be generated for them in lieu of the sacrifices to be made in order make CBWM work.

128 Another prerequisite for a successful CBWM operation will be the availability of sound ecological and socio-economic baseline data for the areas of concern. Of special importance are reliable statistical data on population size and composition for the target species in order to determine biologically sound harvest quotas. Of equal importance is the sound knowledge of critical Argali habitat and habitat requisites in order to design meaningful range use plans that address wildlife and livestock needs.

8.0 Key Results Expected for the CBWM Pilot Areas.

129 Following major results are expected to be achieved by the project:

- The Central Government has de-centralized the management authority for the lands and resources in the CBWM areas and the Cooperatives manage the CBWM areas under guidance of the National Board.
- A well functioning CBWM Cooperative has been established for both areas.
- The personnel of the cooperative and affiliated operations are well trained and equipped.
- The infrastructure for the CBWM is in place and well maintained.
- Key results expected for the two pilot areas may be summarized as follows.
- All key players and institutions related to the CBWM interact well with each other and respect each other's functions and responsibilities.

- Viable populations of Argali and Ibex as two key species for CBWM generate sustainable revenue for the benefit of the CBWM Cooperative.
- Integrated Management Plans for the designated CBWM areas have been elaborated and are being implemented with the participation of the local stakeholders.
- Local support groups have facilitated the process of the successful establishment of CBWM Cooperatives.
- The local population and the herders as integrated members of the Cooperatives are environmentally sensitized and have fully embraced the CBWM concept.
- Herders respect critical Argali habitat and livestock is being kept off identified critical wildlife range.
- A national park has been created in the Myangan Ugalzat CBWM area of which it forms the nucleus.
- Both, the newly created national park and the Khukh Serkh Strictly Nature Reserve are functioning well with the support of the local people.
- The ecological integrity of both areas has is secured.
- The CBWM Cooperatives serve as a model to other communities.

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9.0 Replicability and Sustainability of Proposed Interventions

130 It is hoped that the proposed CBWM Cooperatives may serve as a model for other areas in Mongolia and other parts of the world. Mongolia offers a unique opportunity to utilize the lessons learned from the GTZ sponsored Community Based Resource Management projects in the country. These projects have established the foundations for CBWM and associated cooperatives in the country.

131 Considering the resources and their market value to be utilized in the CBWM areas, there should be little concern about the sustainability of the proposed interventions. With proper training in financial management and sustainable resource use the Cooperatives should be able to efficiently utilize the revenues generated for the benefit of the Cooperative members. It is a critical requirement that part of the revenues are channeled back into sound habitat management for the benefit of wildlife.

10.0 Risk Assessment

132 The SWOT analysis implemented in the framework of this feasibility assessment provided a unique opportunity to the participants to numerically rate the risks involved for the successful establishment of the proposed CBWM Cooperatives. Furthermore, to assess the possibilities of risk mitigation. Table 10.0 shows the results of this exercise.

133 From the table it becomes apparent that the greatest risks identified by the workshop participants are associated with the commitment of the Central Government to CBWM. In particular, the willingness of the Government to delegate the management mandate for the resources and the areas of interest. Furthermore, to provide the communities as principle stewards of the ecosystems to be managed with sole use rights.

134 It is recognized that the decision in favor of a true Government commitment has to come from the Government itself. The possibilities to lobby the cause are limited (see table 10.0, ratings of "influence" for the highest risks involved).

The table leaves little to be discussed. In conclusion, the proposed CBWM projects for the two selected pilot areas

Table 10.0: Impact and Risk Assessment

Risk Rating and Opportunities for Risk Mitigation for the two proposed CBWM Pilot Areas	**Rating*[1]**	**Influence*[2]**
WEAKNESSES to the proposed CBWM as identified through SWOT analysis		
PA under-staffed and not equipped	8	10
Insufficient funding for PA	8	10
Poorly trained and equipped PA personnel	8	10
Low level of public environmental awareness	7	6
PA boundaries not demarcated and ecologically unsound	9	8
Unknown size and structure of Argali populations	8	6
Unknown mortality rate and –factors of Argali	7	6
No funding of ecological baseline research	9	7
No authority of local Government to monitor trophy hunting activities	6	7
No economic alternative for local herders	9	6
No legal right for local herders to carry firearms	5	4
Issuing of trophy hunting licenses not transparent	6	3
Lack of hunting law enforcement	9	5
Insufficient ecological/biological baseline data to identify harvest quotas	9	7
Unknown health status and conservation status of Argali populations	8	7
Lack of knowledge by communities of CBWM	8	7
Lack of public environmental/conservation awareness	7	7
THREATS to the proposed CBWM as identified through SWOT analysis		
Determination of harvest quotas scientifically unsound	3	9
Declining Argali populations	5-6	7
Uncontrolled poaching in both CBWM areas	5	7
Lack of enforcement of hunting laws	5	7
License fees not used for Argali conservation management	8	2

Insufficient return of trophy/license fees to local communities	7	2
Hunting permits not issued to local communities	8	2
Lack of conservation incentives for local herders	8	2
No tangible benefits to CBWM communities from trophy license fees	7	2
Poor quality range for Argali as a result from intensive livestock pressure and range over-utilization	4	5
Potential disease transmission between livestock and Argali	5	4
Disturbance of Argali by trophy hunters	5	5
Unknown critical habitat and habitat requisites to protect for Argali	4	5
Adverse climatic conditions		
Insufficient pasture area/rangeland for current livestock herds	4	4
*[1] risk rating: 1=lowest risk, 10=highest risk *[2] degree to which risk can be influenced/reduced by the project: 1= low chance, 10= very high chance		

11.0 Milestones

135 **Policy changes to be effected by Central Government**

- Provide allocated quotas and sole use rights to the resources to Sum CBWM.
- Delegate management authority to Sum CBWM Council and CBWM Cooperative Executive body
- Formally establish impartial national advisory panel for Argali management

136 **Participatory awareness workshops**

- Implement a participatory workshop(2 days) in each Sum of cooperative
- Select potential members for support groups from workshop participants
- Establish one support group each for the two pilot areas
- Train support group on all aspects regarding the concept of CBWM and CBWM Cooperative
-

137 **Sum CBWM Council**

- Form Sum CBWM Council with representatives from each participating Sum
- Provide training to CBWM to facilitate incorporation of the CBWM Cooperatives
- Assist in the elaboration of work programme for the Sum Council
-

138 **Core areas for CBWM**

- Elaborate MoUs between Strict Nature reserve and Sum CBWM Council
- Create, declare and formally establish proposed NP Myanga Ugulzat

Participatory elaboration of management plans for both areas

- Establish participatory planning group for each area
- Conduct rapid assessment of range and resources as baseline data for management plans (identify critical ranges and conservation status of target species)

139 **Establish and incorporate CBWM Cooperatives**

- Develop guidelines for cooperatives (i.e., charter, structure, functions, responsibilities etc.) in a participatory fashion
- Provide training to the Cooperative Executive on all aspects of CBWM and the functions and responsibilities of the Cooperative

140 **Develop general capacity of CBWM Cooperative**

- Assist in the design and implementation of habitat assessment and management for Argali
- Assist in the design and implementation of awareness workshops with herders (critical Argali ranges, habitat requisites etc.)
- Assist in the design and implementation Argali/Livestock grazing plan
- Assist in the design of a product marketing strategy
- Facilitate cooperative agreements with hunting outfitters and tour operators for non-consumptive tourism
- Facilitate language training (English)