ENHANCING FINANCIAL SUSTAINABILITY

OF THE PROTECTED AREAS SYSTEM IN GEORGIA

Consultancy to support the development of the concept and business model for an institutionalized national biodiversity monitoring approach for the Protected Area network of Georgia

Final Report

Biodiversity Monitoring in Protected Areas System of Georgia:

Practices, Challenges, Options

Prepared by: NACRES

Contract #: CNF/2020/TAGA-GEO-125

Authors: Ekaterine Kakabadze, Irakli Shavgulidze.

Date of submission: 26.04.2021

Tbilisi, Georgia

NACRES

This report was prepared as the result of work sponsored by the Caucasus Nature Fund. Any opinions, findings, conclusions, or recommendations are those of the authors and do not reflect the views of Caucasus Nature Fund, its employees or its funders.

Acknowledgements

We would like to thank Mr. Christian Goenner and Mrs Maka Bitsadze for their invaluable support throughout the process and contribution as *pro bono* members of the BMU Core Team.

Abbreviations:

APA – Agency of Protected Areas

CNF – Caucasus Nature Fund

GEF – Global Environment Facility

MoEPA – Ministry for Environmental Protection and Agriculture

NACRES – Centre for Biodiversity Conservation & Research

PA – Protected area

SPPA-Georgia Support Programme for Protected Areas in Caucasus - Georgia

TJS – Transboundary Joint Secretariat

UNDP – United Nations Development Programme

WWF – World Wide Fund for Nature

Contents

1 Introduction

This report was prepared within a Technical Assistance Agreement between CNF and NACRES signed on October 10th, 2020 with the main purpose to support the development of the concept and business model for an institutionalized national biodiversity monitoring approach for the Protected Area network of Georgia. The main tasks included to identify and elaborate a specific set of options/models (at least 3) for strengthening the biodiversity monitoring capacity of Georgia's PA system. The proposed options would aim to ensure that the functionality of biodiversity monitoring in PAs were to be sustainably maintained independent of possible future changes in governmental or institutional systems.

The following tasks were prescribed by the assignment:

a) To review current practices and challenges of biodiversity monitoring in protected areas system of Georgia and prepare corresponding report.

b) To review the document prepared by international consultant on international best practice on BMU models and consider it for elaboration of draft BMU models;

c) To elaborate draft BMU models (at least 3). The draft BMU models will be elaborated based on the background document and international best practices.

d) To conduct regular consultations with CNF, national expert from WWF Caucasus Office and representative / international expert from the Biodiversity and Forest Department of the Ministry of Environmental Protection and Agriculture (Core Team);

e) Preparation of final draft BMU models with brief SWOT analysis.

This report describes: **the processes and possible institutional models of biodiversity monitoring** (in this document referred to as Biodiversity Monitoring Unit or BMU) for further presentation to and discussions with the main beneficiaries, APA and MoEPA.

2 Approach and Methodology

The process included the following steps: (i) extensive discussions and interviews with key stakeholders such as APA representatives and individual experts having substantial experience working on and with PAs and knowledge of biodiversity monitoring needs and challenges as well as with relevant NGOs (Annex 2), (ii) the analysis of current situation with regard to biodiversity monitoring within the PA system as well as at the national level, based on the interviews and reviews of strategies/documents, (iii) review and analysis of international best practices including with the help of international expert separately hired by CNF to support the process, (iv) identification of suitable options (models) of biodiversity monitoring set-up.

Stakeholder interviews were conducted using a set of guiding questions prepared in advance (see Annex 1)

The findings of the reviews and analysis as well as of stakeholder interviews were regularly communicated with the Core Team and CNF and elaborated initial models were discussed intensively to finalize and fine-tune them for subsequent phase of discussions with the beneficiaries.

3 Biodiversity Monitoring on Protected Areas of Georgia

3.1 Protected Areas of Georgia

Currently there are 93 protected areas in Georgia managed by 21 administrations, (14 Strict Nature Reserves, 13 National Parks, 40 Natural Monuments, 23 Habitat/Species Management Area and 3 Protected Landscape). The total coverage of protected areas is 793 351 ha, about 11.38% of the country's territory.

The PAs (except the Protected Landscape) are managed by Agency of Protected Areas (APA). The Tusheti Protected Landscape is managed by the management unit established under Akhmeta Municipality. Shared management is foreseen for newly established Truso Valley and Aragvi PLs.

3.2 Existing Policies and Strategies

The Importance of biodiversity monitoring in the PAs is highlighted in different strategic documents.

One of the objectives of the *National Biodiversity Strategy and Action Plan (2014-2020)* was to '**set up an effective and comprehensive biodiversity monitoring system**' at national level which required revision of the national biodiversity monitoring strategy and action plan and creation of comprehensive institutional framework for biodiversity monitoring and implementation of biodiversity monitoring; in addition, it required the improvement of research and monitoring system in protected areas.

The *Third National Environmental Action Programme of Georgia (2017-2021)* aimed at 'developing of biodiversity status monitoring plans for protected areas including cross-border monitoring system'

(Action 4.4.), and by 2020 to have at least 10 biodiversity status monitoring plans, elaborated with the support of the donors.

In order to achieve long-term biodiversity conservation, *the Development Strategy and Action Plan of Protected Areas System of Georgia (2018-2030)*, sets the objective to **'establish biodiversity and threat monitoring modern system**' (Objective 3.1.) and aims to elaborate such plans for each PA separately (including cross border monitoring where applicable). According to the Action Plan 2018-2021 at least 60% of PAs should have such plans.

As a Party to the international treaties Georgia should conduct monitoring of habitats and species. According to the CBD (Article 7) Georgia should, as far as possible and as appropriate, carry out monitoring of biodiversity (Annex I) through sampling of other techniques. As stated in the Resolution No.8 of Bern Convention, Georgia should carry out regular monitoring on the conservation status of species and natural habitats. Additionally, according to the EU-Georgia Association Agreement, Georgia has obligation to establish system for monitoring of conservation status of pertinent habitats and protected species as relevant to Georgia (Annex XXVI); this should be implemented in six year after entering into force (the Agreement fully entered into force since 01 July 2016).

3.3 Responsible Units/Staff for Biodiversity Monitoring

The PAs (except the Protected Landscape) are managed by Agency of Protected Areas (APA) through 21 Territorial Administrations. At the APA level there is one staff position with designated responsibilities to coordinate biodiversity monitoring.

Biodiversity monitoring at PA level is the responsibility of a Protection division of a given PA Administration (Figure 1), namely, Natural Resource Specialist and Rangers, sometimes with involvement of Chief Rangers/Head of Protection Division (e.g. during monitoring of ungulates in Pshav-Khevsureti, monitoring of gazelle in Vashlovani).

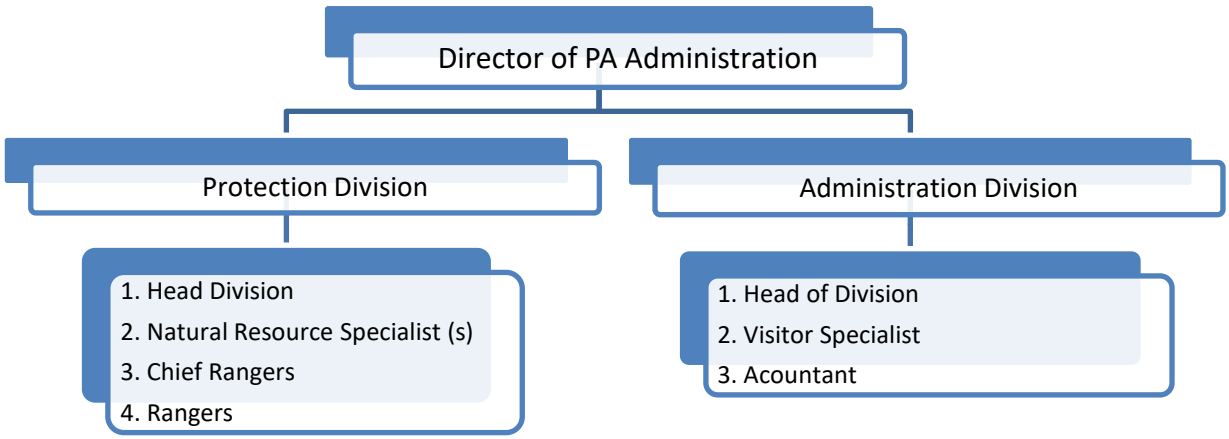


Figure 1. *Structure of PA Territorial Administration.*

Table 1: *Number of staff in Protection Divisions of PA Administrations (by October 2020)*

#	Administration	Protection Division of APA					Notes
		Head of Protection Division	Natural Resource Specialist	Chief District Ranger	Rangers	Total Number	
1	Algeti	1	1	2	16	**20**	
2	Ajameti	1	1	1	12	**15**	
3	Batsara-babaneuri	1	1	2	12	**16**	1 vacant ranger position
4	Borjom-Kharagauli	2	2	10	61	**75**	1 vacant ranger position; (10 rangers are part of the quick response ranger)
5	Vashlovani	1	1	2	29	**33**	1 vacant ranger position
6	Tbilisi	1	1	5	31	**38**	1 vacant ranger position
7	Tusheti	1	1	5	21	**28**	
8	Imereti	1	1	2	16	**20**	
9	Kintrishi	1	1		6	**8**	
10	Kolkheti	1	2	6	32	**41**	1 vacant ranger position
11	Lagodekhi	1	1	2	18	**22**	2 vacant ranger position
12	Mariamjvari	1	1		8	**10**	
13	Martvili and Okatse	1	0	3	17	**21**	1 vacant Natural resourse specialist position
14	Machakhela	1	1	2	10	**14**	
15	Mtirala	1	1	2	10	**14**	
16	Pshav-Khevsureti	1	1	4	16	**22**	
17	Kobuleti	1	1		3	**5**	
18	Kazbegi	1	1	3	14	**19**	
19	Chachuna	1	1		5	**7**	
20	Javakheti	1	1	1	8	**11**	
	Total Number:	**21**	**21**	**52**	**345**	**439**	

Currently, most PA Administrations have one Natural Resource Specialist, except Martvili and Okatse NMs Administration where the position is vacant. At the same time, Borjomi-Kharagauli NP and Kolkheti NP Administrations have two Natural Resource Specialists. There are vacant positions for rangers in several PA Administrations. Number of staff in Protection Divisions of all PA Administrations is given in Table 1. For many PAs existing number of staff is believed to be more or less sufficient in order to continue existing biodiversity monitoring practices which are described under chapter 3.5 below.

The turn-over of the PA Administration staff was very high in the past. But since the increase of the salaries in 2018 the turn-over of the PA Administration staff has been decreased (the rangers' monthly salary has increased from 450 up to 900 GEL, for chief rangers – from 470 up to 1000 GEL, for natural resource specialist from 400 up to 9000 GEL, for head of protection division – from 520 up to 1300 GEL). The additional monetary and non-monetary benefits provided by CNF to selected parks (salary top-ups of 150 GEL, insurance, food allowances) make the jobs in PA Administration more attractive. However, staff turn-over is still relatively high in the regions where alternative, better paid career opportunities exist (e.g. Mtirala NP).

3.4 Staff Qualification

Educational requirement for the staff of Protection Divisions of PA Administrations is the following:

- Natural Resource Specialist - higher education (minimum BSc) in Biology / life science / applied bio-science or ecology / environmental science;
- Rangers – minimum general secondary education.

According to various assessments the general qualification of the staff is not high and further capacity development is needed.

3.5 Current Practice of Biodiversity Monitoring

The biodiversity monitoring in PAs is carried out based on the Annual Work Plan elaborated by individual Administrations and approved by APA. The Annual Work Plan identifies monitoring species, which usually are Red List species and key biodiversity value species (in most cases those two coincide), however, the information on other common species is also gathered. The monitoring focuses mainly on data gathering and in some cases some kind of analyses. The methods for gathering information are defined.

The information on biodiversity is gathered by rangers during their patrolling. A ranger uses the special Action Plan-Schedule Form for collecting the data. The following data are requested to be filled in during the patrolling: 1) encountered animal species and its number; 2) identified law violation cases: logging, grazing, etc.; 3) condition of an area, tree with diseases, dried wood; 4) strong wind, flood, landslide, fire, etc.; 5) weather. The information in the Action Plan-Schedule Form is gathered during the month and submitted at the end of each month (sometimes on weekly bases) to the Natural Recourses Specialist. In case of rare/important observations rangers provide information immediately and prompt response is ensured if necessary (e.g. case of identification of phytopathology). The gathered data provides information on observed/seen species or its signs on the specific area during patrolling period. Rangers are advised to take the photos as evidence and also GPS coordinates of the observed evidence, but this is not obligatory and is not fulfilled in most of the cases. In many Administrations there are no or not enough photo cameras and GPSs; in those Administrations where this equipment is available, photos or GPS coordinates are often not taken (GPSs are mostly used for allocating felling sites in the forest or during identification of law violation cases).

Besides the patrolling, there are other approaches used by the Administrations for species data gathering in some protected areas. For example, number of red deer in Lagodekhi PAs is counted during Red deer rutting period by so called roar counts. However, the exact method used in Georgian PAs is highly controversial according to the experts. Another example is monitoring of East Caucasian Tur, Bezoar Goat and Chamois by Pshav-Khevsureti PAs Administration using direct observations and simultaneous counts are carried out in different gorges. The Kolkheti NP Administration monitors number of three fish species in fishermen catch.

The bat monitoring in several caves of PAs was carried out only by external expert. The ranger was assigned by Administration to accompany the expert and be involved in the monitoring process.

Bird monitoring (mainly observation) is carried out in many PAs. Under the TJS the transboundary ornithological monitoring between Javakheti PAs (Georgia) and Lake Arpi PAs (Armenia) was supported and corresponding database was elaborated (in 2018).

The ecosystem or habitat monitoring as such does not take place at PAs (with the exception of elaborated pasture management plans which include pasture monitoring component for sustainable grazing). Some monitoring of plants and its phythopathology is ongoing in number of PAs (e.g. monitoring of chestnut and box trees in Kintrishi, Mtirala, Machakhela, monitoring of oak species in Kolkheti NP, Ajameti MR). Usually, monitoring is carried out twice a year, during spring and autumn inspection, on sample plots. In case of identification of sudden significant changes on the plants (falling of tree, some pathogens, etc.), so called Signal Sheet is filled in and sent immediately to the Natural Recourses Specialist; in case of need, consultations are further held with respective institutions/experts (e.g. samples from Mtirala, Kobuleti, Kolkheti PAs were sent to Batumi State University, Phytophathology and Biodiversity Institute). Monitoring of invasive plant species is also carried out in several PA Administrations (e.g. Kolkheti NP, Vashlovani PAs).

The additional source of information from PAs is photo camera traps. The information from camera traps is directly sent from device or collected by rangers as scheduled and delivered to the office. The locations of installed cameras and/or their operation are usually not based on approaches needed for gathering monitoring data.

Some PAs also record livestock depredations by wild carnivores.

All information related to biodiversity monitoring gathered at PA level is consolidated by the Natural Recourses Specialist and summarized in an Excel document. Reports on biodiversity monitoring are prepared on a quarterly basis and is submitted to APA. The data on species are either simply summed up (total number of observed/seen species or its signs during reporting period) or approximate number is calculated using extapolation techniques. Annually, the Administrations prepare document called “Bunebis Matiane” (Nature History), which among others includes the results of biodiversity monitoring.

The information from PA administrations is gathered at the APA and used for requested reports.

3.6 Existing Biodiversity Monitoring Documents

Several documents were developed on biodiversity monitoring during last years. These include:

UNDP/CNF:

- Technical Assistance to the Development of two Standardized Target PA-specific Management Effectiveness Assessment (MEA) Plans (Biodiversity Monitoring Indicators) for two Protected Areas in Georgia (Machakhela and Mtirala PAs) (2020)

TJS:

- Monitoring of the migratory water birds at Javakheti and Lake Arpi National Parks Action Plan (2019)
- Transboundary monitoring of key species in Lagodekhi and Zakatala PAs (2020)
- Eastern Tur (*Capra cylindricornis*) Radio-Telemetry in Lagodekhi Protected Areas (2020) (together with CNF)

BMU/KWF (SPPA-Georgia):

- Biodiversity Monitoring and Conservation Programmes for Kazbegi NP (2018)
- Biodiversity Monitoring and Conservation Programmes for Kintrishi PAs (2018)
- Biodiversity Monitoring and Conservation Programmes for Pshav-Khevsureti PAs (2018)
- Caucasian grouse monitoring plan for Kazbegi NP (2019)
- Caucasian grouse monitoring plan for Kintrishi PAs (2019)
- Chamois monitoring plan for Kazbegi NP (2020)
- Chamois monitoring plan for Kintrishi PAs (2020)
- Bear monitoring plan for Algeti NP (2020)
- Bear monitoring plan for Kintrishi PAs (2020)
- Lynx monitoring plan for Algeti, Kazbegi, Kintrishi and Pshav-Khevsureti PAs (2020)
- Bezoar goat monitoring plan for Pshav-Khevsureti PAs (2020)
- Roe Deer monitoring plan for Algeti NP (2020)
- East Caucasian tur monitoring plan for Kazbegi NP (2020)
- East Caucasian tur monitoring plan for Pshav-Khevsureti PAs (2020)

CNF:

- Development of standardized biodiversity monitoring programs for CNF-supported Protected Areas in Georgia Baseline data and draft indicators, Lagodekhi PA (2016)
- Development of standardized biodiversity monitoring programs for CNF-supported Protected Areas in Georgia Baseline data and draft indicators, Borjomi-Kharagauli PA (2016)
- Eastern Tur (*Capra cylindricornis*) Radio-Telemetry in Lagodekhi Protected Areas (2020) (together with TJS)

GEF/UNDP:

- Design of Biodiversity (*Capra* spp.) Monitoring (NACRES, 2010).

Elaborated monitoring plans are used in some PAs, in others they are expected to be used after their incorporation into the Annual Work Plans.

Pasture assessment and pasture management plans (which include pasture monitoring) have been elaborated for several PAs:

- Pasture management plan for Chachuna MR (SABUKO, Cambridge Conservation Initiative, 2021, on-going);
- The Guideline for sustainable pasture management for Borjomi-Kharagauli NP (NACRES, CNF, 2020);
- The Guideline for sustainable pasture management for Tusheti NP (NACRES, BMZ/GIZ, 2019);
- The Guideline for sustainable pasture management for Tusheti PL (NACRES, BMZ/GIZ, 2019);
- Pasture management plans fro Pshav-Khevsureti PAs (SPPA-Georgia, BMU/KWF, 2019);
- Pasture management plan of Lagodekhi PAs (NACRES, EU Twinning Programme, 2016);
- Pasture management plan of Vashlovani PAs (NACRES, UNDP/EU 2015);
- Sustainable pasture management plan for the surrounding areas of Chachuna MR (WWF, BMZ, 2014);
- Pasture management plan of Javakheti PAs (WWF, KFW, 2011).

The biodiversity monitoring component is considered in all management plans of protected areas. Outside protected areas the biodiversity monitoring component is included in draft management plans of several Emerald Sites (at present nine draft management plans are prepared and six are under preparation).

3.7 Equipment

Many PAs lack the necessary and basic equipment to conduct biodiversity monitoring. The Administrations which have never been supported by international projects (e.g. Ajameti, Tbilisi, Mariamjvari) do not have even enough basic office equipment (e.g. computers for staff). The better situation is in the PAs supported by donors during last several years (CNF, TJS, SPPA-Georgia/KFW, UNDP). Currently among the best equipped PAs are Lagodekhi PAs, Algeti NP, Kintrishi PAs. For example, Lagodekhi PAs administration has all necessary biodiversity monitoring equipment, including SMART devices introduced recently; the necessary equipment for Black Grouse monitoring was purchased for Kintrishi and Kazbegi (2020) based on the recommendations in the elaborated black grouse monitoring plan; the necessary equipment was procured for Algeti NP, Kintrishi, PAs, Pshav-Khevsureti PAs, Kazbegi PAs based on the recommendations in the elaborated monitoring plans of several mammal species; in the above mentioned four PAs the necessary equipment (e.g. different microscopes, other units) for phytopathology monitoring was also purchased.

The existence of the appropriate equipment in PAs does not ensure (immediate) implementation of the monitoring. In some cases, the administrations wait for the approval of the Annual Work Plan, which should include the elaborated monitoring methodology. In some cases, equipment (quite expensive ones) are not given to the rangers in order to avoid their damage.

In addition to the monitoring equipment, lack of personal equipment (sleeping back and pad, proper boots, knife, flashlight, etc.) should be mentioned, which are necessary during the field works.

3.8 Trainings

A number of biodiversity monitoring trainings were carried out during last years for PA Administration staff. Some of the trainings conducted by external institutions/experts were:

- Planning adaptive management in PAs using SMART (Bortjomi-Kharagauli, Lagodekhi PAs (2020) and Borjomi-Kharagauli, Lagodekhi, Machakhela, Mtirala, Kintrishi and Kolkheti PAs, 2018);
- Phytopathology (Algeti, Kazbegi, Kintrishi, Pshav-Khevsureti, Kobuleti, Machakhela, Mtirala, Imereti Caves, Mariamjvari, Tbilisi and Borjomi-Kharagauli PAs, 2019);
- Monitoring of black grouse (Kazbegi and Kintrishi PAs, 2019);
- Monitoring of big mammals (Algeti, Kazbegi, Kintrishi, Pshav-Khevsureti PAs, 2019);
- Transboundary bird monitoring in Javakheti PAs and Arpi NP (Javakheti, 2018);
- Monitoring and identification of birds of prey (Vashlovani, Chachuna PAs, 2018);
- Assessment and monitoring of pastures (Kazbegi, Pshav-Khevsureti, Algeti PAs, 2018);
- Improved monitoring of habitats and phytopathology (all PA Administrations, 2017).

The Natural Recourses Specialist and rangers are involved in trainings, but not all rangers participate. In case the trainings are arranged only for the Natural Recourses Specialist, they provide information and conduct on-site trainings for the rangers of their PAs. On-site trainings are conducted by Main Specialist of Scientific Research and Monitoring of APA as well on regular bases.

4 Other Institutions/Donors Involved in Biodiversity Monitoring

The following institutions/organizations are involved in biodiversity monitoring in protected areas:

- WWF Caucasus PO (gazelles in Vashlovani);
- The Centre for Biodiversity Conservation & Research - NACRES (large herbivores, brown bear, lynx, etc.);
- Field Researchers' Union “Campester” (bats and small mammals);
- Society for Nature Conservation SABUKO (eagles in Vashlovani);
- Ilia State University (including institute of botany and zoology);
- Tbilisi Zoo (monitoring of gazelle in Vashlovani, big mammals in several PAs);
- Batumi Shota Rustaveli State University, Phytopathology and Biodiversity Institute,
- Etc.

The biodiversity monitoring component is supported by various donor organizations (GIZ, UNDP, CNF, KFW, etc.) through different projects.

5 Findings, Gaps and Challenges

This chapter presents the findings including identified gaps and major challenges based on the stakeholder consultations and the situation analysis. The list of interviewed stakeholders is given in Annex 2.

5.1 Understanding of Biodiversity Monitoring

The purpose of the establishment of the PAs and the importance of the biodiversity protection is clear for most of APA/PA staff. However, the understanding of the biodiversity monitoring is not clear or is neglected at PA as well as APA level. Only in several PAs the importance of biodiversity monitoring is clear and corresponding activities are supported/implemented under different projects. The biodiversity data gathered at PA level is summarized and submitted to the National Statistics Office of Georgia, usually showing the positive trends of number.

Causes:

- Request to **prepare/provide the reports/data to the Statistics Office** (with expected "positive" results i.e. increasing as opposed to decreasing indicators) and not considering the need of adaptive management at all;
- The general **attitude at system level** to demonstrate positive trends in wildlife population numbers as a sign for better management of PAs;
- (based on above) **No clear understanding** of necessity for conduction of biodiversity monitoring;
- **Lack of knowledge** of biodiversity monitoring (this differs among PA Administration and attitude/approaches are based on the management and individuals);

(Possible) solutions:

- **Awareness raising** (especially of high position persons) at Ministry/APA/PAs level to understand why the monitoring is needed, what is aimed to be achieve with it;
- **Communication with National Statistics Office** and provide explanation for the importance of the proper monitoring and thus the changes in the provided data;
- **Change of understanding** that the increasing number of species is not always the indicator of PA management effectiveness i.e. improve the understanding of the relationship between the indicators and management effectiveness (and maybe provide proper indicators/methods);
- **Willingness at System level** (Ministry level) to change the existing approach, which will be reflected at APA and then at PA level;
- Introducing the **corresponding legal requirements** for conduction of biodiversity monitoring might ensure its implementation;
- Some **pressure from international organizations** on the importance and conduction of biodiversity monitoring in a systematic manner.

5.2 Quality and capacity of conducting effective biodiversity monitoring

The monitoring activities carried out by PA Administrations are mainly data collection and less analyses or interpretations. The monitoring data gathered by PA staff is often incomplete, sporadic and unreliable. The requested operational forms are often not filled regularly, properly and precisely. For example, during the data gathering on birds no detailed counting can be done, just assumed amount can be written. The form can be filled in days later resulting in inaccurate data. Sometimes, obvious nonsense is noticed in the filled forms. The rangers are advised to take the photos and also

GPS coordinates during patrolling, but as this is not obligatory it is not fulfilled most of the time. The monitoring activities (data collection) with involvement of PA staff and supervision of external experts carried under the funded projects, are discontinued after the project is finished, as there is no requirement from the APA.

As mentioned already, the locations of installed trap cameras are not always correctly chosen, they are often installed where probability of species occurrence is ensured or high. Although, some used methodology of data collection (e.g. ungulates) could provide estimated number and/or trend of population, the precise data cannot be estimated. As part of the ongoing biodiversity monitoring data collection, conducted with the limitations as described above, PA administrations are often "encouraged" to demonstrate positive trends in wildlife population numbers. Based on above mentioned, it is clear that such data hardly could contribute to the management decision making on improvement of biodiversity conservation.

The data on certain number of species/habitats can be collected by PA staff. For example, important monitoring data can be gathered on bats by rangers with the use of simple methodology (recording arrival period, leaving period, number, threats, childbirth, identification of some bat families), which can be later checked and analyzed by external experts; the PA staff can monitor the changes in the forest habitats (phythopathology) as well. In contrary, the data gathering of some other components will be difficult to be done by PA Administration (e.g. Emerald sites, grasslands/pastures, peatland hydrology, small mammals, invertebrates, etc.) and external involvement will be needed.

Some kind of analyses of the gathered data is carried out at some extent only in some PAs and APA.

Causes:

- The general **attitude at system level** to demonstrate positive trends in wildlife population numbers as a sign for better management of PAs;
- **Lack of understanding/attitude of the APA/PA** management regarding importance of biodiversity monitoring;
- **Lack of motivation** in many PAs staff. There are several reasons for lack of motivation:
    - the existing salaries are still low in comparison to complexity of duties fulfilled
    - there is no bonuses systems, which would motivate the staff;
    - unfit, uninterested, passive staff (often the persons hired by someone's patronage) fulfilling less or only the minimum requirements (for example, during the patrolling just walking along the root and not giving attention to the things around; laziness and/or difficulties to walk; refusing to accompany experts during field work in rainy day, etc.); such persons discourage the motivation of others as well;
    - the assessment of the staff job performance based on the provided data, which is sufficient for APA. If the numbers are less than in the previous year this can be considered as a poor job performance;
    - work overload (see below).

  However, as highlighted by most of respondents, about 30-40% of rangers are interested in biodiversity topics, are active, motivated and try to provide precise data. Usually new staff is also very motivated but loses it after some time;

- **Work/Tasks overload.** The PA staff involved in biodiversity monitoring has many responsibilities. The overall task of the ranger is to ensure the protection of the area: support the protection and conservation of biodiversity. Among the responsibilities assigned to the ranger are: monitoring of PA borders and adjacent areas and prevention, detection and suppression of law violations, participation in criminal arrests; participation in rescue operations and fire prevention activities; protection of biodiversity, collection of information / registration of condition of flora, fauna, water, forest pests and deceases, historical-archaeological and touristic objects; participation in registration/inventory of natural resources and regulation of its use (including issuing documentation of wood, marking trees, control cutting, etc.); protection/monitoring of administration property; support/information of visitors, provide first-aid; Communication with communities, etc. (In some PAs rangers are asked to maintenance existing touristic infrastructure (clean, change bed-clothes, etc.). Fulfilment of all requirements is almost impossible and overload work leads to the dissatisfaction. The priority activity in PAs is considered to be the protection, but in some PAs, support of the tourism is also considered as a priority (rangers provide tourism services, e.g. are instructors in zip-lines). In PAs where the wood is provided to the communities the rangers are very busy during the autumn period. In addition to number of priority duties the biodiversity monitoring for many rangers seems to be as an additional task.

  The overall task of Natural Resources Specialist is: restoration, preservation and conservation of ecosystems and biodiversity. Among the responsibilities assigned to the Natural Resources Specialist are: participation in protection and restoration of flora/fauna, propose actions for ecosystem restoration/conservation, conduct scientific studies and observations in order to protect and conserve ecosystems and biodiversity; create flora/fauna database; identification of sample areas for monitoring, assessment of threat for red list species and their protection; coordination rangers work related to data gathering on biodiversity; planning and conduction of educational trainings; participation in conservation of natural resources (including pastures), marking the logging areas, issuing permissions, opening/abolishing for logging areas, filling in forest database; support, coordinate and monitor scientific studies to prevent any harm on environment; preparation of different information materials, preparation of quarterly reports and annually report “Bunebis Matiane”(“Nature History”); organize/conduct educational activities, support eco-camps; initiate/organize public awareness activities; preparation of herbariums and collections; etc. (In some PAs Natural Resources Specialist support management in administration duties – preparation of letters/answers/documents). The task of the Natural Resources Specialist is too wide and one specialist is not sufficient to fulfil all responsibilities. In most of the cases data is gathered only by rangers and Natural Recourses Specialists are not involved in the process.

- **The turn-over** of staff was very high in the past; thus, the investments in the human development have been lost. Since 2018, increased salaries significantly reduced the turn-over of the PA Administration staff. But it is still high in the region where alternative, better paid career opportunities exist. Furthermore, the salaries still are not high to attract more qualified staff;

- **Lack of monitoring plans** (with corresponding methodologies). Monitoring plans for some target species are elaborated for several PAs administration. But there is need to have such plans for key biodiversity species/habitats for all PAs (see chapter 1.6);
- **Qualification/capacity** of the PA staff (both, Natural Recourses Specialists and Rangers) involved in the biodiversity monitoring is not sufficient. There is need to increase their capacity. They cannot follow through the monitoring plans, where they exist, without external support.
- **No request form APA** to continue the monitoring started under funded projects; there is no proper attention to the methodologies as far as the required numbers are provided and no understanding/requirements exist for adaptive management; the data provided by external experts might be included/presented in the statistic if it has a positive trend, otherwise it can be neglected (e.g. case in Lagodegkhi);
- **Existence/lack of equipment**. Many PAs do not have basic equipment, although in some PAs such equipment is available but not used. Absence of the equipment should not be considered as a problem; if there is a request to conduct proper monitoring, equipment can be purchased under different donors/projects. Besides of the monitoring equipment the personal equipment (sleeping back and pad, proper boots, knife, flashlight, etc.) for the rangers are often lacking or outdated.
- **Lack of database** to store monitoring data collected during the monitoring;
- **Lack of capacity** to carry out monitoring data analyses and interpretation.

(Possible) solutions:

- **Change of understanding** of biodiversity monitoring and its importance in adaptive management; the understanding that the increasing number of species is not the indicator of PA management effectiveness;
- **Increase motivation** of staff (different approaches: realistic/less responsibilities, increased salary, introducing bonus system, etc.);
- **Increased number of staff / diversification of positions**. Because of the general task overload, in most PAs the number of staff will not be sufficient to carry out biodiversity monitoring activities properly. The need to split responsibilities of Natural Resources Specialist and to add new position of Eco-educational Specialist has been highlighted already sometimes ago. This would give Natural Resources Specialist to allocate more time for biodiversity and natural resource issues (other administrative tasks should also handed over to other staff).

  The conduction of proper biodiversity monitoring (based on elaborated management plans and new methodologies) will require more input from rangers. For this purpose, the group or motivated rangers can be identified (from already existing interested and motivated staff and/or from new ones). Depending on the PA the number of the rangers with the tasks on biodiversity monitoring (and additionally also poaching) can be different (e.g. 2 groups of 3-4 rangers in Lagodekhi PAs). It should be ensured that new rangers are hired to fulfil the tasks / obligation of other existing tasks. The diversification of rangers and elaboration of specific ToR can be done (followed by diversified salaries bonuses, etc.). Or the grading system for rangers

can be introduced (from lower position till high position). However, this requires some additional finances.

The establishment of monitoring unit might be considered at PA level as well (involving Natural Resources Specialist and Rangers responsible for biodiversity monitoring).

The general lack of the qualified staff in the regions might be a problem in some regions.

- **Capacity building**. The specific regular biodiversity monitoring trainings (not complicated), mainly focusing on index gathering/counting (including use of equipment) should be carried out regularly. Trainings should be conducted by external experts (full training for Natural Resources specialist and simplified training (mainly on-site training) for rangers). Internal on-site trainings should be also conducted by APA/PA staff. The knowledge of the rangers should be assessed after each training, as well as job performance evaluation. The work of the staff should be monitored be supervised regularly and counterchecked by external experts on regular bases (once in a 3-5 years period depending on monitoring species);

  Besides the planned trainings the knowledge/capacity of the PA staff can be increased by accompanying group of external experts;

  Additionally, the exchange visits among PAs can increase the knowledge, experience and also motivation of the rangers in conduction of biodiversity monitoring;

  The system of physical training norms for rangers should be introduced to ensure standard of physical fitness.

- **Identification of target species** for PA staff monitoring (the other species monitoring should be outsourced);
- **Monitoring plans and methodology**. Development of biodiversity monitoring plans for target species/habitats; Biodiversity monitoring plans should be elaborated for all key biodiversity value species / habitats for specific PAs. The monitoring plans should include methodologies which will be implemented by trained PA staff in order to collect field data (and maybe do some analyses). This should be done by external experts. Gathering of index data should be introduced, along with existing observation data. The methodology/instruction for rangers should be very short and simple (1- or 2-page instruction where, when and how to go).

  Additionally, use of SMART as well as use of special application for species identification can be used (which later ca be analyzed by experts);

  In order to have a proper start, the monitoring data gathering first should be carried out with involvement of external experts and then can be continued by PA staff with checking from time to time;

- **Quality control/checking** on monitoring carried out should be done regularly at PA level as well as by external experts;

- **Data gathering from different sources** (citizens, students, tourists, birdwatchers), which can be analyzed by specialist/expert periodically (e.g. twice a year);

- **Establishment of volunteering system** can be considered for biodiversity monitoring. Such experience is already practiced by NACRES and can be strengthened in the future (involving youth, students, etc.);
- **The equipment** of the PAs/rangers should be revised based on the needs of the elaborated monitoring plans. Equipment can be purchased under different donors/projects, but their use should be ensured;
- **Appropriate Requirements (regulations)** for conduction of biodiversity monitoring and its control should be ensured;
- Increase number of APA staff responsible for biodiversity monitoring (analyses/interpretation) / creation of **biodiversity monitoring unit at APA** which will support coordination of activities under biodiversity monitoring in PAs and analyses and interpretation. The staff should include 2-3 specialists for pasture/grassland management, several zoologists and botanists (with different specializations), as well as analytical group of 2-3 persons (GIS, Distance, etc), in total maximum 6 staff members;
- **Capacity development at APA** for data analyses and interpretation;
- (or) **Outsourcing** the biodiversity monitoring component;
- **Involvement of students / universities** (BSc, MSc, practices) in monitoring activities should be considered.

5.3 Other Issues to be considered

- General document/strategy on biodiversity monitoring should be elaborated at APA level;
- Together with monitoring plans anti-poaching plans should be elaborated;
- The motivation of different PAs is very different; some management is interested and supportive in biodiversity monitoring, other less;
- Monitoring of one species is advisable to conduct simultaneously in the whole PA system;
- Consider possibility to involve border police in biodiversity monitoring and anti-poaching activities (practice in Israel, Kambodja);
- Consider involvement of volunteers, for example students, birdwatchers, locals (different opinions on this issue);
- The communication/relation with adjacent communities should be considered;
- In case of outsourcing the different institutions/organization can take over the monitoring of certain species/habitats.

5.4 Capacity of other institutions

Different organizations/institutions (see 1.9.) have high capacity and experience in biodiversity monitoring. For years organizations carry out biodiversity monitoring and support APA/PAs in capacity development. Educational institutions are also involved but more focused on research.

There are also new approaches which can be used / introduced for biodiversity monitoring in the future. For example, method of animal flight distance to assess the poaching, measuring stress rate in animals (can be done by the laboratory of the Tbilisi Zoo) to assess poaching pressure, do analysis on parasitology/histology; work on the animal disease together with National Center for Disease Control and Public Health, etc.

The capacity of these institutions can be used for better biodiversity monitoring in PAs.

5.5 Funding

At present there is no separate budget line at state level to conduct biodiversity monitoring at PAs (except for some phytopatological studies) and most likely this will not be changes in coming years. The main sources are donor organization through different projects.

6 Way forward

Common understanding among stakeholder is that an alternative new approach has to be developed, with considerations for adopting a harmonized and institutionalized biodiversity monitoring approach in Georgia.

The new approach needs to ensure more effective biodiversity monitoring on protected areas that would support PA adaptive management and at the same time reflect national priorities.

7 International experience and best practices

The review of international best practices of BMU models was prepared by the Project's international consultant. The report provides an overview of biodiversity monitoring schemes of several EU/European countries such as Norway, Sweden, Czechia, Hungary and Slovakia along with approaches and achievements that would be of interest. It also gives examples of biodiversity monitoring in two protected areas in Czechia and Germany.

Based on the international experience, it is recommended that a biodiversity monitoring system should be developed at the national level − while it is stressed that no biodiversity monitoring system is available separately and specifically for the PA system in any EU country − and cooperation should be established with technical partners because no governmental body in any European country has sufficient internal capacity to independently carry out biodiversity monitoring activities. (See Annex 4 for the review prepared by the Project's international expert).

8 Selecting suitable BMU models

8.1 Initially proposed BMU models

During the interviews the stakeholders and key experts were encouraged to name any BMU models that would in their opinion be suitable considering the past experience and lessons learnt as well as current needs and challenges. They could propose more thanone such model for subsequent processing and discussions within the core team in which case they were also asked to indicate preferred or most suitable options.

The stakeholders proposed a wide spectrum of possible models that were categorized into several options described below.

It is important to note that several important assumptions (principles) were identified that are likely to apply to all proposed models. These include:

(i) There is a clear understanding of the purpose of the biodiversity monitoring at the national/system level (State Statistics Office, MoEPA, APA);

(ii) All relevant governmental agencies and primarily APA fully recognize that effective biodiversity monitoring and the resulting trusted data is the key to effective/adaptive PA management as well as sustainable management of biological resources at the national level;

(iii) The practice of expecting "positive trend" from biodiversity monitoring process needs to be abandoned among all relevant governmental agencies and replaced by expecting scientifically robust and reliable data that reflects the real situation of the monitored feature (species, habitat, etc.).

The importance of external support in setting up as well as subsequent operation of BMU was highlighted by all stakeholders.

Model - 1

Strengthening APA

Creation of biodiversity monitoring unit / or at least adding several specialists at APA level would support the improved monitoring and coordination of activities under biodiversity monitoring in PAs. It is very important that new staff includes persons specialized in different direction: 2-3 specialists for pasture/grassland monitoring in all PAs of Georgia, several zoologists and botanists (with different specializations), as well as analytical group of 2-3 persons (GIS, Distance, etc). The analyses and interpretations can be done with the support of external experts.

Strengthening PA Administrations

Qualified and trained group of rangers are involved in the biodiversity monitoring under the control of the Natural Resources Specialist and external experts. The Natural Resources Specialist and group of motivated rangers are focused mainly on biodiversity monitoring.

External Support

National organization/institution support implementation of biodiversity monitoring in PAs, by providing their knowledge, experience, capacity (elaboration of monitoring plans, methodologies, analyses and interpretation); conduct the monitoring of specific species/habitats which cannot be done by PA Administrations.

Model - 2

Establishing Biodiversity Monitoring Unit at MoEPA

New Unit is established under the MoEPA responsible for biodiversity monitoring in PAs with all appropriate qualified staff (capable to elaborate methodologies, carry out supervision, analyze and interpret data).

Strengthening PA Administrations

Qualified and trained group of rangers are involved in the biodiversity monitoring under the control of the Natural Resources Specialist and external experts. The Natural Resources Specialist and group of motivated rangers are focused mainly on biodiversity monitoring.

External Support

National organization/institution support implementation of biodiversity monitoring in PAs, by providing their knowledge, experience, capacity (elaboration of monitoring plans, methodologies, analyses and interpretation); conduct the monitoring of specific species/habitats which cannot be done by PA Administrations.

Model - 3

Biodiversity monitoring on PAs is outsourced.

Model – 3.1.

Contracting respective institutions

The identified organizations/institutions (with accreditation) are contracted by the government to conduct the monitoring of key species/habitats on regular bases for adaptive PA management (case in Romania);

Strengthening PA Administrations

Qualified and trained group of rangers are involved in the biodiversity monitoring under the control of the Natural Resources Specialist and external experts. The Natural Resources Specialist and group of motivated rangers are focused mainly on biodiversity monitoring.

Model – 3.2.

Establishing Biodiversity Monitoring Unit as a New Entity

The BMU unit is be established separately and will be independent from the MoEPA/APA (this can be group of experts or representatives of different organizations). Credibility of the results of the BMU should be accepted by MoEPA/APA.

Strengthening PA Administrations

Qualified and trained group of rangers are involved in the biodiversity monitoring under the control of the Natural Resources Specialist and external experts.

8.2 "Long list" of possible BMU models

The subsequent phase involved further elaborating on the options of BMU models proposed by the stakeholders. Carefully considering the preferred options as highlighted by the stakeholders and the international practices it was anonymously supported by the experts that biodiversity monitoring on PAs should be considered an integral part of the national biodiversity process and therefore it would be appropriate to consider BMU as not only serving PAs but also the national biodiversity monitoring interests. Hence two institutional models emerged as most viable options, each containing two variants. The two models were (1) BMU to be set up within the MoEPA and (2) outside the MoEPA. These models and their variants are described in brief in Annex 3 along with the results of brief SWOT analysis that were conducted separately for each variant and charts depicting information flow between the key elements.

8.3 Selected BMU models for further consideration

As a result of careful consideration including of SWOT analysis results for each model/variant and a series of discussion by the Core Team as well as of consultations with CNF, it was decided to select the following two most viable and presumably effective BMU models that would be later presented to and discussed with the beneficiaries – APA and MoEPA.

Model – 1: BMU established under MoEPA

BMU will be **established under the MoEPA** as a new unit (as a new department, or under existing department or the new Legal Entity of Public Law (LEPL)) and will be entirely dedicated to biodiversity monitoring at the national level, including PAs.

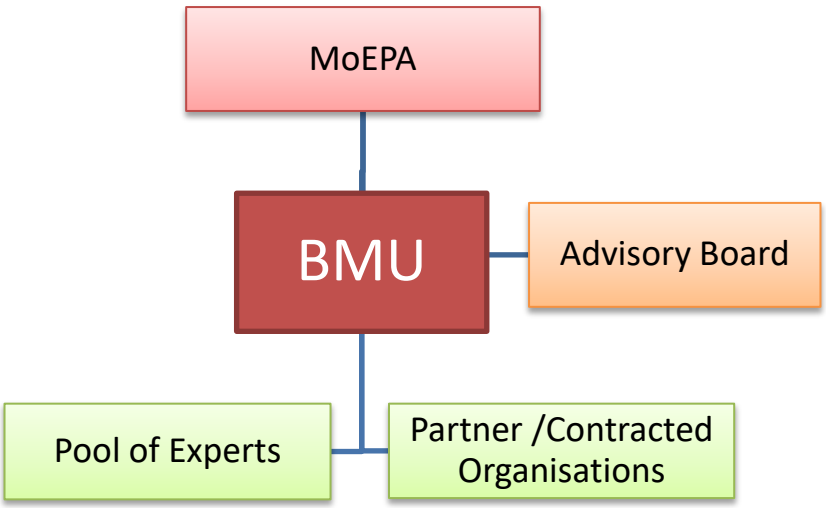
The staff is presented by at least 6 persons including experienced zoologists, specialized in various fields such as mammals, birds, etc.; botanists and a GIS expert. The staff is hired by MoEPA.

The Unit will be responsible for: a) elaboration standard methodologies with external support; b) gathering data from various sources; c) preparation/conduction of tenders; d) supervision of the biodiversity monitoring activities of contracted parties; e) analyses of assessment results with external

support; f) data interpretation and elaboration of recommendations, with external support together with corresponding stakeholders, as appropriate.

The BMU will be supported by **Advisory Board** (e.g. national NGOs/Institutions, CNF, WWF CPO, KFW, UNDP, etc.), which will assist the BMU in all strategic aspects and will ensure transparency and donor coordination. The **Expert Panel** (on voluntarily bases) responsibility is to support in selection of methodologies, identification of priorities, guidance in elaboration of strategies, advice on data analyses, and support in data interpretation.

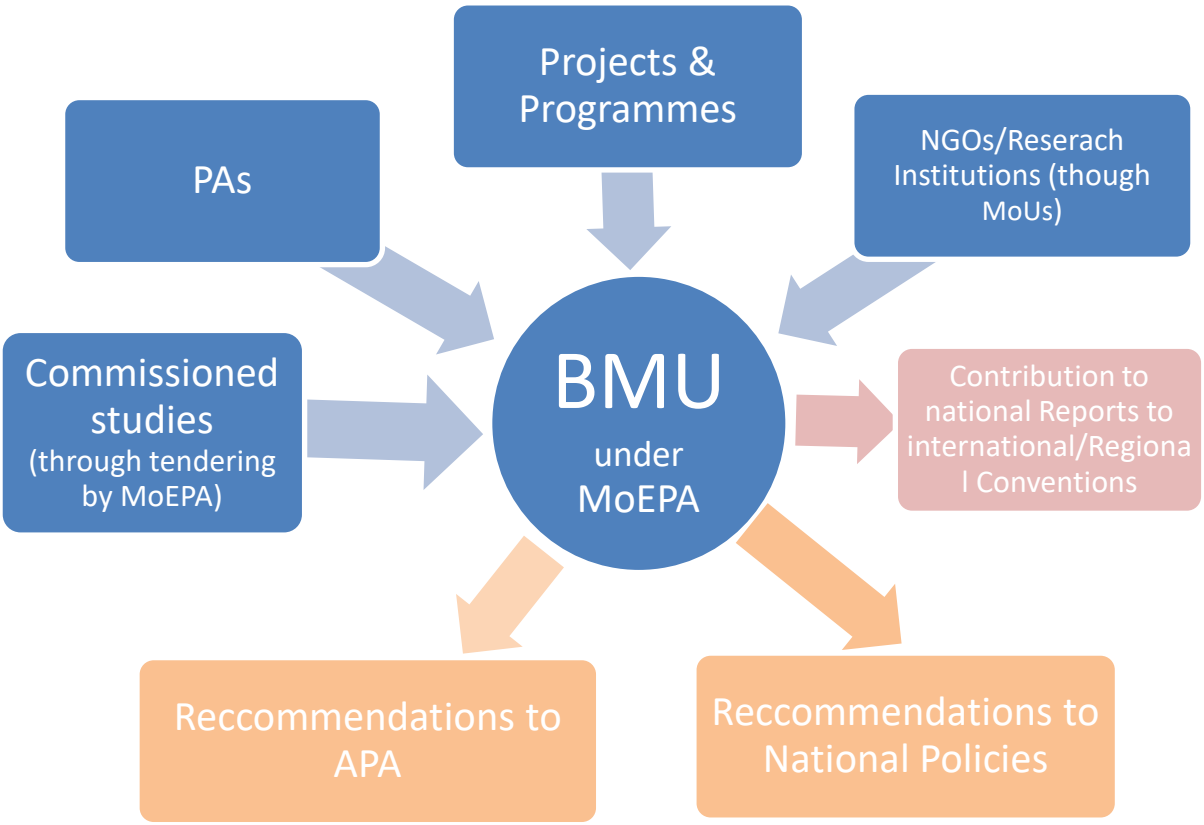
ORGANIZATIONAL CHART: MODEL 1



SWOT Analysis: Model 1 – BMU Established under MoEPA

Strengths	**Weaknesses**
1. Long term sustainability of the Unit 2. Existence/availability of the information at National level 3. Direct link to the biodiversity monitoring and accounting/reporting at Nation level 4. Standardization methodology 5. Higher probability of compulsory implementation of the recommendations (?) 6. Some degree of expertiseinvolvement (through Advisory Board)	1. Misunderstanding of the essence of biodiversity monitoring by MoEPA (bias and unreliability of data) 2. Lack of financial resources 3. Lack of staff / lack of qualified staff 4. Existing state procurements standards (price dependence only) 5. Lack of impartiality and transparency of the governance 6. Business model impossible may be difficulty to apply
Opportunities	**Threats**
1. Support from CNF and other donors at initial stage 2. Partnership (with donors and professional organizations/experts at national and international level)	1. State policy on the increase of the staff 2. Misunderstanding of the essence of biodiversity monitoring by MoEPA (bias and unreliability of data) 3. Limited trust of the data by conservationists' community 4. Refusal of some NGOs to participate in tenders (due to the possible data manipulation and avoidance of political leverage) 5. Lack of financial resources 6. Changes in National priorities

INFORMATION FLOW CHART: Model 1



Model – 2: New BMU

This will be a totally new and independent unit (e.g. new NGO or unit/centre under university/research institution) jointly established by the trusted and respected players (**Founders** - e.g. CNF, WWF CPO, KFW, UNDP, MoEPA, etc.).

BMU will be governed by **Steering Committee** by the trusted and respected players (e.g. national NGOs/Institutions, CNF, WWF CPO, KFW, UNDP, MoEPA, etc.)

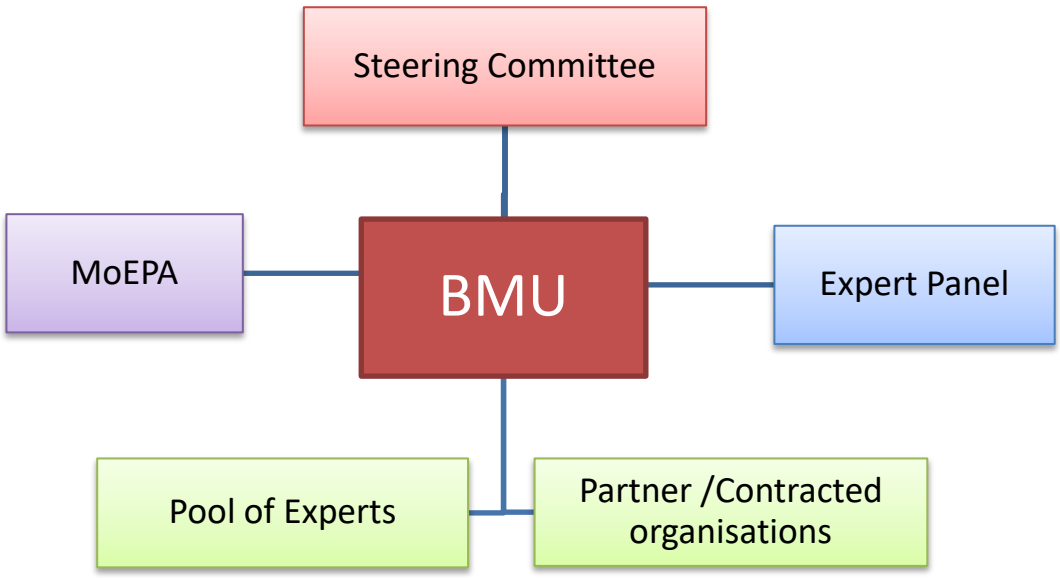
The BMU team will manage/coordinate the work of the BMU. The BMU will consist of experienced zoologists, specialized in various fields such as mammals, birds, etc.; botanists and a GIS expert. The organization will be responsible for conduction/overall coordination of biodiversity monitoring at national level, including PAs.

The BMU will be responsible for: a) elaboration standard methodologies (with support of Expert Panel; see below); b) gathering data (from various sources); c) preparation/conduction of tenders; d) supervision of the biodiversity monitoring activities of contracted parties; e) analyses of assessment results; f) data interpretation and elaboration of recommendations (together with corresponding stakeholders).

The BMU will be supported by **Expert Panel** (leading experts from the major fields; up to 7 experts) on the voluntary bases. The Expert Panel responsibility is support in identification of priorities, guidance in elaboration of strategies, advice on data analyses, support in data interpretation.

Credibility of organization should be recognized by MoEPA as well as conservation circles including experts and NGOs.

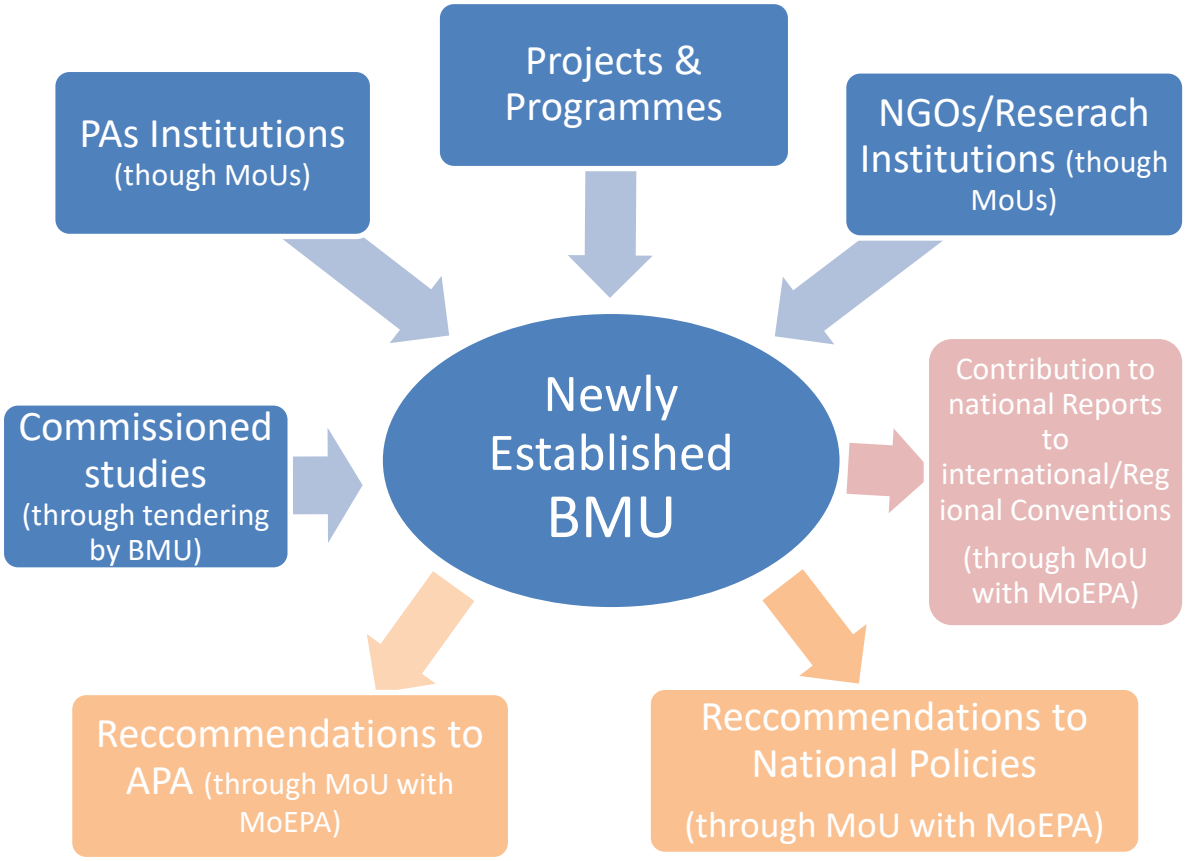
ORGANIZATIONAL CHART: MODEL 2



SWOT Analysis: Model 2 – Independent Unit Established Outside the MoEPA

Strengths	**Weaknesses**
1. Existence/availability of the information at National level 2. Direct link to the biodiversity monitoring and accounting/reporting at Nation level 3. Standardization methodology 4. Impartiality and transparency of the governance 5. High degree of the involvement 6. Reliability of data 7. Support from CNF and other donors 8. Possibility for the Business model 9. Better standard for procurement (no price dependence only)	1. New Unit (at initial stage establishment of the staff, need of capacity development) 2. Need of initial investments 3. Need of secured (basic operational) financial sustainability
Opportunities	**Threats**
3. Long term sustainability of the Unit in the future 4. Support from CNF and other donors 5. Partnership (with donors and professional organizations/experts at national and international level) 6. Sufficient number of experts (including invited experts) and high qualification	1. Long term sustainability/efficiency of the Unit in the future 2. Misunderstanding of the essence of biodiversity monitoring by MoEPA 3. Lack of political will/motivation for compulsory implementation of the recommendations (?) 4. Changes in National priorities 5. Lack of financial sustainability (failure of generating own income) 6. Lack of long term support from donors 7. Conflict of interest (potential competition with partner organizations)

INFORMATION FLOW CHART – Model 2



9 Next steps

The above two possible models are intended to be presented to the main beneficiaries – MoEPA and APA. Additional discussions may be also held with the key stakeholders as well as potential donors in order to help the beneficiaries make the final decision. It would be highly desirable if the final decision is made in consultations with the key national stakeholders as well as the international donor community. The selected BMU models will be further elaborated – detailed business/development plans will be prepared and legal aspects will be clarified for both models or for one of them if selected as most feasible.

Annex 1. Guiding Questions for stakeholder interviews

(A). GUIDING QUESTIONS FOR APA/SELECTED PA ADMINISTRATIONS

1. Understanding of Biodiversity Monitoring

- What is the understanding of APA in terms of biodiversity monitoring in PAs?
- What is the understanding of the individual PA administrations?

2. Existing monitoring system and challenges

- Based on what/which document is biodiversity monitoring carried out?
- Is there a biodiversity monitoring plan?
- Is there indicator species monitoring plan? (including methodologies/guidelines)
- Is there a habitat monitoring programme? (including methodologies/guidelines)
- Which processes (related to biodiversity monitoring) are standardized at PA level?
- What are the main bottlenecks in conducting biodiversity monitoring (practically) in PAs?

3. Number of staff

- Who are involved in the monitoring?
- Is current number of staff sufficient for the on-going monitoring activities?
- Will the number of staff sufficient is monitoring approach will be changed?

4. Qualification of the staff

- What is the qualification of the staff involved in the monitoring?
- Is current qualification sufficient for the on-going monitoring activities?
- Will the current qualification sufficient if monitoring approach is changed?

5. Trainings on biodiversity monitoring

- Which trainings were carried out and by whom?
- Who are involved in the trainings (how many staff)?

6. Equipment/Supplies sufficient for biodiversity monitoring?

- Are existing equipment/supplies sufficient for the on-going monitoring activities?
- Will existing equipment/supplies sufficient if monitoring approach will be changed?
- What is the typical equipment available at PA level for biodiversity monitoring?
- What are the main missing equipment parts for conducting biodiversity monitoring at PA level?

7. What are the problems related to the biodiversity monitoring

- How would you assess the existing problems related to the biodiversity monitoring in PAs?
- What are the problems at the PA level?
- What are the problems at the APA level?
- Any general Problems?
- What are the possible solutions to improve biodiversity monitoring in PAs?

8. Who are other institutions/donors involved in the biodiversity monitoring?

(B). GUIDING QUESTION/DISCUSSION TOPICS FOR STAKEHOLDERS (APART FROM APA/SELECTED PA ADMINISTRATIONS)

1. How would you assess APA's technical capacity to implement quality biodiversity monitoring on PAs? Is the number/qualification of the staff sufficient?

[assess individually for all tasks and subtasks specified above as well as by phases of biodiversity such as data collection, data analysis and data base maintenance, interpretation and management response recommendations]

2. How would you assess APA's resources (non-human) for implementing quality biodiversity monitoring on PAs?

[assess individually for all tasks and subtasks specified above as well as by phases of biodiversity such as data collection, data analysis and data base maintenance, interpretation and management response recommendations]

3. Describe problems and challenges related to the biodiversity monitoring on PAs

- Problems at the PA level.
- Problems at the APA level.

4. What are the possible long-term and sustainable solutions for improving/ ensuring credible biodiversity monitoring in PAs?

[What do you think what type of institution set up of the institution should be for sustainable biodiversity monitoring in PAs?]

5. How would you assess the national capacity of biodiversity monitoring on PAs i.e. academic institutions and NGOs, and how can they be involved?

6. Who are other institutions/donors currently or potentially involved in biodiversity monitoring in PAs?

7. What are current/possible sources of funding of biodiversity monitoring activities on PAs and how can financial sustainability be achieved?

Annex 2. List of Interviewed Stakeholders/Experts

[All communication was carried out by phone, Skype or Zoom].

1. Avtandil Mchedlidze, Director, Algeti National Park Administration, Agency of Protected Areas. 12.11.2020
2. Tornike Tabatadze, Natural resources specialist, Mtirala National Park Administration, Agency of Protected Areas. 12.11.2020
3. Lamara Tegadze, Natural resources specialist, Algeti National Park Administration, Agency of Protected Areas. 19.11.2020
4. Nazi Rizhamashvili, Natural resources specialist, Pshav-Khevsureti Protected Areas Administration, Agency of Protected Areas. 19.11.2020
5. Manana Chikovani, Natural resources specialist, Kolkheti National Park Administration, Agency of Protected Areas. 20.11.2020
6. Giorgi Sulamanidze, Director, Director, Lagodekhi Protected Areas Administration, Agency of Protected Areas. 24.11.2020
7. Marina Chqareuli, Natural resources specialist, Kazbegi National Park Administration, Agency of Protected Areas. 30.11.2020
8. Khatuna Tsiklauri, Main Specialist of Scientific Research and Monitoring, Agency of Protected Areas. 03.12.2020
9. Galina Meparishvili, Batumi State University, Phytopathology and Biodiversity Institute, 01.12.2020
10. Teimuraz Popiashvili, NACRES, 01.12.2020
11. Soso Natradze, Campester, 02.12.2020
12. Zura Gurielidze, Tbilisi Zoological Park / Ilia State University, 02.12.2020
13. Kakha Artsivadze, NACRES, 02.12.2020
14. Natia Javakhishvili, SABUKO, 04.12.2020
15. Khatia Basilashvili, SABUKO, 04.12.2020
16. Zura Javakhishvili, Ilia State University, 04.12.2020
17. Lali Tevzadze, TJS, 09.12.2020
18. Bejan Lortkipanidze, NACRES, 14.12.2020

Annex 3. "Long list" of possible BMU models

Model – 1a: Biodiversity Monitoring Unit (BMU) under MoEPA

This is a completely new unit that will be established under the MoEPA and will be entirely dedicated to biodiversity monitoring at the national level, including PAs. The staff is presented by at least 6 persons including experienced zoologists, specialized in various fields such as mammals, birds, etc.; botanists and a GIS expert. The staff is hired by MoEPA .

The Unit will be responsible for: a) gathering data (from various sources); b) preparation/conduction of tenders; c) supervision of the biodiversity monitoring activities of contracted parties; d) analyses of assessment results ; e) data interpretation and elaboration of recommendations (together with corresponding stakeholders).

SWAT analysis: Option 1a: A new unit established under the MoEPA

Strengths

7. Long term sustainability of the Unit
8. Existence/availability of the information at National level
9. Direct link to the biodiversity monitoring and accounting/reporting at Nation level
10. Standardization methodology
11. Compulsory implementation of the recommendations

Weaknesses

7. Misunderstanding of the essence of biodiversity monitoring by MoEPA (bias and unreliability of data)
8. Lack of financial resources
9. Lack of staff / lack of qualified staff
10. Existing state procurements standards (price dependence only)
11. Business model difficult to apply

Opportunities

1. CNF support
2. Other donors' support
3. National expertise (support from NGOs and scientific institutions)
4. International expertise (based on needs)

Threats

7. State policy on the increase of the staff
8. Misunderstanding of the essence of biodiversity monitoring by MoEPA (bias and unreliability of data)
9. Distrust of the data by conservationists' community
10. Refusal of some NGOs to participate in tenders (due to the possible data manipulation and avoidance of political leverage)
11. Lack of financial resources
12. Changes in National pri

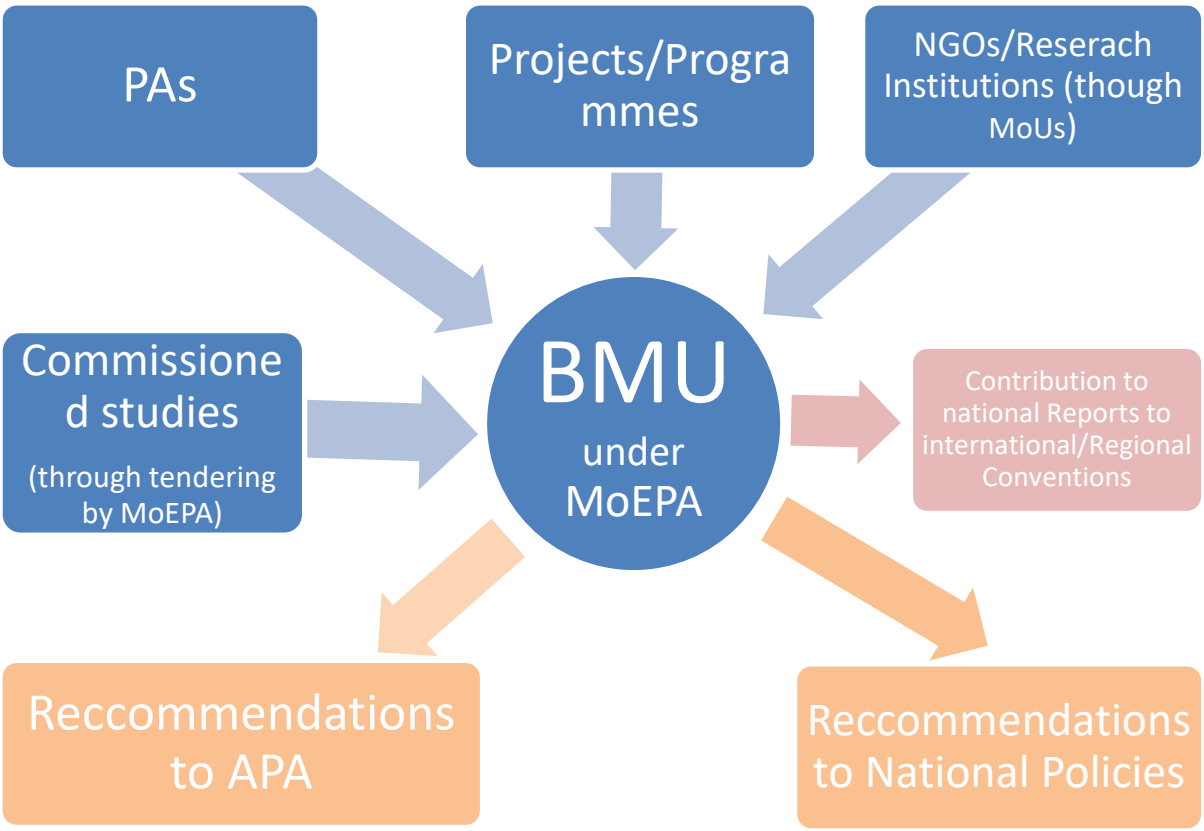


Fig. 1: Information flow: Option 1a

Model – 1b: Biodiversity Monitoring Task-Force Under the MoEPA

The task force is established under the MoEPA responsible for the biodiversity monitoring at the national level, including PAs. The staff is presented by at least 6 persons The unit is similar to the existing Task-Force Model of the National Forest Inventory (NFI) and the members include: 1) members hired by CNF; 2) members that are hired by MoEPA (short-term employees); 3) members that are permanent staff of MoEPA who allocate some of their time to the Task-Force activities.

The Biodiversity Monitoring task Force will be responsible for: a) gathering data (from various sources); b) preparation/conduction of tenders; c) supervision of the biodiversity monitoring activities of contracted parties; d) analyses of data; e) data interpretation and elaboration of recommendations (together with corresponding stakeholders).

SWAT analysis: Option 1b
Task-Force Model/Unit Established Under the MoEPA A new unit established under the MoEPA

Strengths

1. Existence/availability of the information at National level
2. Direct link to the biodiversity monitoring and accounting/reporting at Nation level
3. Standardization methodology
4. Compulsory implementation of the recommendations
5. Sufficient number of experts (invited as well) and qualification CNF support

Weaknesses

1. Misunderstanding of the essence of biodiversity monitoring by MoEPA (bias and unreliability of data)
2. Existing state procurements standards (price dependence only) Lack of financial resources Lack of staff / lack of qualified staff
3. Business model difficult to apply

Opportunities

1. Long term sustainability of the Unit
2. CNF support
3. Other donors' support
4. National expertise (support from NGOs and scientific institutions)
5. International expertise (based on needs)
6. Increased trust from the conservationists' community

Threats

1. Long term sustainability of the Unit (in case of abolishment of Task-Force Unit; State policy on the increase of the staff)
2. Misunderstanding of the essence of biodiversity monitoring by MoEPA (bias and unreliability of data)
3. Refusal of some NGOs to participate in tenders (due to the possible data manipulation and avoidance of political leverage; in case if state procurement)
4. Lack of financial resources
5. Changes in National priorities

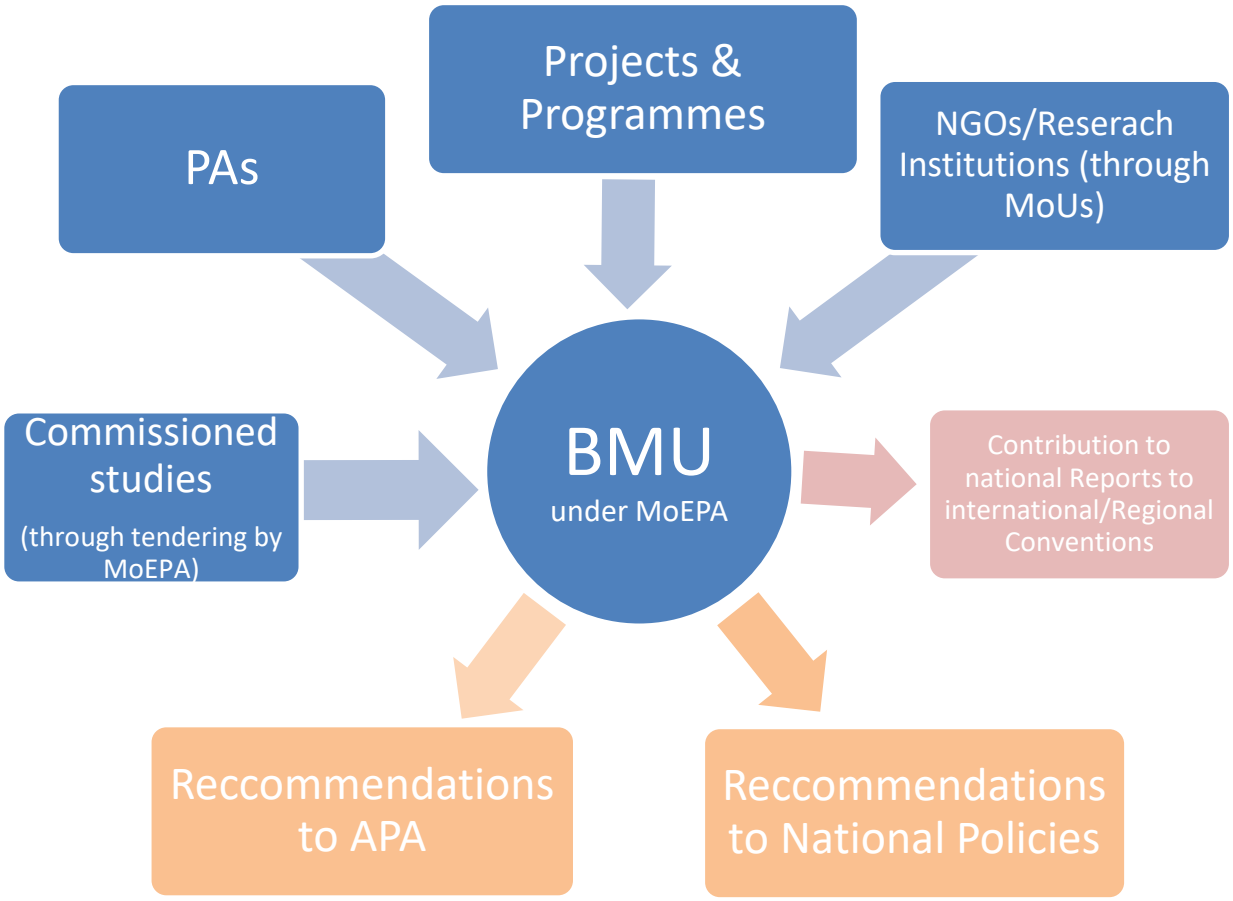


Fig. 2: Information flow: Option 1b

Model – 2a: Designated Institution as a BMU

This is a unit outside the MoEPA – one the existing trusted organization/institution is contracted/designated by the government to conduct the biodiversity monitoring at national level, including PAs. The staff is presented by at least 6 full/half time employees dedicated to the BMU while the unit also has access to other employees of the institution. The BMU team consists of experienced zoologists, specialized in various fields such as mammals, birds, etc.; botanists and a GIS expert.

The organization/institution is responsible for: a) gathering data (from various sources); b) preparation/conduction of tenders; c) supervision of the biodiversity monitoring activities of contracted parties; d) analyses of data; e) data interpretation and elaboration of recommendations (together with corresponding stakeholders).

SWAT analysis: Option 1b Option 2a

Designated Unit outside MoEPA

Strengths	**Weaknesses**
1. Existence/availability of the information at National level 2. Direct link to the biodiversity monitoring and accounting/reporting at Nation level 3. Standardization methodology 4. Sufficient number of experts (including invited experts) and qualification 5. Partnership (with donors and professional organizations/experts at national and international level) 6. Compulsory implementation of the recommendations (?) 7. Reliability of data 8. Possibility for the Business model (in case of the state organization less possible)	1. Existing state procurements standards (price dependence only, in case of the state institution) 2. Neglecting the interests of the parties involved in the process
Opportunities	**Threats**
1. Long term sustainability of the Unit in the future 2. CNF support 3. Other donors' support	1. Long term sustainability of the Unit in the future 2. Weak coordination (between: (a) Unit and MoEPA; (b) Unit and partner organizations) 3. Lack of cooperation/participation of the parties involved and decreased credibility 4. Misunderstanding of the essence of biodiversity monitoring by MoEPA 5. Lack of financial resources 6. Changes in National priorities

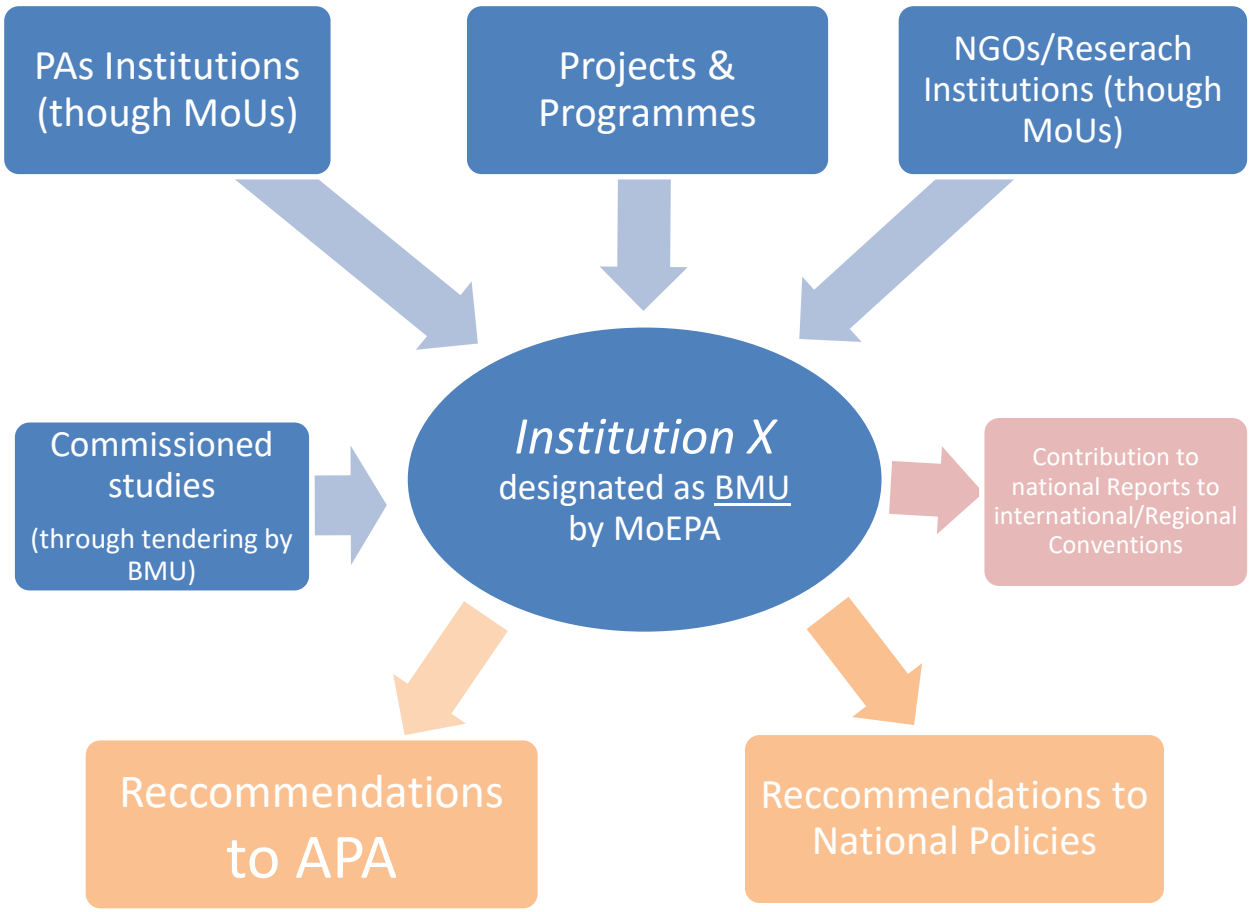


Fig. 3: Information flow: Option 2a

Model – 2b: **Independent BMU**

This will be a totally new and independent unit jointly established by the trusted and respected players (e.g. CNF, WWF CPO, etc.). The organization will be responsible for conduction of biodiversity monitoring at national level, including PAs. Credibility of organization should be recognized by MoEPA as well as conservation circles including experts and NGOs.

The BMU team consists of experienced zoologists, specialized in various fields such as mammals, birds, etc.; botanists and a GIS expert.

The organization/institution is responsible for: a) gathering data (from various sources); b) preparation/conduction of tenders; c) supervision of the biodiversity monitoring activities of contracted parties; d) analyses of data; e) data interpretation and elaboration of recommendations (together with corresponding stakeholders).

SWAT Analysis: Option 2b

Independent Unit Established Outside the MoEPA

Strengths

10. Existence/availability of the information at National level
11. Direct link to the biodiversity monitoring and accounting/reporting at Nation level
12. Standardization methodology
13. Impartiality and transparency of the governance
14. High decree of the involvement
15. Reliability of data
16. Compulsory implementation of the recommendations (?)
17. Support from CNF and other donors
18. Possibility for the Business model
19. Better standard for procurement (no price dependence only)

Weaknesses

4. New Unit (at initial stage establishment of the staff, need of capacity development)
5. Need of initial investments

Opportunities

7. Long term sustainability of the Unit in the future
8. CNF support
9. Other donors' support
10. Partnership (with donors and professional organizations/experts at national and international level)
11. Sufficient number of experts (including invited experts) and high qualification
12. National expertise (support from NGOs and scientific institutions)
13. International expertise (based on needs)

Threats

8. Misunderstanding of the essence of biodiversity monitoring by MoEPA
9. Long term sustainability of the Unit in the future
10. Weak coordination (between: (a) Unit and MoEPA; (b) Unit and partner organizations)
11. Lack of financial resources
12. Changes in National priorities

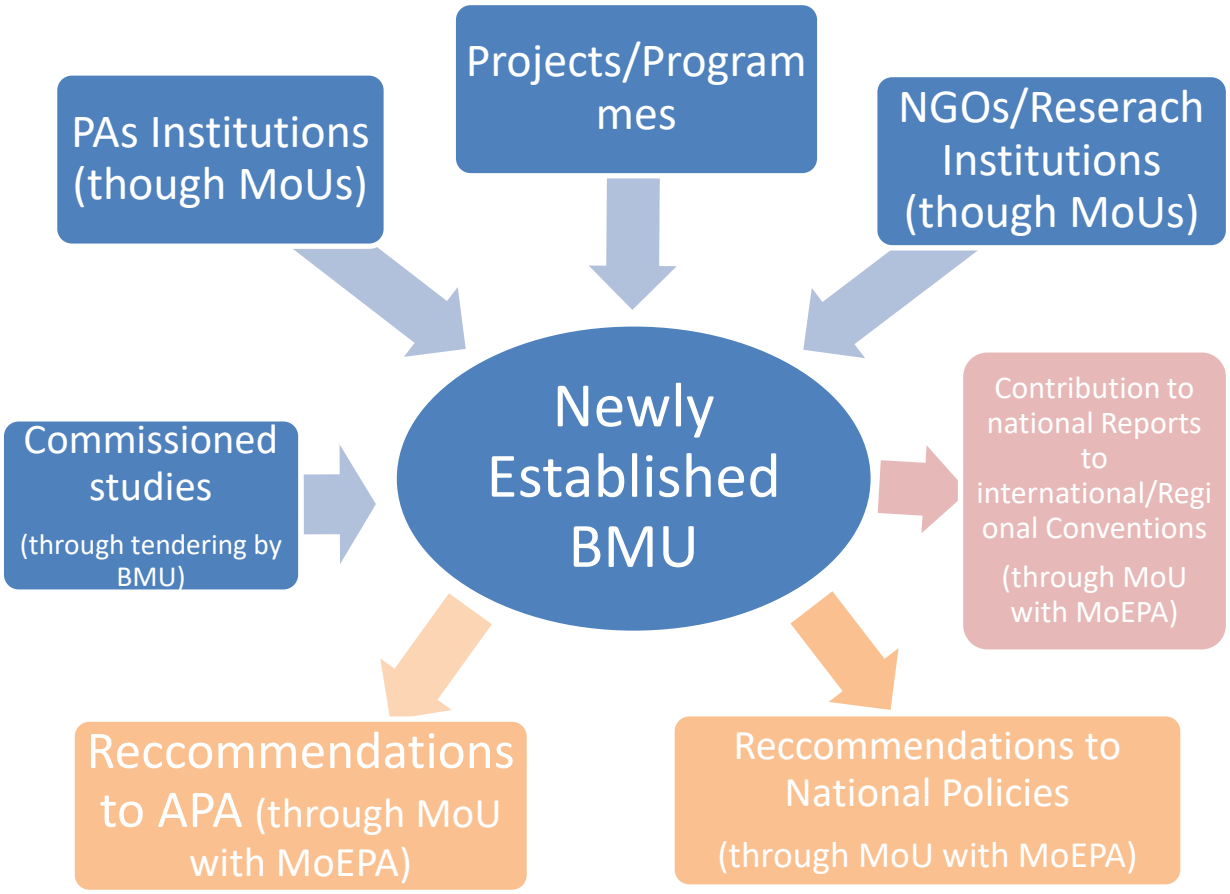


Fig. 4: Information flow: Option 2b

Annex 4. Protected Areas Monitoring in Georgia. Technical Background Paper. Experience and Recommendations Based on European Countries Approaches. 2021

See separate document.

Annex 5. Used literature/sources

- Technical Monitoring documents of the Operational Effectiveness of CNF-supported Protected Areas in Georgia;
- Job description of Protection Division of PA Administrations.

Regulations:

- Decree №343 of the Government of Georgia on the approval of the Biodiversity Strategy and Action Plan of Georgia 2014-2020, 08.05.2014
- Decree №1124 of the Government of Georgia on the Approval of the Third National Environmental Action Programme of Georgia, 22.05.2018
- Order №2–4 of the Minister of Environment Protection and Agriculture on approval of the Development Strategy and Action Plan of Protected Areas System of Georgia, 04.01.2019
- Association Agreement between the European Union and the European Atomic Energy Community and their Member States, of the one part, and Georgia, of the other part (30.08.2014)https://eur-lex.europa.eu/legal-content/en/TXT/PDF/?uri=CELEX:22014A0830(02)