GOVERNMENT OF MONGOLIA
MINISTRY OF ENVIRONMENT AND TOURISM

A MANAGEMENT PLAN FOR THE GREAT GOBI B STRICTLY PROTECTED AREA

2019-2023

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PERIOD: 2019-2023

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CONTENT

ABBREVIATIONS

BD	Biodiversity
BZ	Buffer zone
BZC	Buffer zone council
CAMI	Central Asian Mammals Initiative
CMS	Convention on the Conservation of Migratory Species of Wild Animals
GGB	Great Gobi B
GGA	Great Gobi A
GO	Governmental organization
IUCN	International Union for Conservation of Nature
ITG	International Takhi Group
KEA	Key ecological attributes
KFW	Kreditanstalt für Wiederaufbau
MAB	Man and the Biosphere
MEGD	Ministry of Environment and Green Development
MET	Ministry of Environment and Tourism
METT	Management effectiveness tracking tool
MNET	Ministry of Nature, Environment and Tourism
NGO	Non-government organization
NP	National park
NR	Nature reserve
PA	Protected area
PAA	Protected Area Administration
PAAD	Protected area administration Department
SPA	Strictly protected area
WCS	Wildlife Conservation society
WWF	World Wildlife Fund for Nature

RATIONALE

At the National Program on Protected Area of Mongolia, which adopted in 1998 states that each state protected area (PA) must have a management plan, which includes achieving their short and long-term conservation goals. The PA management plan is a policy document, which is defining the strategy for the conservation of ecosystems and biodiversity, as well as a guarantee of financial stability, protection management structure and infrastructure requirements.

The management plan for the Great Gobi B (GGB) Strictly Protected Area (SPA) is basic policy document for the PA administration and key stakeholders in SPA management and both a legal requirement and an ecological/conservational necessity for achieving the key goals of this SPA. These include:

- Long-term conservation of the Dzungarian Gobi Desert ecosystem and connection with other adjacent protected or pristine desert ecosystems through protected migration corridors;
- Rehabilitation of ecosystem health through recovery of depleted species and degraded habitats;
- Long-term co-existence of its life forms within the PA with traditional nomadic land use in the buffer zone and the region through provision of a sustainable economic benefit.

This management plan is also an economic requirement to ensure long-term organizational, infrastructural and financial viability of the SPA.

The SPA administration is currently being managed their operations under its first management plan valid from 2011-2015[1], and yearly workplan confirmed by Ministry of Environment, and Tourism (MET). There is need to make a strategic update based on experience on SPA management and newly introduced methodology for PA management plan development (Галбадрах Д., 2011)[2]. This second management plan for SPA developed with the active participation of the key stakeholders and compiled in 2016 - 2018, and is designed to guide conservation activities during the 5-year period from late 2019 to end 2023.

The key principle for the development of management plan:

In accordance with the new recommendation, we used the Open Standard methodology for conservation planning (The Conservation Measures Partnership, 2014)to develop this management plan and the following principles and factors were considered. These are:

1. To ensuring the participation of the key stakeholders and reflecting their suggesstions and innovations;
2. Based on the research and monitoring results which was conducted in the SPA;
3. To ensuring the coherence between ongoing and planned Development policies, programs and projects in the Buffer zone;
4. To considering the threats to the ecosystems and biodiversity and its trends;
5. Implementation status of the previous management plan and result of the management effectiveness assessment and its recommendations;

[1] The management plan for GGB SPA developed and approved by the Protected Area Administration Department of the former "Ministry of nature, Environment and Tourism (MNET)" in July 2011.

[2] New recommendation for development of PA management plan developed in 2012 by the Protected Area Administration Department (PAAD) of the former Ministry of Environment and Green Development (MEGD).

6. To ensuring the policy sustainibility in order to reach the tangible conservation results within the purpose of the establishment of this SPA.

1. A MANAGEMENT PLAN FOR THE GREAT GOBI "B" STRICTLY PROTECTED AREA (2019-2023)

1.1. Mission

Arguably, the greatest success of the conservation professionals managing the GGB SPA is the successful reintroduction of the takhi or Przewalskii Horse (*Equus ferus przewalskii*), previously extinct in the wild, into one of the most challenging habitats on the planet. However, GGB SPA also safeguards the unique biodiversity and ecosystem services provided by the Dzungarian Gobi ecosystem. Therefore, the GGB SPA provides a stronghold for multiple rare, threatened, and endangered desert mammals including khulan (*Equus hemionus)*, goitered gazelle (*Gazella subgutturosa)*, argali wild sheep (*Ovis ammon)*, and snow leopard (*Panthera uncia)*.

Our mission is to preserve this ecosystem long-term, connect it with neighbouring reserves through protected wildlife corridors, rehabilitate degraded habitats, and ensure the long-term co-existence with traditional nomadic land users by offering them sustainable economic benefit.

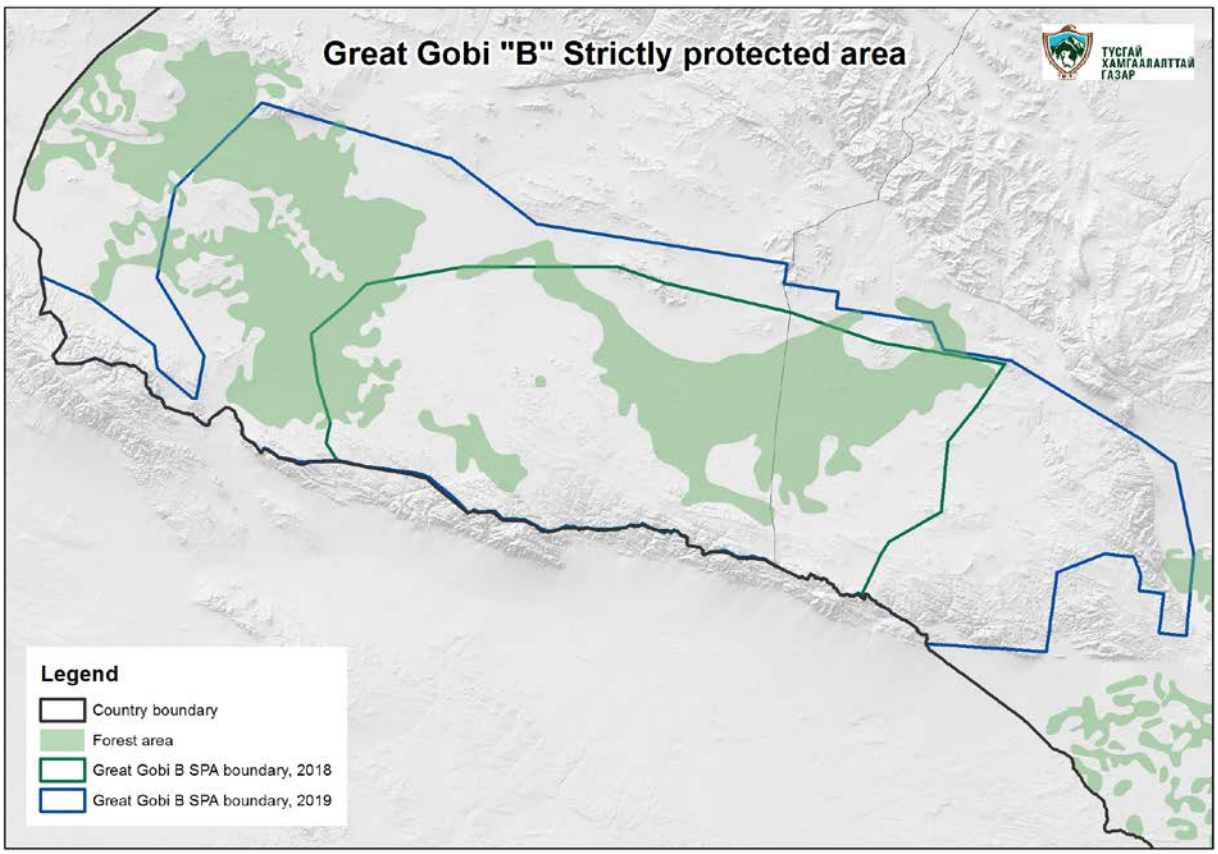
1.2. Scope of this management plan

Geographical scope: Great Gobi B SPA is located in the northern part of the Central Asian desert. The SPA established by decision of Representatives Great Khural of the Peoples Republic of Mongolia in 1975 to conserve the Dzungarian gobi ecosystem and support sustainable growth of rare flora and fauna species. Hereafter in 1995, State Great Khural has reapproved it as a status of Strictly Protected Area, and it was covering 927,111.8 ha from the territory of Bugat (110,730.0 ha) and Tonkhil (140,751.8 ha) soums of Govi-Altai province, and Altai (610,310.0 ha) and Uyench (65,320.0 ha) soums of Khovd province. Since 1992, GBB SPA began re-introducing Takhi in their native land, which is extinct in the wild. The SPA is supporting viability of the takhi population and conserving desert and mountain ecosystems in the region. On May 2, 2019, The Parliament of Mongolia made a decision to expand the area of GGB SPA to maintain a sustainable growth of the takhi population and to protect their core habitat and patch ecosystems in the Dzungarian Gobi. Area was expanded by 908,613.1 hectare and currently, total area is 1,835,724.9 hectare (Map 1).

Period: This second Management Plan for GGB SPA, covering the period from 2019 to 2023.

Thematic scope: This management plan has been developed to conserve the Dzungarian Gobi ecosystem; to build up a self-sustaining takhi population; to conserve key species in semi-desert, desert, and mountain habitats; to ensure sustainable water management; and to safeguard connectivity of the GGB SPA with other reserves and pristine areas by increasing knowledge and participation of key stakeholders in PA management.

Map 1. Great Gobi B SPA



1.3. Conservation targets

Within this management plan, we have selected the following ecosystem, communities and species as conservation target to achieving our conservation goal. The main characteristics of the GBB SPA is one of the reintroduction sites of the Takhi population in Mongolia. Thus, the primary goal of the management plan is to protect the Takhi population and its habitat. The other conservation targets were selected based on the results of the long term monitoring and initiatives from the stakeholders in PA management.

Selected target species:

1. Takhi (*Equus przewalskii* Poljakov, 1881)
2. Khulan (*Equus hemionus* Pallas, 1775)
3. Goitered gazelle (*Gazella subgutturosa* Guldenstadt, 1780)
4. Argali sheep (*Ovis amon* Linnaeus, 1758)

Selected oasis:

5. Khonin us
6. Takhi us - Yolkhon oasis

Selected ecosystem:

Saxaul *(Haloxylon ammodendron)* forest

1.4. Justification and current situation of the conservation targets

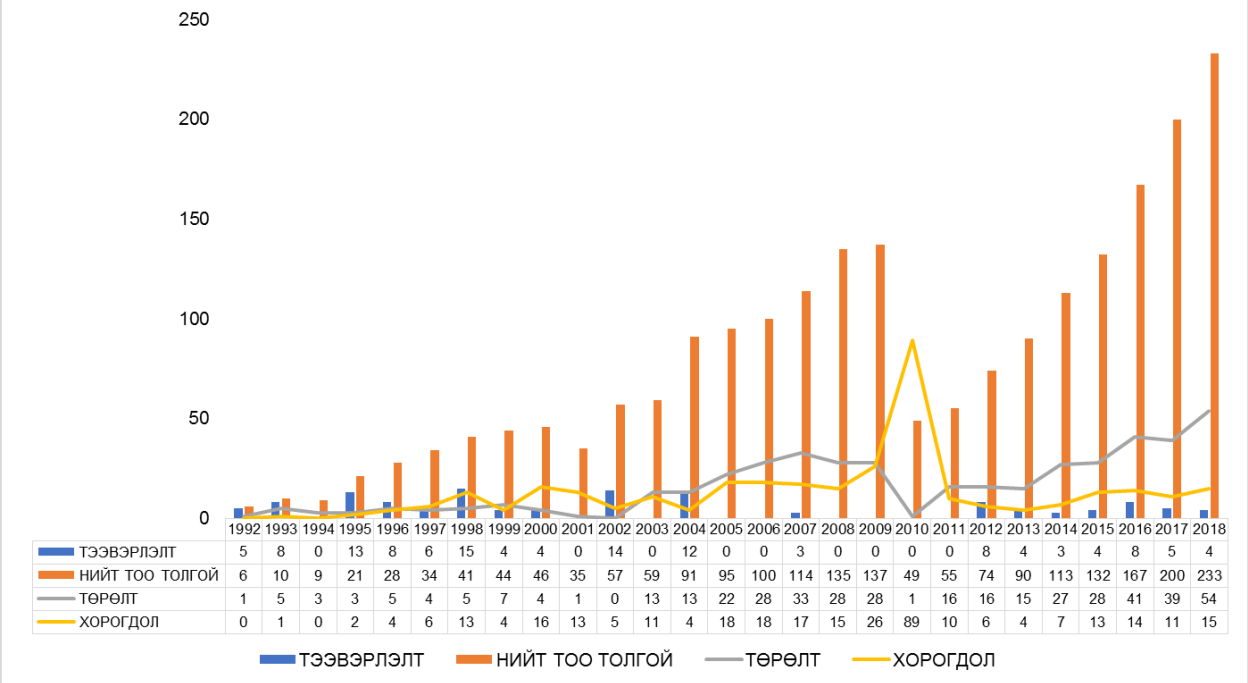
1.4.1. **Takhi** (*Equus ferus przewalskii* Poljakov, 1881)

Justification: The last wild Przewalski's horses had been seen in Mongolia in 1966, and it hunted to extinction in the wild, and was reintroduced to Mongolia (Great Gobi B SPA) from 1992 onward.

The Przewalski's Horse (Takhi), a native species historically known from the Dzungarian Gobi and today's GGB SPA, serves as a flagship species for protecting the entire ecosystem of the SPA, including other ungulates such as Khulan and Goitered Gazelle. Takhi is listed as endangered by an International Union for Conservation of Nature (IUCN) international assessment (IUCN, 2019) and as very rare under the Mongolian Law on Fauna (Монгол Улсын Их хурал, 2019), which prohibits hunting it. It is also listed under the Convention of Migratory Species (CMS) and is a focal species under CMS's Central Asian Mammals Initiative (CAMI) and WWF's Great Gobi 6 conservation initiative.

Current situation: In 1992, the first five takhi arrived in GGB SPA from Askania Nova research institute, Ukraine, and as of December 2018, and during this period, parties successfully transported 128 Przewalski's horses to Takhin tal in the Gobi B SPA. Unfortunately, due to dzud and bad weather conditions, takhi population decreased during the winter of 1999 to 2000 and 2009-2010. However, the number of takhi population is increasing and currently, there are 233 individuals in the GGB SPA (Histogram 1).

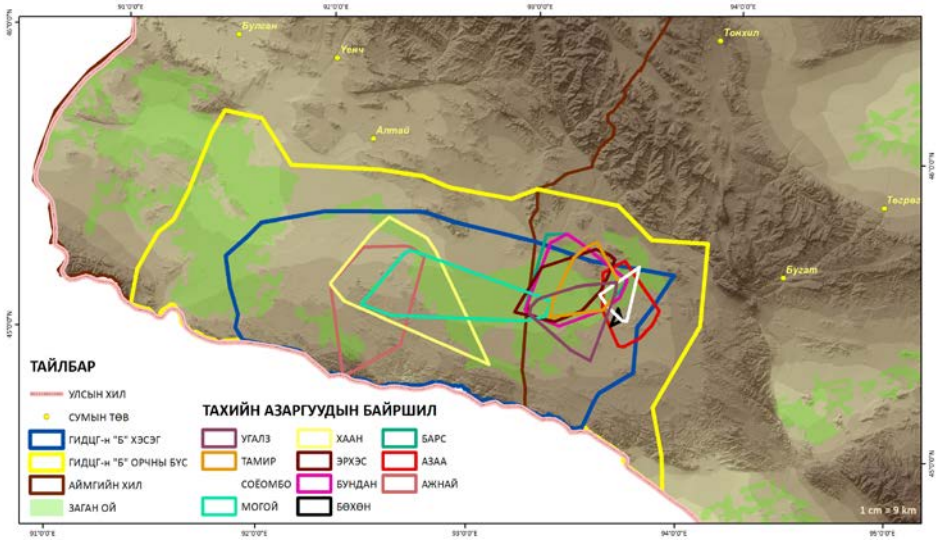
Histogram 1: Population dynamic of takhi in GGB SPA



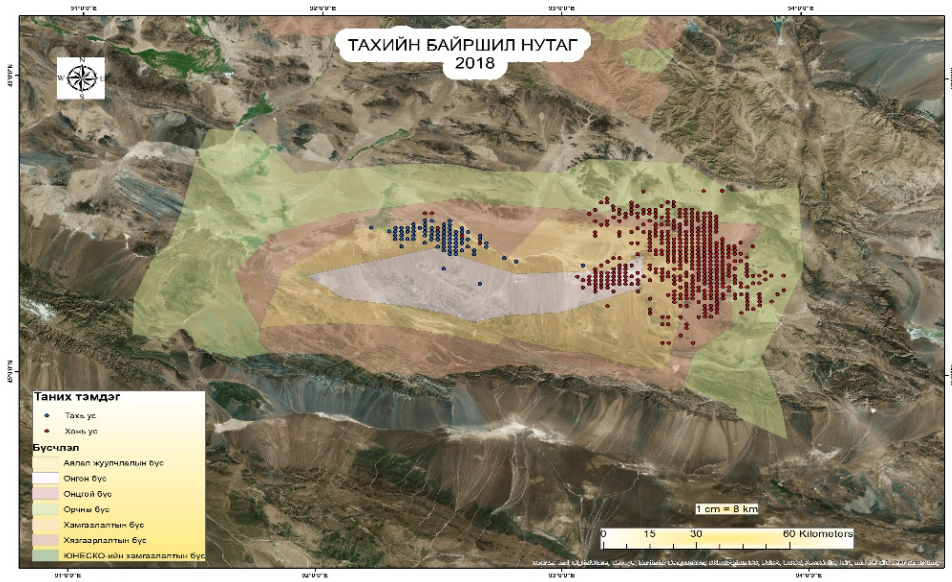
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ТЭЭВЭРЛЭЛТ	5	8	0	13	8	6	15	4	4	0	14	0	12	0	0	3	0	0	0	0	8	4	3	4	8	5	4
НИЙТ ТОО ТОЛГОЙ	6	10	9	21	28	34	41	44	46	35	57	59	91	95	100	114	135	137	49	55	74	90	113	132	167	200	233
ТӨРӨЛТ	1	5	3	3	5	4	5	7	4	1	0	13	13	22	28	33	28	28	1	16	16	15	27	28	41	39	54
ХОРОГДОЛ	0	1	0	2	4	6	13	4	16	13	5	11	4	18	18	17	15	26	89	10	6	4	7	13	14	11	15

There are two main populations based on the Khonin Us and Takhi us oases in the Dzungarian Gobi Desert. The distribution of the takhi is constantly increasing and also, there is still enough habitat in the GGB SPA for takhi to survive. According to the monitoring result in 2017, a 200 takhi's home range was 495,000 ha and it was covered by 53% of the SPA territory (Map 2 and 3).

Map 2. Home range of Takhi stallions



Map 3. Locations of the Takhi in SPA



The following conservation goal is being taken into consideration in terms of the current and future potentials of the takhi population growth and expansion of the home range in Dzungarian Gobi. We are aiming for a minimum population of 1000 breeding individuals distributed throughout the suitable areas of GGB SPA within the next 25 years. For the implementation period of this management plan:

Conservation target goal 1: By 2023, the takhi population in GGB SPA:

- is increased to 300;
- seasonally frequents various suitable habitats within the SPA;
- is less dependent on hay feeding than during the previous management plan period (2011-2015)
- displays wild-type social structure and behaviour
- is predominantly in good health and free of epidemics
- keeps growing at a rate similar to the previous management plan period (2011-2015).

Indicators: Table 12.

1.4.2. Khulan (*Equus hemionus hemionus* Pallas, 1975)

Justification: The khulan (*Equus hemionus hemionus* Pallas, 1975) or Asiatic wild ass, an ungulate widely distributed in the Dzungarian Gobi, is listed as vulnerable internationally (IUCN, 2011) and as threatened regionally. As per the resolution of the Mongolian Government of July 2012, it registered in the annex of rare animals and included in the Red book (Шийрэвдамба Ц., 2013). It is also a focal species under CMS's Central Asian Mammals Initiative (CAMI) and under WWF's Great Gobi 6 conservation initiative. Hunting khulans has been banned nationwide since 1953, but poaching is continuing in GGB SPA and its buffer zones.

Current situation: Khulans show large-scale seasonal movements in GGB SPA, ranging from Khoni us, Toodog, and Guntamga pass during summer to the Ylkhon-Khoni us corridor in spring and fall, and Ylkhon and Khavtag mountainside in winter. They move in herds of different sizes, which can reach up to 2000-3000 individuals (Observation O. Ganbaatar, rangers). As per the GGB SPA administration's census of ungulates conducted in 2010 and 2015, the khulan population grew from 5671 in 2010 to 9337 in 2015 (+64.6%), suggesting both a suitable habitat and effective conservation efforts. In 2018, we observed 2872 Khulans in the protected area. Their wide home shows the need for landscape-scale conservation, with a special focus on maintaining or re-establishing the connectivity of suitable desert habitat.

Conservation target goal 2: By 2023 the population of khulan in the Dzungarian Gobi:

- is not reduced compared to 2015;
- is predominantly in good health and free of epidemics.

Indicators: Table 12.

1.4.3. Argali sheep (*Ovis ammon* Linnaeus, 1758)

Justification: International assessment (IUCN, 2019) lists Argali sheep as vulnerable, regional assessments as endangered. Hunting (except regulated trophy hunting) Argali sheep has been banned nationwide since 1953. By resolution of July, 2012 of the Government of Mongolia the Argali sheep is listed as rare in the annex and in the Red Book (Шийрэвдамба Ц., 2013). Illegal hunting and poaching have not been recorded in the past. In the 2010 and 2015 census, the numbers of Altai sheep population were small and found outside their typical range, hence no conclusions can be drawn. Argali sheep were selected as a flagship species of the mountain ecosystem, which includes other rare species such as ibex and snow leopard. It is also a focal species under CMS's Central Asian Mammals Initiative (CAMI) and under WWF's Great Gobi 6 conservation initiative.

Current situation: Argali sheep numbers appear stable in the following areas of GGB SPA: Takhiin shar mountain range, "Tsakhir mountain range", "Khukh undur", "Ikh Khavtangiin mountain range", including its back side and hills, "Argali" spring well and Zuulun khurgad range land. According to the monitoring result of the 2010 and 2015, we counted a few Argali sheep and we could not conclude the result of the monitoring due to insufficient sample sites.

Conservation target goal 3: By 2023 Altai argali in GGB SPA:

- are predominantly in good health and free of epidemics;
- Research on its range and population has been conducted;
- Their habitat is conserved.

Indicators: Table 12.

1.4.4. Goitered gazelle (*Gazella subgutturosa* Guldenstadt, 1780)

Justification: International and regional assessments (IUCN, 2019) both include goitered (or black-tailed) gazelles in the category of vulnerable species. These gazelles are is registered as a rare species in the Annex of the Government of Mongolia in a resolution of July 2012, and included in the Red book (Шийрэвдамба Ц., 2013). Nationwide, the law has prohibited hunting them since 1965, but gazelle poaching is ongoing in GGB SPA and its buffer zones. The number of goitered gazelles has been growing in recent years as per the census (5,909 in 2010, 13,531 in 2015, +128, 9%), after heavy losses during the 2009-2010 Dzud. The species' seasonal migration, breeding and other behaviour, habitat use and ecological niche compared to other Gobi herbivores are not studied well; even its taxonomy is under debate (subspecies or species; the population may actually be *Gazella yarkandensis*). The goitered gazelle is a focal species under CMS's Central Asian Mammals Initiative (CAMI) and under WWF's Great Gobi 6 conservation initiative.

Current situation: Goitered gazelles roam both GGB SPA and its buffer zones, showing large-scale movements similar to khulans, although they tend to stay clear of large khulan herds. At the beginning of spring and early summer, pregnant females migrate from SPA locations (Khonin us, Toodog, Guntamga pass, Bij river delta, Argalantai) east- and northbound towards the Khovch mountain range, giving birth in the Alagnuur Gobi. The others mainly use the Yolkhon - Khonin us water corridor and the northern slopes of Ikh and Baga Khavtag mountains (O. Ganbaatar, rangers). In winter 2009 to 2010, we noticed many goitered gazelles died during the harsh dzud. We estimated 5909 goitered gazelles in 2010, and 13531 in 2015 (increased 228,9%). However, there is no enough research and data on movement and herding behavior of goitered gazelle and their pasture relation with other species.

Conservation target goal 4: By 2023, the population of the Dzungarian Gobi goitered/black-tailed gazelle:

- Population number is not reduced compared to 2015;
- is predominantly in good health and free of epidemics.

Indicators: Table 12.

1.4.5. Takhi us – Yolkhon oasis

Justification: These two oases are located in the North-west of GGB SPA, 20km apart. Yolkhon Us oasis natural conditions are similar to Khonin us, albeit with some poplars (*Populus euphratica*, Olivier / *Populus diversifolia*, Schrenk). *Populus euphratica* is listed both as rare plant and in the Red Book of Mongolia (Шийрэвдамба Ц., 2013). Yolkhon oasis has salt deposits sufficient for the population of Altai and Uench soums of Khovd aimag, and salt-soda deposits used as additional forage for cattle.

Takhi us oasis has no springs and wells, but a lake where waterfowl gathers. Between Takhi us and Yolkhon oasis there are several water points and small oasis like Bosgo us and Gashuun us.

Current situation: Seventeen herder families from Altangadas bag of Altai soum of Khovd Aimag gather there from fall to spring. During winter, some domestic horse herds occasionally graze in takhi us. About 10 herder families wintering in the Khavtan range also pass the oasis in spring and fall. In 2011, a field-working place for rangers was established in the north of Takhi us oasis, with a car garage and a storage place with a capacity of 500 hey packs. An area of 50 hectares has a deep well drilled by ranger Mr. Nisekhuu in 2013 and was fenced towards takhi-us oasis in 2015 to be used for the accommodation of reintroduced Przewalski's Horses (Takhi).

Conservation target goal 5: By 2023 the Takhi us – Yolkhon oases

- have preserved their ecological status, notably sustainable vegetation cover and pastures;
- Takhi us has changed status to a no or limited-access zone for commercial purposes, including herding;
- Yolkhon oasis has changed status to a no or limited-access zone for commercial purposes, including herding.

Indicators: Table 12.

1.4.6. Khonin us oasis

Justification: This oasis covers only 0.5-1.0% of the SPA's area, but is a critical ecosystem sustaining almost 70% of native desert plant species, including rare ones. Khonin us is the largest natural oasis in the eastern GGB SPA, with many springs fed by water from Bij, Tsagaan, and Guntamga rivers creating a wetland area. The surface water, rich vegetation and cover make it a 'hotspot' for many large and small herbivores (e.g. the tamarisk jird *Meriones tamariscinus*, classified as rare in Mongolia) and various carnivores. Przewalski's Horses stay around the oasis year-round, most herds using it as winter range. Khulan and goitered gazelle frequent it from spring to fall. A red foxes, corsac foxes, wolves and lynx frequent the immediate vicinity of the oasis. Some northern lapwing (*Vanellus vanellus*) breed here, and wetland birds migrate through khonin us. This oasis is the source of another 5-6 springs.

Current situation: Until 2010, the number of livestock wintering around Khonin us has been decreasing. Herders drive cattle here from Bij Bagh of Bugat soum of Gobi-Altai aimag in winter and by herders of Barlag bag of Altai soum of Khovd Aimag on their way back to Khuh Undriin Mountain in fall. In 2011, a field-working place for rangers (a guard tower with a garage for a car and a storage place for max. 500 hey packages) constructed on the east side of the oasis, allowing rangers and researchers to stay at the oasis at any time of the year. Detailed research on the headwaters, water chemistry, vegetation and fauna has not yet been conducted.

Conservation target goal 6: By 2023 the Khonin us oasis:

- has preserved its ecological status, notably sustainable vegetation cover and pastures;
- has undergone a baseline survey for hydrology and biodiversity;
- has changed status to a no or limited-access zone for commercial purposes, including herding.

Indicators: Table 12.

1.4.7. Saxaul (*Haloxylon ammodendron*) forest

Justification: The only tree, which grows forests (bush) in the Gobi and desert zone of Mongolia is the saxaul. Saxaul forests are carbon dumps (20t/ha) with importance for climate, hydrology and biodiversity. They protect the soil from erosion and degradation and are a key source of nutrition for Gobi and desert herbivores. However, overuse of saxaul in the 60s and 70s of the 20th century resulted in degradation of 125,000 hectares of saxaul forest and complete destruction of 37,000 hectares. Therefore, it is imperative to restore and protect the saxaul forests.

Current situation: About 32% of GGB SPA territory is saxaul forest or forestland. In GGB SPA, saxaul mainly grows in the Yolkhon – Khoni us, Toodog – Guntamga corridor, Ergen ulaan, Gurvljin hills, and the north side of Khaltar Mountain. Effective saxaul forest conservation and proper management for regeneration and rehabilitation will thus protect one-third of the SPA habitat. While implementing the previous management plan, use of saxaul by institutions and enterprises was stopped completely by transferring them to the heating system. However, illegal use of saxaul as a fuel still occurs in households. It is essential to stop these violations by introducing environmental-friendly eco-fuelling and heating systems.

Conservation target goal 7: By 2023 the saxaul forest cover:

- is mapped and its status assessed (exploited, unexploited, browsing pressure, etc.);
- is not reduced compared to 2015.

Indicators: Table 12.

1.5. Target viability status

In order to define the current and future status of the target ecosystem, biodiversity, and its conservation management in the GGB SPA, the following approaches used for the situation analysis.

1.5.1. Target viability assessment

The viability status of the target ecosystem and biodiversity has been assessed in accordance with the selected indicators for goals' for each conservation targets (*Annex 1, Table 1*). In addition, these indicators will used to assess the result of the management plan implementation (*Table 12*).

According to the viability assessment (The Conservation Measures Partnership, 2014) results, the general status of the conservation targets in GGB SPA assessed as a GOOD; for the targets, viability status of the takhi and khulan assessed as a FAIR, and others assessed as GOOD, while argali sheep was not assessed due to lack of information and data in the SPA (*Annex 1, Table 1*).

Table 1. Current viability status of the consevration targets

Conservation targets	Type of the Key Ecological Attributes			Target viability status
	Size	Condition	Landscape context	
Argali sheep				Not specified
Saxaul forest	Fair		Good	Good
Takhi	Fair	Fair	Fair	Fair
Takhi us oasis		Fair	Good	Good
Goitered gazelle	Fair		Good	Good
Khonin us oasis		Fair	Good	Good
Khulan (Asiatic Wild ass)	Fair	Fair		Fair
General status				**GOOD**

1.5.2. SWOT analysis

Therefore, a SWOT analysis of the current setup used to identify ways of mitigating weaknesses and threats whilst building on strengths, notably the profound knowledge of rangers, the exceptional wealth of monitoring data from the takhi reintroduction programme, good relationships with authorities and the public and high-quality guidance from ITG (International Takhi Group) and associated institutions and experts.

Strengths of current setup:

- ✓ National icon status of the preserve's flagship species (takhi) in Mongolia, hence strong support of both its reintroduction into GGB SPA and its conservation;
- ✓ GGB SPA administration has sstrengthened its cooperation with ITG, Governmental organizations at national, provincial, soum and communal levels;
- ✓ GGB SPA administration has highly motivated, dedicated, well-trained and experienced staffs with mostly advanced education[3];
- ✓ Established management of stakeholders such as authorities, professional organizations, border guards, polices, and herders;
- ✓ Excellent monitoring of takhi population, and individuals, and hands-on management reflecting long-term, detailed information and knowledge on takhi social structure, population demographics, behaviour and handling;
- ✓ Patrolling of SPA and low level of illegal activities, stringent law enforcement;
- ✓ Generally, adequate infrastructure and equipment including cellular coverage in 50% of the SPA, and internet connection allowing Skype call in Takhiin tal; Paved roads were built in the mountain range of Baga-Ulaan and Barlag facilitating access to the GGB SPA;
- ✓ High quality scientific, veterinarian and managerial expertise provided through Mongolian Government, ITG and various international research institutes using stringent operational tools and protocols.

[3] Out of 14 staffs, 3 of them are MSc, 6 of them are BSc.

Weaknesses of current setup:

- ✓ Remote location of SPA (from a staff perspective and for tourism development);
- ✓ Peripheral location of SPA headquarters within reserve, without connection to central power line, no running water and heating only in a few rooms;
- ✓ No visitor information centre or materials, low capacity for accommodation of visitors and official delegations;
- ✓ Small staff number for large area of SPA; all rangers are concentrated in two areas only (Takhiin tal and Altai of Khovd) plus one ranger in Alagkhairkhan Nature Reserve (NR), which does not have budget for area protection activities;
- ✓ Too strong focus on few species (takhi, khulan & gazelle) rather than on entire ecosystem; neglect of mountain ecosystems;
- ✓ Lack of cooperation with GGA SPA administration;
- ✓ Partially inconsistent adherence to some routine protocols; no management effectiveness assessment undertaken in the previous management plan (2011-2015);
- ✓ Staff have little or no foreign language competences and capacity gaps: digital, technical, organisational, managerial;
- ✓ Livestock coming into the SPA enhancing the risk of disease transmission, hybridisation and creating pasture competition;
- ✓ Takhi "husbandry" management approach not sustainable for a larger population or in the long term and too intrusive in some situations;
- ✓ Very little financial support from potential local donors.

Opportunities of current setup:

- ✓ The GGB SPA registered in the Man and the Biosphere (MAB) network in 1991, hence potential access to special funding;
- ✓ High-level connection with supranational conservation institutions and initiatives such as CMS and CAMI through the current president of ITG and Swiss delegation leader at CMS, and key ITG research partners such as University of Vienna and WCS (The Wildlife Conservation Society);
- ✓ GGB SPA protects most of the unique Dzungarian Gobi ecosystem of Mongolia;
- ✓ Co-administration of GGB SPA and Alagkhairkhan Mountain NR may allow forming the first Altai range conservation area which stands a high chance to connect to projects of Altai-Sayan mountain eco-region, such as snow leopard conservation;
- ✓ Location on Mongolian-Chinese border would allow to create one of the world's largest trans-frontier reserves by connecting GGB SPA with neighbouring reserves GGA (Mongolia), Kalamaili NR (China) and/or deserts adjacent to the southern GGB SPA border;
- ✓ Expansion of GGB SPA and buffer zone to reflect factual movement patterns of protected key species established by research;
- ✓ Touristic potential of the GGB SPA benefiting local population through revenues from travel, accommodation, catering and resulting employment opportunities[4];
- ✓ Cooperation with Great Gobi A SPA not yet strengthened.

[4] Exploiting this potential requires substantial, long-term educational, conceptual and infrastructural efforts and investments, both by public (national, provincial, district and community) stakeholders and by the GGB SPA management.

Threats of current setup:

Threats with high probability of occurrence and major impact:

- ✓ Mining exploration (e.g. at Baitag bogd, Khaltar mountain and Khovchiin nuruu), mining operations (Olon bulag mining) or other/associated commercial activities in the vicinity of GGB SPA or in adjacent wildlife corridors;
- ✓ Ninja mining, poaching and saxaul collection inside SPA;
- ✓ Transmission of infectious diseases from livestock to wildlife and vice versa, e.g. PPR (peste des petits ruminants);
- ✓ Competition for pastures and water points and disturbance from livestock herds;
- ✓ Climatic change and/or catastrophic climatic events affecting the SPA;
- ✓ Takhi hybridization with domestic horses.

Threats with low probability of occurrence but major impact:

- ✓ Near-complete loss of wild takhi population through a single event, e.g. infectious disease, drought or dzud;
- ✓ Loss of support from key decision-makers in Mongolian authorities;
- ✓ Loss of key personnel in SPA administration and/or in supporting bodies, notably ITG and research institutions;
- ✓ Loss of major donors abroad, notably foundations.

1.5.3. Threat assessment for the conservtion targets

Threats to the conservation targets identified and assessed through the Open standard methodology (The Conservation Measures Partnership, 2014). With this analysis, 1) scope of threats (affected area), 2) severity to the targets and 3) irreversibility were assessed with “very high, high, medium and low” for each target and threats and their average meanings were set (Table 2).

Table 2. Threat assessment for the conservation targets

Threats	Saxual forest	Takhi	Khoni us oasis	Takhi us oasis	Khulan	Argali sheep	Goitered gazelle	Summary threat rating
Climate change	High	High	High	High	High	Medium	High	Very high
Livestock # boom	Medium	Medium	Low	Low	Medium	Low	Medium	Medium
Linear infrastructure	Low	Low	Low	Low	Medium	Low	Medium	Medium
Mining in buffer zone	Low	Low	Low	Low	Medium	Medium	Medium	Medium
Poaching			Low	Low	High		Medium	Medium
Illegal use	Low							Low
Hybridization		Medium						Low
Disease							Low	Low
Summary target rating	**Medium**	**Medium**	**Medium**	**Medium**	**High**	**Medium**	**Medium**	**High**

For the threats, the impact from the climate change to conservation targets was assessed as very high, impacts from the livestock population boom, linear infrastructure, mining in buffer zone and poaching assessed as medium and illegal use of saxaul forest, hybridization and disease were assessed as Low. For the conservation targets impacted under the threats, khulan affected as high rating and others affected as medium rating. In general, the impacts from the threats on selected conservation targets in the SPA assessed as High.

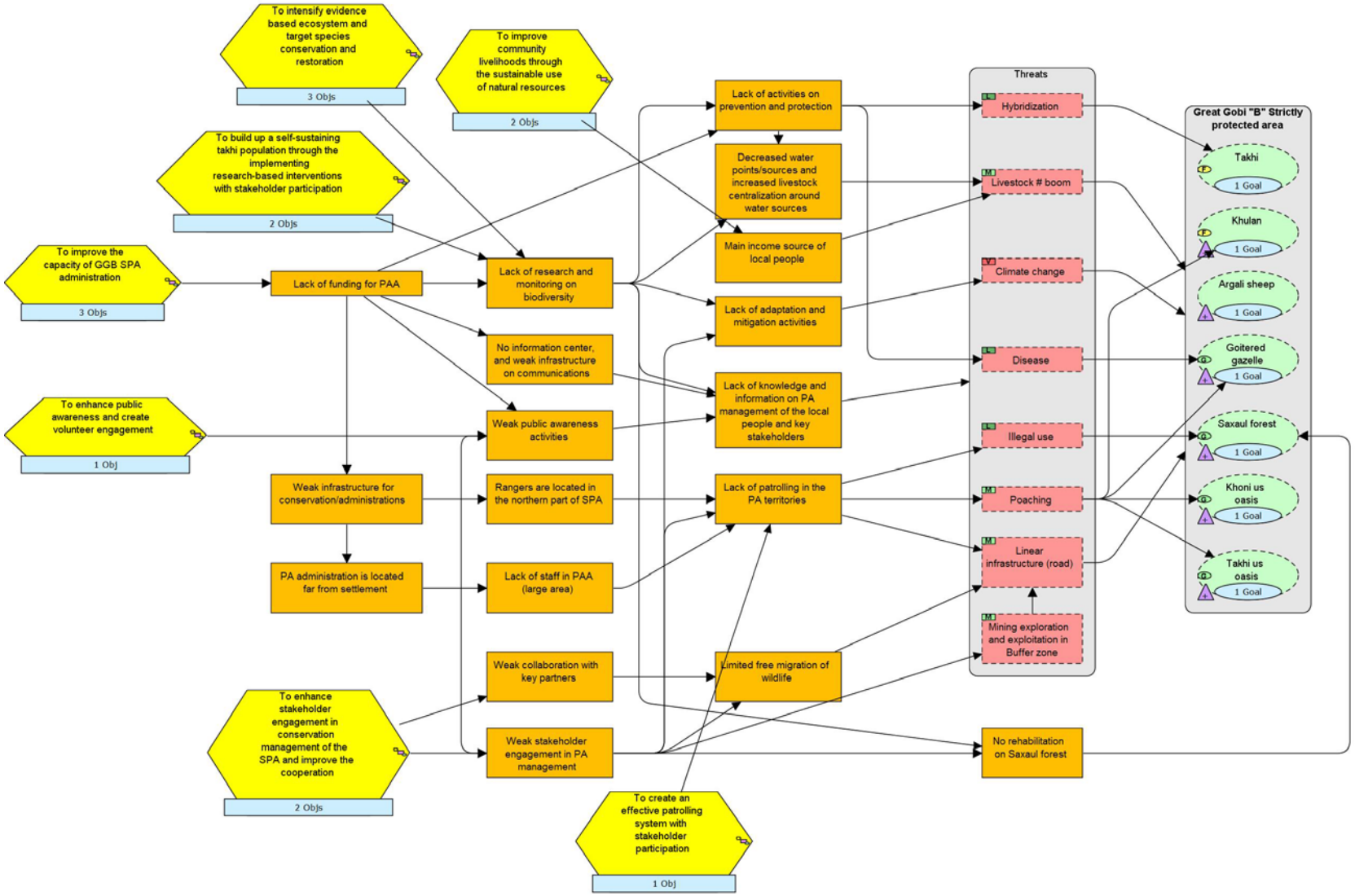
1.6. Strategic objectives and operational plan

Therefore, contributing factors to the threats was defined (Diagram 1), and based on the above analysis, the following strategies defined to reduce threats and its impacts. These are:

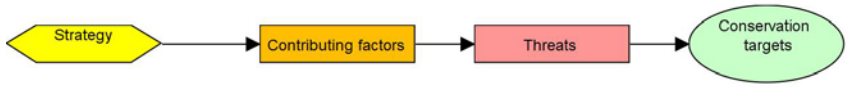
1. To intensify evidence based ecosystem and target species conservation and restoration;
2. To build up a self-sustaining takhi population through the implementing research-based interventions with stakeholder participation;
3. To improve community livelihoods through the sustainable use of natural resources;
4. To enhance public awareness and create volunteer engagement;
5. To improve the management capacity of the GGB SPA administration;
6. To create an effective patrolling system with stakeholder participation;
7. To enhance stakeholder engagement in conservation management of the SPA and improve cooperation.

To achieve the conservation goals, sixty-one actions were planned under the 14 outcomes and 7 strategies (Table 10).

Diagram 1. Situation analysis for the threats and its impacts to the conservation targets



Description of the diagram



Strategy 1. To intensify evidence based ecosystem and target species conservation and restoration.

Within this strategy, there are 3 objectives identified to achieve the conservation target goals (Diagram 2). These are:

1.1 By 2023, target species and ecosystem monitoring are conducted and an adequate database will available for analysis to conservation decision making.

1.2 By 2023, saxaul forest restoration is implemented with participation of the stakeholders.

1.3 By 2023, connectivity corridors for the migratory species between protected areas is determined.

Diagram 2. Result chain under strategy 1

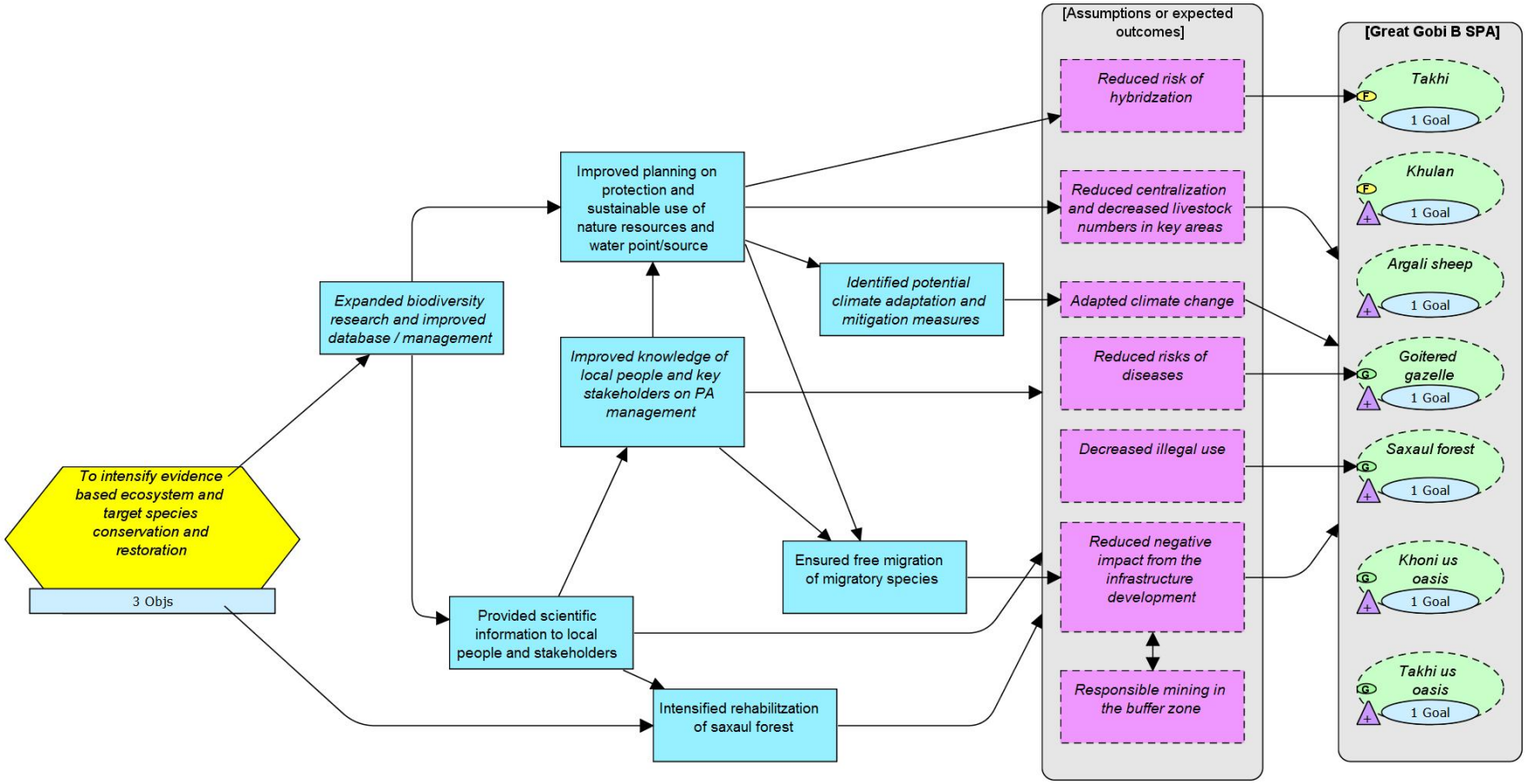


Table 3. Planned actions under strategy 1: Prioritization is encoded as follows: 1: essential. 2: important. 3: optional

#	Priority	Activity	Indicator	Period	Partners	Planned budget (thousand MNT)
1.1 By 2023, target species and ecosystem monitoring are conducted and an adequate database will available for analysis to conservation decision making.						
1.1.1	1	**Ecosystem monitoring** Systematic patrolling, data collection/monitoring (climate, hydrology, vegetation status, animal activities, human activities); recording and mapping of all observations in a consistent format (main database). If needed optimize recording tool (paper or electronic) for ranger patrols.	Number of violations, and ranger's notes	2019-2023	Border troops, soum rangers, environmental inspectors, voluntary rangers, local community, Research institutes	50.000.0
1.1.2	1	**Biodiversity inventory** Establish a biodiversity inventory through systematic field survey of less documented ecosystems and species in GGB SPA and buffer zone (e.g. mountain and wetland oasis, breeding places, water points and other key habitats). Document vegetation types, plant families and species, invertebrates, amphibians, reptiles, birds (resident and migrating), mammals, etc., including seasonal variations. Assess conservation status of red list species.	Research reports, # of species population	2019-2023	Research institutes	100.000.0
1.1.3	1	**Target species monitoring** For each focal habitat/species (and 4 species), collect conservation-relevant data through specific monitoring; record and map all observations in secondary database.	Data of point survey of khulan, black tailed gazelle population. Number of monitoring newly done (Argali)	2019-2023	ITG, border troops, research institutes, local people (citizen science)	100,000.0
1.1.4	1	**Habitat status assessment** For each of 1 key ecosystem (Saxual forest) and 2 biodiversity hotspots (Takhi Us and Khonin us oasis) collect conservation-relevant data through specific monitoring; record and map all observations in secondary database.	Number of monitoring newly made (hotspots and saxaul forest)	2020-2023	ITG, research institutions, Universities	50,000.0
1.1.5	1	**Expand the BD monitoring and intensive research in newly enlarged area** Conduct BD and its habitat monitoring and develop research design in the newly expanded area, and identify the core/key areas, upgrade the internal zoning and approve by the related decision makers	Number of monitoring newly made; research design and decision to renew the internal zoning	2020-2023	MET, ITG, research institutions, Universities, Local authorities; local communities	60,000.0
1.1.6	1	**Data work-up and publication** Timely work-up of research data for publication and reports and	Number of scientific discussion, abstracts	2020-2023		20,000.0

#	Priority	Activity	Indicator	Period	Partners	Planned budget (thousand MNT)
		take measures based on outcomes, (evidence-based management)	/papers for submission			
1.1.7	1	**Climate adaptation and mitigation** Identify the potential climate adaptation and mitigation measures based on assessment results	# of identified measures for climate adaptation and mitigation	2019-2023		-
1.2 By 2023, saxaul forest restoration is implemented with participation of the stakeholders.						
1.2.1	1	**Saxaul inventory** As part of the biodiversity inventory, compile a (sub-) database of saxaul forest; identify and score saxaul forest throughout the SPA.	Report and result of inventory	2019-2020	Research institutions; Forest unit	30,000.0
1.2.2	2	**Saxaul nursery** Establish a saxaul forest nursery and restore degraded saxaul bush through seedlings.	Bred and grown saxaul seedlings	2022-2023	Research institutions, local communities; Forest unit; Local authorities	80,000.0
1.2.3	1	**Regeneration concept** Implement measures for supporting natural and/or artificial regeneration of degraded habitats with participation of stakeholders	# of planted trees and ha of rehabilitated area	2020-2023		<50,000.0
1.3. By 2023, connectivity corridors for the migratory species between protected areas is determined.						
1.3.1	1	**Wildlife corridor infrastructure** Develop recommendation based on research to companies and local authorities to ensure implementation of mandatory standard for Wildlife passages along the roads in Steppe and gobi region (2015). Propose infrastructure enabling animal migration across paved roads i) between Tayan-lake mine (Tseel soum of Gobi-Altai Aimag) and Tsagaan-baishin port (China); This road by Altai Khuder LLC passes through GGA and GGB SPA; and ii) road from western GGB SPA to Uliastai port of Bulgan soum (Khovd aimag).	# of Concept proposals submitted to road construction companies	2019-2023	MET, regional and local authorities, ITG, Convention on Migratory Species (CMS)	10,000.0
1.3.2	1	**GGB / GGA wildlife corridor** Establish wildlife corridor connecting GGB SPA and GGA SPA at Aj Bogd Uul and Eej Khairkhan mountain Natural monuments.	Launch declaration	2022-2023	MET, regional and local authorities, voluntary rangers and local people	5,000.0
1.3.3	3	**Extension to Kalamaili NP, China** Create trans-boundary cooperation to establish wildlife corridor connecting GGB SPA and Kalamaili NP	Submitted proposal, # of meetings	2021-2023	MET, Kalamaili NP	10,000.0
Sub Total						**565,000.00**

Strategy 2. To build up a self-sustaining takhi population through the implementing research-based interventions with stakeholder participation.

Within this strategy, there are 2 objectives identified to achieve the conservation target goals (Diagram 3.). These are:

2.1 By 2023, a research work on Takhi protection needs is conducted, database is established and conservation measures have been implemented based on results.

2.2 By 2023, water points monitoring and conservation activities on water sources is conducted.

Diagram 3. Result chain under the strategy 2

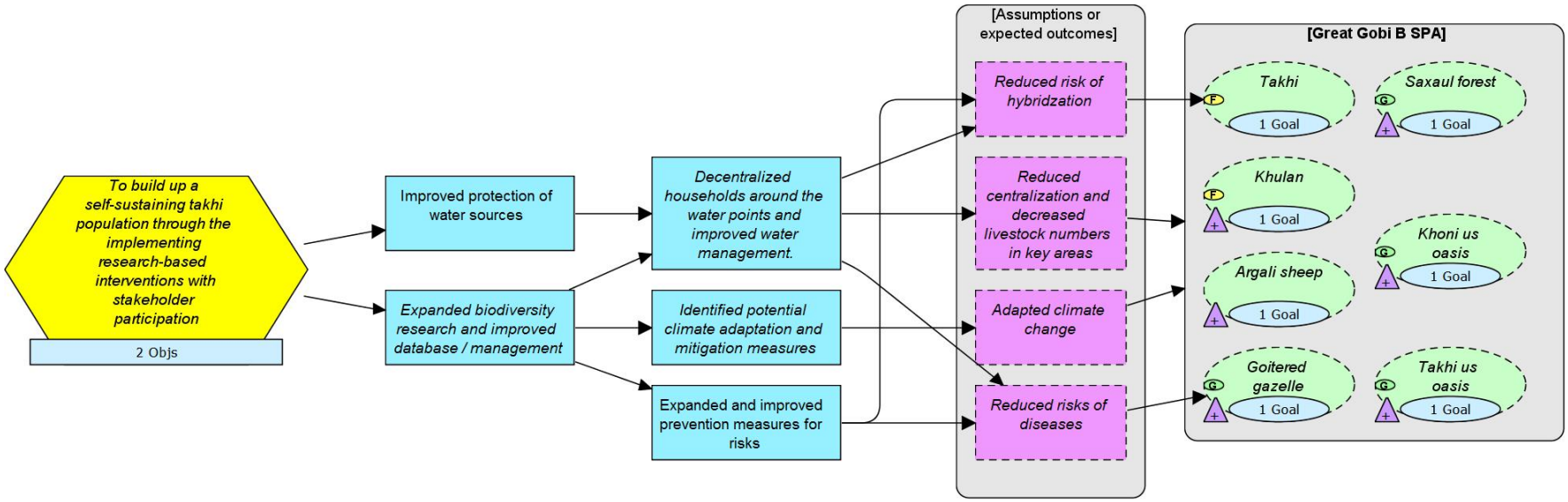


Table 4. Planned actions under the strategy 2. Prioritization is encoded as follows: 1: essential. 2: important. 3: optional

№	Priority	Activities	Indicators	Period	Partners	Planned budget (thousand MNT)
2.1 By 2023, a research work on Takhi protection needs is conducted and a database is established and conservation measures have been implemented based on results.						
2.1.1	1	**Takhi monitoring** Conduct routine observation and monitoring of takhi harems. Optimize monitoring and prioritize population/harem level over	Number of data inserted continuously into Takhi population database	2019-2023	Research institutes; ITG	300,000.0

№	Priority	Activities	Indicators	Period	Partners	Planned budget (thousand MNT)
		individual level. Fit takhi from harems with regional movements with satellite collars where appropriate and/or use camera traps to understand these movements better. To search for possibility of having a ranger specialized on Takhi protection.				
2.1.2	1	**Prevention of takhi hybridization** Monitor domestic horses, Develop key messages and information tool/activity to raise awareness among the buffer zone communities of the threat of takhi / domestic horse interbreeding to takhi conservation; integrate in herder workshop; monitor outcomes.	Number of hybrids	2019-2023	ITG, local communities, regional and central authorities	30,000.0
2.1.3	1	**Livestock vaccination** Support authorities in the implementation of their annual livestock vaccination programme for buffer zone herders. Initiate, brief, provide expertise and support; main work is on veterinary authorities.	Number of vaccination rounds, reduction in disease transmissions	2019-2023	Mongolian Veterinary Institute, local authorities	60,000.0
2.1.4	1	**Veterinary monitoring** Conduct veterinary monitoring of takhi and other focal species; take mandatory autopsy / sample each carcass found as per sampling protocol, submit samples to local lab and FIWI (Vienna), record observations and results.	Number of samples delivered to institutions	2019-2023	Mongolian Veterinary Institute, other research institutes; Local authorities	10.000.0 (lab cost are not included)
2.2 By 2023, monitoring and conservation activities on water sources will conducted.						
2.2.1	1	**Water system inventory** In cooperation with academic and other institutions, characterize the water system in GGB SPA and buffer zone: establish an inventory, characterize quality, chemistry and hydrological context of surface water bodies in GGB SPA and Alagkhairkhan mountain nature reserve, and establish a hydrological database. Main work by Academia, GGB SPA to contribute expertise and support.	Data in hydrological database	2019-2023	River basin administration, Research institutions; Local Authorities	50,000,0
2.2.2	1	**Water management** Based on evidence from the hydrological inventory, implement the activities on protection and sustainable use of water sources in key water bodies such as Bij river (main supplier of Khonin us). Define and enforce specific conservation measures and regulations for springs and wells feeding key pastures; instruct locals accordingly.	# of actions	2020-2021	River basin administration, Research institutions, regional and central authorities	30,000.0

№	Priority	Activities	Indicators	Period	Partners	Planned budget (thousand MNT)
2.2.3	1	**Water level monitoring** Monitor and record water levels in key springs, especially in areas surrounding any intervention (e.g. solar well).	Hydrological database	2019-2023	River basin administration, Research institutions, regional and central authorities	20,000.0
2.2.4	2	**Water efficiency info tool** Create an information tool to advocate water-efficiency to Bij river residents and to offer advice.	Availability of information tool	2020	River basin administration	10,000.0
2.2.5	1	**Protect the water sources** Protect the source of springs in the SPA.	Number of protected spring/well	2019-2020	Herder communities; Local Authorities	30,000.0
Sub Total						**540,000.00**

Strategy 3. To improve community livelihoods through the sustainable use of natural resource

Within this strategy, there are 2 objectives identified to achieve the conservation target goals (Diagram 4). These are:

3.1 By 2023, herders has been used the pasture properly and sustainably in the SPA.

3.2 By 2022, capacity building on the ecotourism development in the protected area is started.

Diagram 4. Result chain under the strategy 3

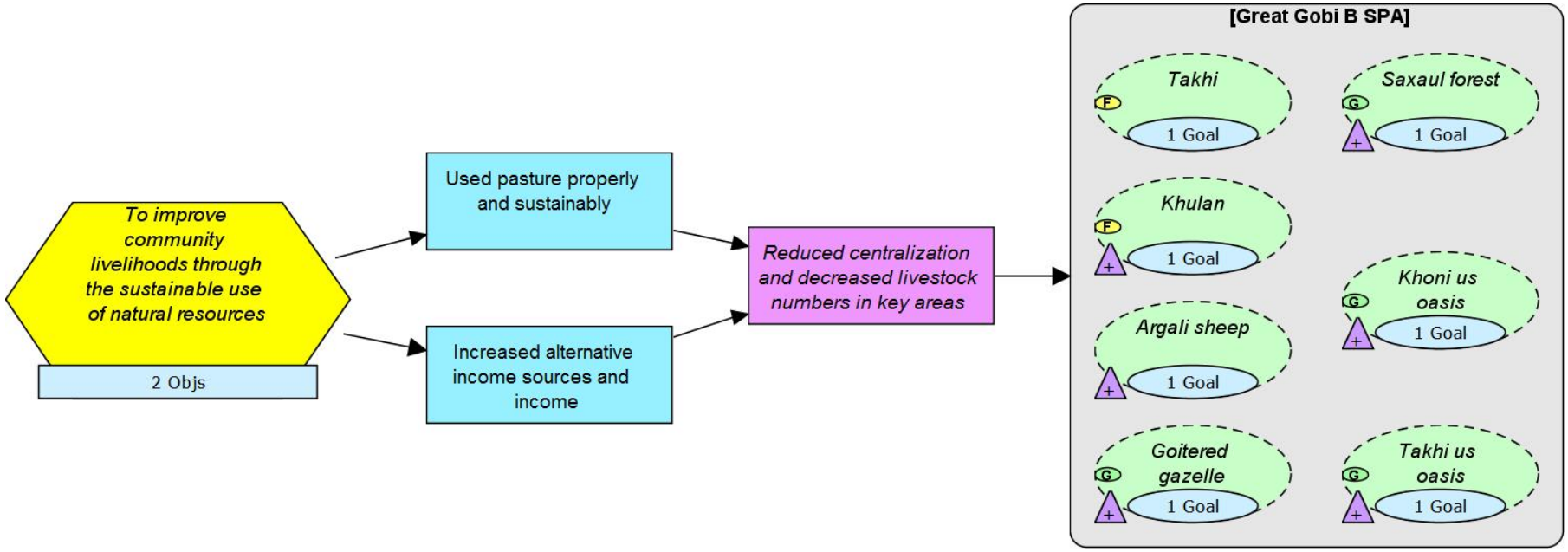


Table 5. Planned actions under the strategy 3. Prioritization is encoded as follows: 1: essential. 2: important. 3: optional

№	Priority	Activities	*Indicators*	*Period*	*Partners*	Planned budget (thousand MNT)
3.1 By 2023, herders has been used the pasture properly and sustainably in the SPA.						
3.1.1	1	**Pasture use** Map herder camp presence and livestock numbers within the SPA annually. Understand the socio-economic situation of herders in the GGB region and herd management, movements, and pasture use, its impact of families in summer/winter camps, pasture status. Make progress towards assessing fodder quality and impact of grazing on vegetation cover and composition, available biomass, soil quality and seed bank composition. Model scenarios under different assumptions of stocking rates and climate change scenarios to understand future options of pasture use.	Evaluation of pasture status	2019-2020	Local authorities, voluntary rangers and local herders, research institutes	50,000.0
3.1.2	1	**Herder workshop** Organize the event and stakeholder meeting on the sustainable pasture management for herders and local authorities, and develop and implement the training program on sustainable and healthy pasture and livestock including vaccination of livestock and prevention of takhi hybridization for herders in SPA and buffer zone; share and introduce the best practices of pasture and livestock management	Number of organized events and participants	2019-2023	Local people, governmental and non-governmental organizations; buffer zone council	35,000.0
3.1.3	1	**Pasture regulations** In cooperation with local herders develop regulations for pasture use in the GGB SPA limited zone. Make contracts with herders and monitor the regulation implementation	Number of contracts and its implementation status and # of violations	2019-2023	Local authorities and herders	5,000.0
3.1.4	2	**Support alternative income generation activities for herders** Organize training and meetings on production of value-added products and create value chains to increase income and alternative income sources.	# of meeting and training and participants, # of introduced alternative income sources	2020-2023	Local authorities and herders, other governmental and non-governmental organizations	30,000.0
3.2 By 2022, capacity building on the ecotourism development in the protected area is started						
3.2.1	1	**Briefing for tourism concept**	Tourism circle,	2019-2020	MET & ITG	-

№	Priority	Activities	*Indicators*	*Period*	*Partners*	Planned budget (thousand MNT)
		Brief a specialized third party on the development of a tourism concept. GGB SPA staff to provide expert input into all ecological aspects of the concept. The concept shall include opportunities for community cooperation and benefit.	respecting zone			
3.2.2	2	**Tourism education programme** Workshops, experience sharing meetings and trainings to familiarize GGB SPA staff and local communities with key requirements of international tourism, including language and guiding competences. To be developed and executed by specialized third-party vendor(s). Adequate expectation management required.	# of trained and certified people	2019-2021	Training organization, local community	15,000.0
3.2.3	3	**Tourism regulations** Develop regulations for touristic activities in GGB SPA. Inspired by existing materials of comparable reserves. To feature regulations and a concept for their supervision and enforcement.	Regulations	2021	Tourist companies, tourist	-
3.2.4	3	**Connect local communities and tourism experts** Start actions to develop community based tourism in the protected area under guidance of the tour experts. Establish contacts with tour operators.	Contacts established	2019-2023	Tourist companies, local communities	5,000.0
3.2.5	3	**Briefing on tourist information handouts** Inspired by existing materials of comparable preserves. To define elementary handouts, such as road maps, basic ecosystem information, etc. Contents to be developed at a later stage by specialized vendors, with expertise from GGBA.	# of handouts and quality	2021-2022	ITG	10,000.0
Sub Total						**150,000.0**

Strategy 4. To enhance public awareness and create volunteer engagement

Within this strategy, there is 1 objective identified to achieve the conservation target goals (Diagram 5). These are:

4.1 By 2023, volunteer engagement in conservation management of the public is increased through improving the knowledge on values of PAs, biodiversity conservation and ecosystem services.

Diagram 5. Result chain under the strategy 4

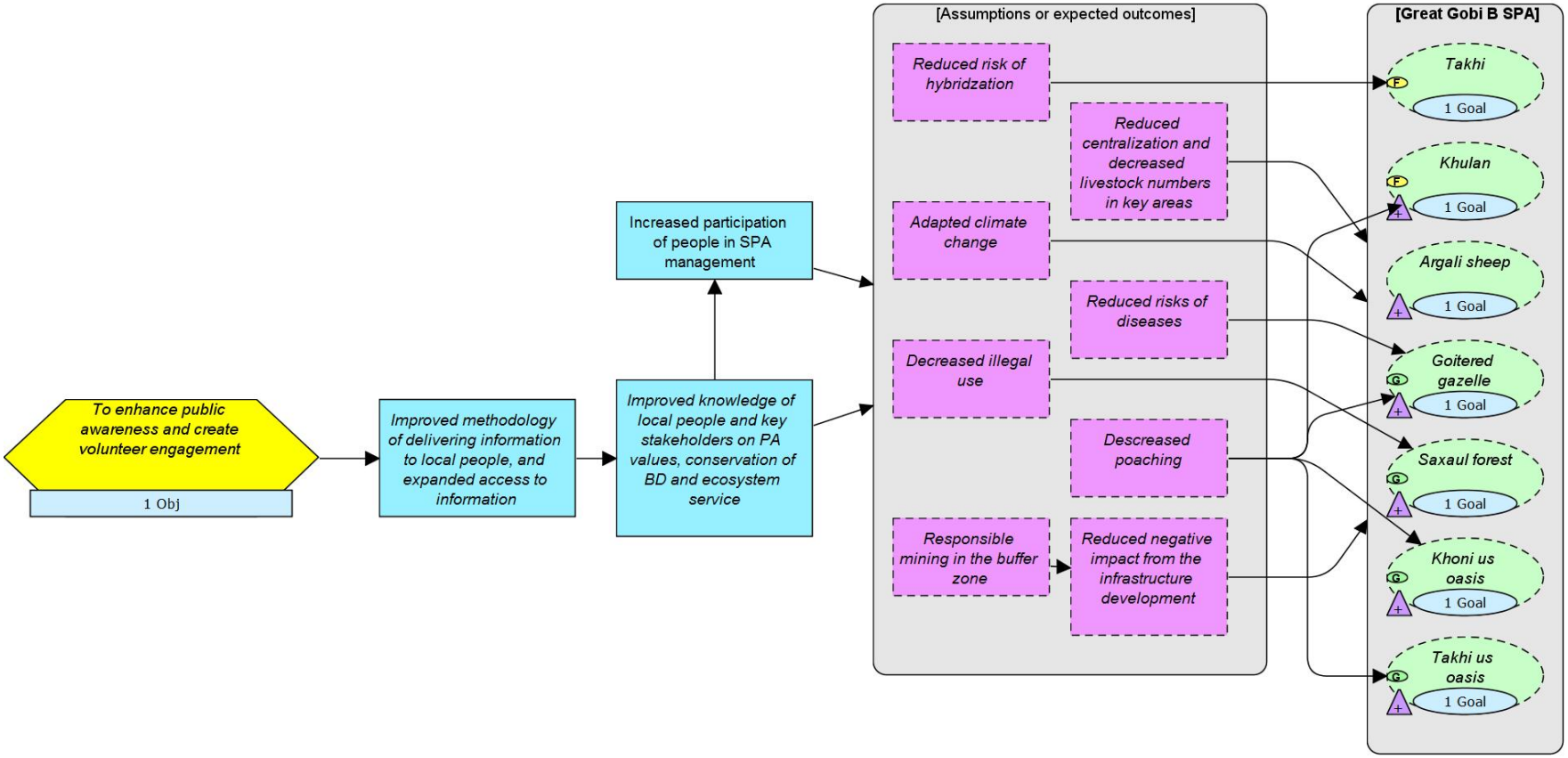


Table 6. Planned actions under the strategy 4. Prioritization is encoded as follows: 1: essential. 2: important. 3: optional

№	Priority	Activities	*Indicators*	*Period*	*Partners*	*Planned budget (thousand MNT)*
4.1.1	3	**Programme for local residents** Develop and implement 2-5 small projects involving local residents in management plan activities, e.g. as volunteer rangers. Support local people initiative in conservation management.	Number of volunteer rangers and activities with volunteer participation of people	2019-2023	Local community, research institutes, NGOs	50,000.0
4.1.2	1	**Awareness campaign** Organize campaign leveraging benefits of biodiversity, GGB SPA and conservation for local residents. Roll out campaign at a "Dzungarian Gobi Day" information event to maximise support of management plan. Include fun activities, sportive competitions, quizzes, drawings, song contests, handcraft creation etc.	# of participants involving the campaign	2019-2023	Local community, research institutes, NGOs, Local authorities, Border troop	50,000.0
4.1.3	1	**Public awareness in newly expanded area** Organize public awareness activities in the newly expanded area, soums: meeting, stakeholder consultation and events on values of the PA and conservation of BD and ecosystem service.	# of public awareness activities and participants	2020-2023	Local community, Local authority, Border troop	20,000.0
4.1.4	1	**Eco-club support** Organize a capacity building training and an SPA tour for eco club members and potential SPA volunteers in Buffer Zone soums. Support ecoclub member's initiative in conservation.	Number of trainees and activities initiated by ecoclubs	2019-2023	Buffer zone soum's secondary schools	20,000.0
4.1.5	3	**Memorial sites care** Compile data base on historical memorial sites in GGB SPA and include them in conservation plan	Memorial sites listed and protected	2020	Local community, Local authority, Border troop	1,000.0
4.1.6	2	**Volunteer recruitment** Recruit and train research and administration volunteers, including internship students.	Number and skills of recruited volunteers	2019- 2023	Universities, researchers, local community	10,000.0
4.1.7	2	**Support research on nomadic culture and knowledge** Conduct socio-economic survey on citizens' knowledge and attitude about SPAs and nature conservation; integrate results in campaign messages.	Report	2020; 2022	Research institute and NGOs	10,000.0
Sub Total						**161,000.0**

Strategy 5. To improve the capacity of GGB SPA administration

Within this strategy, there are 3 objectives identified to achieve the conservation target goals (Diagram 6). These are:

5.1 By 2023, professional skill of the staffs of GGB SPA administration is improved by 50% compared to 2019.

5.2 By 2023, staffs of the administration are provided with facilitates to conduct their work efficiently.

5.3 By 2021, funding for implementing management plan is secured.

Diagram 6. Result chain under the strategy 5

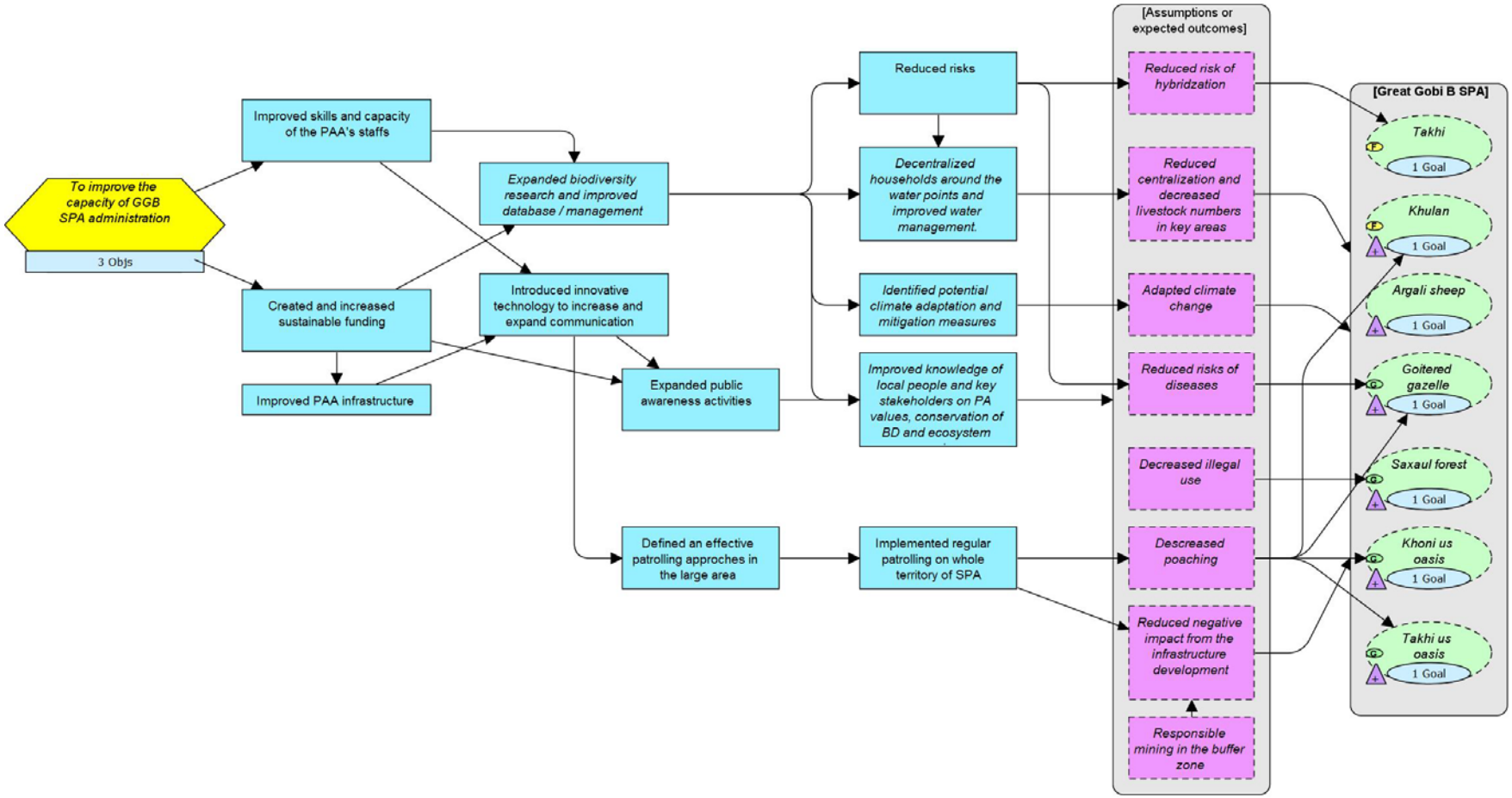


Table 7. Planned actions under the strategy 5. Prioritization is encoded as follows: 1: essential. 2: important. 3: optional

№	Priority	Activities	*Indicators*	*Period*	*Partners*	*Planned budget (thousand MNT)*
5.1 By 2023, professional skill of the staffs of GGB SPA administration is improved by 50% compared to 2019.						
5.1.1	1	**Optimize standard operating procedures** Routine administrative work, e.g. annual staff appraisal including performance and development goals; staff training on administrative tasks and capacity-building; regular knowledge sharing; monitoring of maintenance/repair of technical and field work equipment.	Staff appraisals; stakeholder feedback	2019-2023	State servant service committee, MET, police, professional inspector	50,000.0
5.1.2	1	**Optimize electronic data work-up and back-up** Systematic electronic data work-up and transfer to a comprehensive, well-structured database with daily, weekly and monthly backup w. separate storage.	Completeness of database and backups	2019-2023	MET	-
5.1.3	1	**Staffing level development** Evaluate need for additional staff / functions / job descriptions.	Formal proposal	2019-2020	MET, state servant service committee	-
5.1.4	1	**Ranger (re)training** Organize staff workshop(s) to train/ retrain rangers on ecosystem management abilities, standard operating procedures (SOPs), operational and IT security SOPs and project-specific research procedures; include a test.	Ranger skills (test results, certificate) and routine implementation	2019 - 2023	ITG Research Council, Training organization	25,000.0
5.2 By 2023, staffs of the administration are provided with facilitates to conduct their work efficiently.						
5.2.1	1	**Routine maintenance and repair of equipment**	Low need for repairs and replacements	2019-2023	ITG, GOs, NGOs	<150,000.0
5.2.2	1	**Securing necessary equipment for implementation of the Management Plan and improving the working condition for staffs** Identify needs early and buy at best quality-cost ratio, and build the constructions	List of equipment, and constructions	2019-2023	All partners	>500,000,0
5.2.3	1	**Upgrade of current administration center in Takhiin Tal** In cooperation with ITG, supervise construction (by third-party vendors) of a winter-proof sanitary installation in Takhiin Tal. Including the heating, kitchen, sanitary, solar energy, …. for administration staff. Includes extension of current building; project reporting to ITG. Maintain after 2020 = take care of it	Functional installations	2019	MET, ITG	250,000.0

№	Priority	Activities	*Indicators*	*Period*	*Partners*	*Planned budget (thousand MNT)*
5.2.4	2	**Information and administration centre in Altai of Khovd** This shall provide a permanent information source for the local population as well as any passing-by travellers, as well as quarters and offices for staff. Write communication concept, brief third-party vendors and provide conservation expertise on the construction of an information centre in i. Include option to establish information points at each BZ soums.	Proposal and Functional installations	2020-2022	ITG, Khovd aimag Altai, BZ soums	30,000.0
5.3 By 2021, funding for implementing management plan is secured.						
5.3.1	1	**Develop project proposal** Determine implementation of the management funding gap, collaborate within partners and develop project proposals.	# submitted proposals	2019	ITG	5,000.0
5.3.2	1	**Increase funding through collaboration with partners** Conduct meeting on increase budget within partners, and incorporate management plan to Aimag and soums level plan.	# funding	2019-2020	MET, Local Authorities	10,000.0
5.3.3	1	**Create a fund** Create “Takhi friends fund” with ITG. Increase participation of the domestic companies and other parties into the Takhi project.	Size of the funding and # of participated parties	2019-2023	ITG	5,000.0
Sub Total						**1,025,000.0**

Strategy 6. To create an effective patrolling system with stakeholder participation

Within this strategy, there is 1 objective identified to achieve the conservation target goals (Diagram 7). This is:

6.1 By 2023, illegal cases in SPA are reduced by 80% compared to 2018 through the introducing effective approaches with participation of stakeholders.

Diagram 7. Result chain under the strategy 6

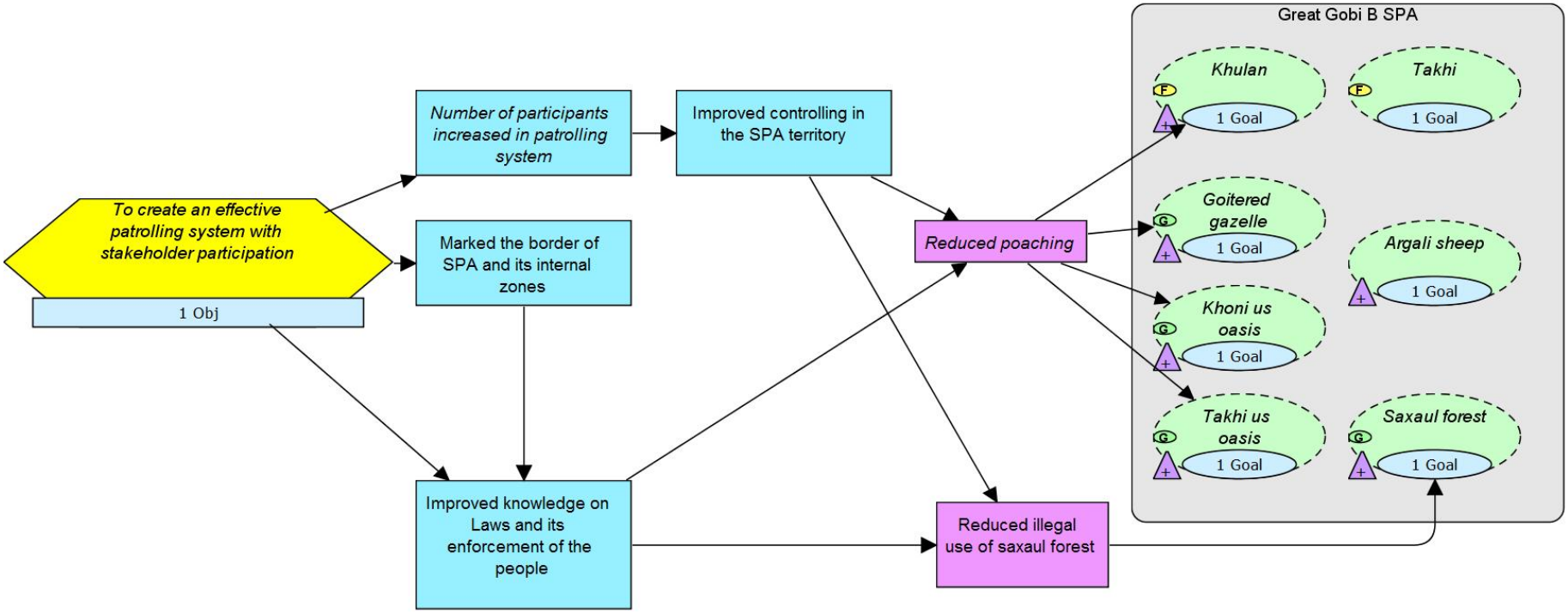


Table 8. Planned actions under the strategy 6. Prioritization is encoded as follows: 1: essential. 2: important. 3: optional

№	Priority	Activities	*Indicators*	*Period*	*Partners*	*Planned budget (thousand MNT)*
6.1.1	1	**Anti-poaching patrols (GG6 activity)** Conduct targeted patrolling, particularly at risk sites; coordinate with border troops, police and local authorities and volunteers; record and map transgressions	Activities intercepted; number of illegal cases	2019-21.023	Border troops, police, professional inspection authorities, local communities and authorities	15,000.0
6.1.2	1	**SPA demarcation** Improve SPA demarcation signage, update information billboards; make new demarcation signage along the newly expanded SPA border and internal zoning	demarcation signage, updated information billboard	2020-2023	Local authorities	80,000.0
6.1.3	1	**Public awareness on Law enforcement** Organize public awareness activities on Law enforcement and prevention from illegal cases.	# of public events and participants	2019-2023	Border troops, Police department, local authorities	10,000.0
6.1.4	1	**Border patrol volunteering** Employ border patrols as volunteer rangers and establish regular information exchange on conservation-relevant observations. Develop a recording tool (paper or electronic) for border patrols to enter observations real-time.	Volume and quality of data obtained	2019-2023	Border troops	-
Sub Total						**105,000.0**

Strategy 7. To enhance stakeholder engagement in conservation management of the SPA

Within this strategy, there are 2 objectives identified to achieve the conservation target goals (Diagram 8). These are:

7.1 By 2023, international cooperation on the conservation of SPA is expanded.

7.2 By 2023, engagement and collaboration between governmental and non-governmental organizations in SPA conservation management is expanded.

Diagram 8. Result chain under the strategy 7

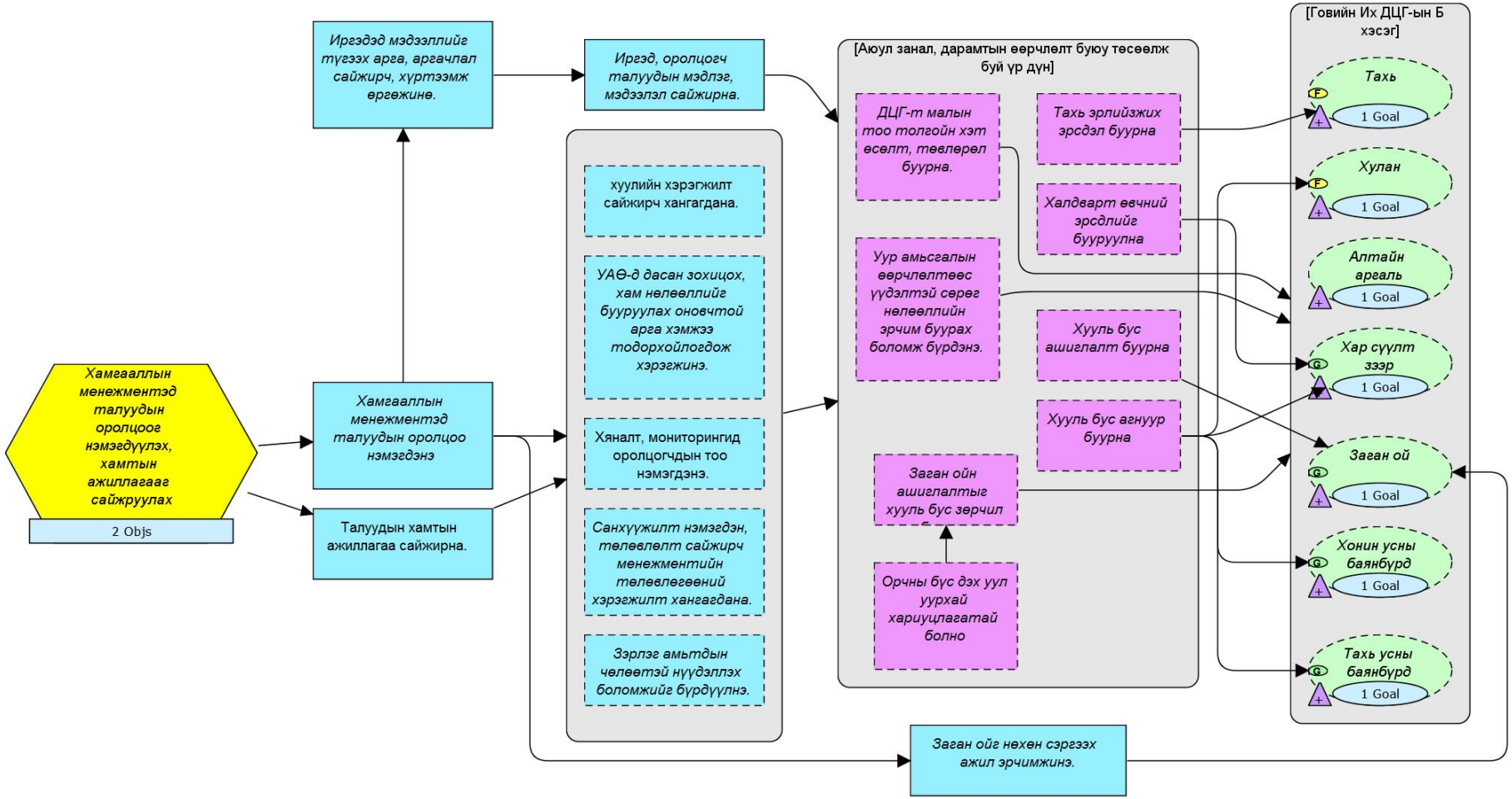


Table 9. Planned actions under the strategy 7. Prioritization is encoded as follows: 1: essential. 2: important. 3: optional

№	Priority	Activities	*Indicators*	*Period*	*Partners*	*Planned budget (thousand MNT)*
7.1 By 2023, international cooperation on the conservation of SPA is expanded.						
7.1.1	2	**Sister park** Establishing cooperation with other international parks (Sister park)	International Sister park relationship	2020-2023	MET, ITG	0
7.1.2	1	**Implementation MAB programme (The Man and the biosphere programme)** Implementation LIMA action plan of MAB	Implemented activities within the LIMA's program	2019-2023	UNESCO, MAB committee, MET	60,000,0
7.1.3	2	**GGB SPA re-submission for world heritage** Develop case document for re-submitting GG SPA to registration as world heritage.	Submission of proposal	2021	MET, Representative office of the world heritage organization in Mongolia	-
7.2 By 2023, engagement and collaboration between governmental and non-governmental organizations in SPA conservation management is expanded.						
7.2.1	2	**Buffer Zone Councils** Establish BZCs in the expanded area and organize capacity building training and meetings for BZC members; support to develop and implement the conservation management plan/development plan in the Buffer zone soums	# of BZC, # of activities organized by BZC	2019-2023	Local authorities and local communities, border troops, BZC	100,000.0
7.2.2	2	**Cooperation with other PAs** Liaise with the GGA SPA administration, Myangan Ugalzat and Munkhkhairhan National Park to define cooperation on ecosystem monitoring, research, recording protocol and evaluation; create specific (sub-)database.	# of Joint actions	2019-2023	Administrations of GGA SPA, Myangan Ugalzat SPA, Munkhkhairkhan NP	10,000,0
7.2.3	2	**Local Protected Areas** Liaise with BZC and Governor's Office to establish Local Protected Areas (Khuvchiin nuruu, Shiveet ulaan mountain).	Justification and decision by Local Parliament and	2019-2023	Local authorities	5,000.0
7.2.4	1	**Management plan implementation and monitoring with stakeholder participation** Systematic, annual monitoring and evaluation of the management plan implementation and achievements (METT); re-define, where missing, indicators for targets and specify baseline; assess the funding situation and improve the	Monitoring results, indicators for targets and baseline definitions	2019-2023	Local authorities, BZC, local people, MET professional team; Border troops; NGOs	20,000.0

№	Priority	Activities	*Indicators*	*Period*	*Partners*	*Planned budget (thousand MNT)*
		planning with stakeholder participation				
7.2.5	1	**Annual planning** Annual plan, activity schedule, resources, finances	Performance contract	2019-2023	MET; Local authorities; NGOs	-
Sub Total						**195,000.0**

2. MANAGEMENT PLAN IMPLEMENTATION STRATEGY AND EVALUATION

2.1 Management structure of the GBB SPA

An essential condition for a successful management plan is the leadership, partnership, and institutional capacity of the implementation team.

The difference of the Great Gobi B SPA is isolated from infrastructure development, and bordered with national boundary. However, thriving on the reintroduction of takhi with support from International Takhi group (ITG). Therefore, it is crucial for the implementation of the management plan to work with local authorities, Governmental and Non-Governmental organizations, local people and border troops, as well as support for current partners. In the long-term monitoring research, it is possible to obtain better results when collaboration within Border Defense agreements. The main partner of the develop infrastructures in the buffer zone, livelihoods of citizens, social and economic developments, training, advocacy, and law enforcement are county-level administration office. Technical and financial support will be strengthened and expanded in collaboration with existing partners and international organizations, which will play an essential role in the implementation of the management plan.

2.1.1 Ministry of Environment and Tourism (MET), protected area administration Department, PA administration

The GGB SPA is subject to the Protected Areas law adopted in 1994 by Mongolian Parliament, and run under the direction of the of Protected Area Administration Department (PAAD). PAAD manages the entire network of Mongolian national parks according to consistent, harmonized principles and in accordance with defined requirements. Key responsibilities of PAAD includes the validation of all SPA Management Plans and the hiring of PA staff and other aspects of personnel administration, including staff development through advanced training.

The "B" SPA Administration of GG "SPA is funded by the State Budget through the Ministry of Environment and Tourism. The GGB SPA Administration is responsible for the implementation of the Law on PAs, Environmental Protection, the Buffer Zone and other related laws in the GGB SPA and Alaghairhann Uul NR under the direct supervision of PAAD MET. The staff of GGB SPA reports to PAAD. At present, there are 14 staffs in the administration of the GGB SPA; Director - 1, specialist – 2, ranger - 7, 1 accountant, 4-supporting officers.

2.1.2 International Takhi Group NGO

The takhi reintroduction programme in the GGB SPA has being supported by ITG, a Switzerland-based NGO with which the Mongolian Ministry for Nature Environment and Green Development has signed a formal, exclusive cooperation agreement on the GGB SPA. In 25 years of cooperation with the Mongolian Authorities, ITG has been providing critical financial support as well as zoological, veterinary, educational, administrative and managerial expertise. Its activities in cooperation with the Mongolian

government were instrumental in both reintroducing the takhi to Mongolia and helping to ensure its survival in the GGB SPA.

Based on the Mandate of the Mongolian Nation voiced in the cooperation contract with the Ministry of Nature Environment and Green Development (MEGDT), ITG collaborates with authorities at Soum, Aimag and Community levels as well as with the Director of GGB SPA and the SPA administration.

ITG leads and coordinates the cooperation with all its partners in order to ensure the implementation of its long-term goals, and plays a significant role in formulating the GGB SPA Management Plan.
ITG also works with the local people, which it supports through various socio-economic activities.

ITG research partners and independent institutions

To ensure optimal support, ITG collaborates with independent scientists of global renowned and scientific institutions such as the National University of Mongolia, the Research Institute of Wildlife Ecology at Vienna University (Austria), and the Norwegian Institute for Nature Research (NINA) and the European Endangered Species Program (EEP). It also collaborates closely with various zoological gardens, some of which are members of ITG, such as the Zürich Langenberg Wildlife Park (Switzerland), Prague Zoo (Czech Republic), Nuremberg Zoo (Germany) and Tama Zoo (Japan). Moreover, ITG partners with related conservation institutions such as Hustai Nuruu National Park (Mongolia), Khomiin Tal (Mongolia), Great Gobi A SPA (Mongolia) and the Xinjiang Academy of Sciences (China) operating the Jimsar Przewalski Wild Horse Breeding and Research Centre.

Role of supportive organizations, potential grant-givers and donors

A core activity of ITG is to raise funds for covering the running costs of GGB SPA. ITG monitors professional and efficient use of donations. The fund-raising entity of ITG is organized as “Friends of the Wild Horse”, both as a Swiss and as a Mongolian association of private donors. In addition, ITG Board Members regularly submit specific grant requests to potential grant-givers, notably foundations supporting conservation of endangered ecosystems and species. Some institutions and individuals are donating substantial funds annually.

Research priorities of ITG board (revised on 08.02.2019)

The research priorities defined by ITG board and scientific council aim at supporting the conservation and management targets of the Great Gobi B Strictly Protected Area (GGB SPA) as defined in the management plan. A first identification and ranking of research priorities was done within the framework of a workshop organized by ITG 25-27 February 2017, at Kartause Ittingen, Switzerland.

Workshop participants included representatives of ITG (including Zoo Prague), GGB SPA, the Mongolian Academy of Science (MAS), the Research Institute of Wildlife Ecology of the University of Veterinary Sciences, Austria (FIWI at VetMed Vienna) and the Norwegian Institute of Nature Research, Norway (NINA). The research priorities will be reviewed annually based on ongoing research activities (made available as field reports, publications, or presentations). The priorities will then be revised based on

research results, revisions of the management plan, or new opportunities and challenges. For ITG, Dr. Petra Kaczensky (NINA, Norway & FIWI/Vetmed Vienna, Austria) has been given the mandate by the ITG board to advice on and coordinate ITG research priorities for three years (2018-2021). GGB SPA has agreed to prioritize and support the ITG research priorities (Annex 1).

2.2 Financial plan / projection

The budgetary assumptions needed to implement the management plan is planned as follows (*Table 10*).

Table 10. Assumption of the budget

№	Strategies and objectives	# of activities	Needed funding / budget projections (thousand MNT)
1	**To intensify evidence based ecosystem and target species conservation and restoration**	**13**	**565,000.0**
1.1	By 2023, target species and ecosystem monitoring are conducted and an adequate database will available for analysis to conservation decision making.	7	380,000.00
1.2	By 2023, saxaul forest restoration is implemented with participation of the stakeholders.	3	160,000.00
1.3	By 2023, connectivity corridors for the migratory species between protected areas is determined.	3	25,000.00
2	**To build up a self-sustaining takhi population through the implementing research-based interventions with stakeholder participation**	**9**	**540,000.0**
2.1	By 2023, a research work on Takhi protection needs is conducted, database is established and conservation measures have been implemented based on results.	4	400,000.00
2.2	By 2023, water points monitoring and conservation activities on water sources is conducted.	5	140,000.00
3	**To improve community livelihoods through the sustainable use of natural resource**	**9**	**150,000.0**
3.1	By 2023, herders has been used the pasture properly and sustainably in the SPA.	4	120,000.00
3.2	By 2022, capacity building on the ecotourism development in the protected area is started.	5	30,000.00
4	**To enhance public awareness and create volunteer engagement**	**7**	**161,000.0**
4.1	By 2023, volunteer engagement in conservation management of the public is increased through improving the knowledge on values of PAs, biodiversity conservation and ecosystem services.	7	161,000.00

№	Strategies and objectives	# of activities	Needed funding / budget projections (thousand MNT)
5	**To improve capacity of GGB SPA administration**	**11**	**1,025,000.0**
5.1	By 2023, professional skill of the staffs of GGB SPA administration is improved by 50% compared to 2019.	4	75,000.00
5.2	By 2023, staffs of the administration are provided with facilitates to conduct their work efficiently.	4	930,000.00
5.3	By 2021, funding for implementing management plan is secured.	3	20,000.0
6	**To an effective system of investigation with stakeholder participation.**	**4**	**105,000.0**
6.1	By 2023, illegal cases in SPA are reduced by 80% compared to 2018 through the introducing effective approaches with participation of stakeholders.	4	105,000.00
7	**To enhance stakeholder engagement in conservation management of the SPA.**	**8**	**195,000.0**
7.1	By 2023, international cooperation on the conservation of SPA is expanded.	3	60,000.00
7.2	By 2023, engagement and collaboration between governmental and non-governmental organizations in SPA conservation management is expanded.	5	135,000.00
	Total	**61**	**2,741,000.00**

A total of 2,741,000.0 thousand tugriks were projected for the implementation of activities which is planned under the 7 strategies and 14 objectives.

According to the Law on Budget, before the starting fiscal year, the detailed workplan including budget plan will developed with the stakeholder participation and submitted to the Ministry of Environment and Tourism and other Project Implementation unit for approval.

Brief annual funding from State budget projected as follows (*Table 11*).

Table 11. State budget summary of 2019-2023

Year	State budget /projection by thousand MNT/[5]
2019	140,000.0
2020	160,000.0
2021	180,000.0
2022	200,000.0
2023	220,000.0
Total	900,000.0

[5] 90% of the state budget spend for staff salary and operations of the PAA.

Budget estimates are expected to grow steadily. Therefore, due to the expansion of the SPA, the funding from the state budget may increase dramatically.

Additional funding sources include Regional authorities, ITG, "Biodiversity and Adaptation to Climate Change Project" (KFW), and the UNESCO MAB, NGOs which are most likely to request financial support from them but are unpredictable.

A preliminary budget for the implementation of this management plan estimated at an amount of 2,741 billion Tugriks, but it is possible to change during the business planning process.

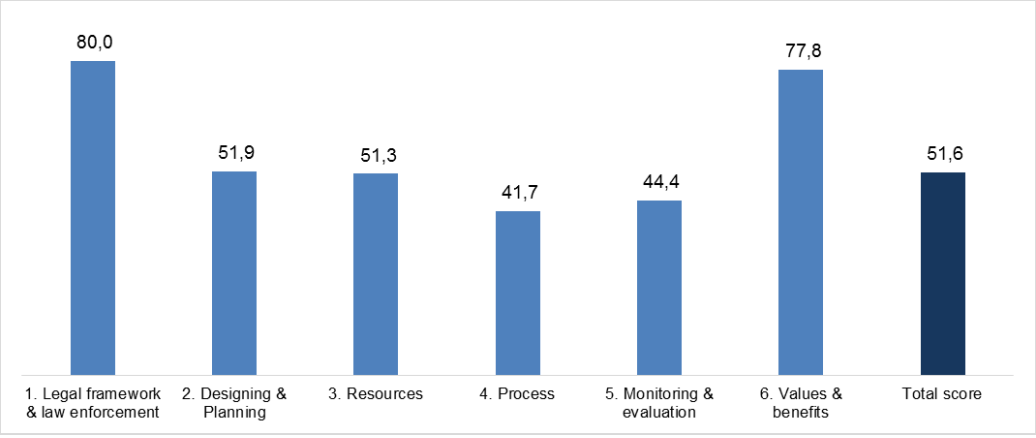
Also, during the implementation period, fundraising activities will organized and funding will increased through the strengthening collaboration, increasing local participation, and implementing joint projects with donor organizations.

2.3 Evaluation and monitoring of the management plan implementation

To ensure effective implementation of the management plan, the following approaches/methodology will used to assess the achievements and effectiveness of the management. In addition, the management plan will be monitored and evaluated with strong involvement of the stakeholders.

1. **Annual workplan implementation assessment:** This assessment is carried out in December for each year, conducted by the MET in accordance with the agreement.
2. According to the decision by Ministry of MET (2018.10.02), Management effectiveness of the PA and key result of the implementation of the management plan will be assessed by **Management effectiveness tracking tool** (METT), every two years (2021 and 2023) in collaboration with stakeholders. It will assess the viability of the conservation targets, threats, and management effectiveness (indicator questioner) (Graph 1). The result of the assessment will used to improve and adapt the workplan (if necessary, MP will updated in accordance with the recommendations) and budget plan.

Graph 1. Management effectiveness of the GGB SPA (2019) by %



3. If necessary, specific assessment tools can be used to monitor the result of the joint actions and improve the planning and results.

2.3.1 Target species monitoring plan

The short and long-term biodiversity monitoring will provide valuable information for making conservation decisions. Biodiversity monitoring will be conducted in accordance with the following indicators (Table 12).

Table 12. Baseline of the target viablity assessment

Items/indicators	Status	Indicators			
		Poor	Fair	Good	Very good
Argali sheep	Unknown				
Distribution					
Home range					
2018-12-30:					
Population					
# of individuals					
2018-12-30:					
Saxaul forest	Good				
Distribution	Fair				
Distribution	Fair	>30	31-32	33-34	35<
2018-12-30: 31,87			31,87		
Size of the planted saxaul	Poor	<3	4-7	8-10	11<
2018-12-30:					
Use of saxaul	Good				
# of illegal harvest	Fair	>1000	999-500	499-1	0
2018-12-30:					
2013-12-30:					
Takhi	Fair				
Distribution	Good				
Home range	Good	<200000	200001-400000	400001-700000	700001<
2017-12-30: 495000				495000	

Items/indicators	Status	Indicators			
		Poor	Fair	Good	Very good
Population	Fair				
# of individuals	Fair	>50	51-399	400-599	600<
2018-12-30: 233			233		
2012-12-30: 74			74		
2010-12-30: 49		49			
2009-12-30: 137			137		
1993-12-30: 10		10			
1992-06-06: 5		5			
Overlap home range of Takhi and domestic horse location during breeding time	Good				
# of overlapped domestic horse	Good	>200	50-199	1-49	0
2018-12-30:					
2013-12-30:					
Movement	Fair				
# of Takhi herd in Khonin us and Takhi us oasis	Fair	0	1	2-10	<10
2018-12-30:					
2015-12-30:					
2013-12-30:					
# dead	Fair				
# killed	Fair				
2018-12-30: 15			15		
2011-12-30: 10		10			
2010-12-30: 89		89			
2008-12-30: 15			15		
2002-12-30: 5				5	
1993-12-30: 1			1		
1992-12-30: 0					0

Items/indicators	Status	Indicators			
		Poor	Fair	Good	Very good
success of breeding	Good				
# of successful baby Takhi	Good	<30	31-60	61-99	100
2018-12-30: 39				39	
2008-12-30: 23				23	
2007-12-30: 15			15		
1992-12-30: 1					1
Hybridization	Fair				
# Hybrids	Fair	>5	3-4	1-2	0
2018-12-30:					
Overlap of pasture	Fair				
Overlap of Takhi and domestic sheep and goat	Fair	>20000	10000-19999	5000-9999	<4999
2018-12-30:					
2013-12-30:					
Takhi us oasis	Good				
Wildlife location	Fair				
List of biodiversity in gobi and semi dry ecosystems in the SPA	Fair	2	3	4	5
2018-12-30:					
Livestock	Good				
# of livestock	Good				
2018-12-30:					
Goitered gazelle	Good				
Population	Fair				
size of Population	Fair	<500	501-2000	2001-5000	5001<
2018-12-30:					
2013-12-30:					

Items/indicators	Status	Indicators			
		Poor	Fair	Good	Very good
Breeding success	Not Specified				
Ratio of 100 females vs #babies	Not Specified	<80	81-120	121-150	151<
2018-12-30:					
# of illegal activity	Good				
# of illegal hunt	Good	51<	31-50	1-30	0
2018-12-30:					
2013-12-30:					
Khonin us oasis	Good				
Springs	Fair				
# of springs	Fair	5>	6	7	8
2018-12-30:					
Location of the wildlife	Fair				
List of biodiversity in the oasis	Fair	<2	3	4	5
2018-12-30:					
Livestock	Good				
# of livetsock	Good				
2018-12-30:					
Khulan	Fair				
Population	Fair				
# of population	Fair	<1000	1001-3000	3001-5000	5001<
2018-12-30: 2872			2872		
2015-12-30:					
2010-12-30:					

Items/indicators	Status	Indicators			
		Poor	Fair	Good	Very good
# of dead	Fair				
# of dead in each year	Fair	>101	51-100	11-50	<10
2018-12-30:					
2013-12-30:					
# of killed by hunt	Fair	0	1-30	31-50	>51
2018-12-30: 10			10		
2013-12-30:					

Annex 1. Research priorities

 # 1: Disease monitoring of ungulates with a special focus on understanding all forms of Takhi mortalities

Disease monitoring focussing on the livestock-wildlife interface, with a special focus on ungulates. The latter is particularly relevant given the recent outbreak of Peste des Petits Ruminants (PPR) in saiga and the outbreak of African Swine Fever (ASF) in northern China. The focus will be on investigating all occurrences of more than the occasional mortality of any individual Takhi (which is normal, has to be expected, and does not need specific attention beyond opportunistic sampling) or other wild and domestic ungulate species. In respect to takhi, one issue, which keep on surfacing year after year, is the loss / disappearance of Takhi foals in the western population part around Takhi us.

 # 2: Inventory of mountain ungulates

Conduct an inventory of argali wild sheep and ibex in the mountains of Great Gobi B SPA to update information on range and population size using methods like camera trapping and double observer mountain ungulate surveys as done for snow leopard prey in other areas of Mongolia.

 # 3: Analysis of Takhi monitoring data from the past 20 years

The priority includes comprehensive analysis of monitoring data of Takhi collected by protected area staff over the last 20 years.

 # 4: Transition of tradition: local people's land use and co-management options in and around GGB SPA

This research priority focusses and understanding local herders' livelihood, pasture use, herd management, and expectations and constrains for the future.

 # 5: Khulan and gazelle population size monitoring using regular simultaneous point counts

Continuation of the simultaneous point surveys at 5-year intervals, with the next survey in 2020.

 # 6: Goitered Gazelle study

Initiation of a study focussing on the ecology of goitered gazelles in Great Gobi B SPA.

 # 7: Genetic screening of the reintroduced takhi population using non-invasive sampling (dung)

The genetic screening is intended to provide insight into the overall variability of the reintroduced Takhi population, genetic data to verify the observation-based pedigree, and a means to assess domestic horse introgression (recent and past geneflow with domestic horses).

 # 8: Observational research on harem switching

Conduct behavioural studies on selected Takhi harems.

 # 9: Great Gobi B SPA takhi carrying capacity

Explore ways to estimate carrying capacity of the Great Gobi B SPA ecosystem for takhis and other large herbivores.

 # 10: Saxaul Inventory

Conduct an inventory of the extent, condition, and degree of illegal use of the saxaul forest in Great Gobi B SPA.

 # 11: Inventory of the two key oasis complexes Khonin us and Takhi us – Yolkom

Conduct inventories of the flora, fauna, and water regime of these key oases.

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