

KFW



REPUBLIC OF ARMENIA MINISTRY OF NATURE PROTECTION



STRATEGY AND STATE PROGRAM OF CONSERVATION AND USE OF SPECIALLY PROTECTED NATURE AREAS OF THE REPUBLIC OF ARMENIA

YEREVAN, 2014

The project “Strategy and State Program of Conservation and Use of Specially Protected Nature Areas” was developed by “Environmental project implementation unit” SI of the Ministry of Nature Protection by the assistance of Transboundary Joint Secretariat financed by KfW bank. With this view a working group was created according to the decree N 28-1-U, 09.08.2013 of the head of “Environmental project implementation unit” SI including the employees of Bioresources Management Agency, “Environmental project implementation unit” SI of the Ministry of Nature Protection, Institute of Botany of National Academy of Sciences of the RA, WWF Armenia office, national coordinator of Transboundary Joint Secretariat.



Specially protected nature areas play a pivotal role in conservation of biological and landscape diversity, for the loss of any species of flora and fauna or their coexistence can have a significant impact on integrity and balance of ecosystems, people's health and sustainable development. Creation of specially protected nature areas is one of traditional and most effective methods of the protection of nature environment. The impact on nature requires united and coordinated strategy for the global network of protected areas to fulfill their mission successfully.

Creation of different categories of protected areas is a territorial form of nature protection, which is an inseparable and important part of the total ecological system of the country. Protected nature areas must be organically included in the effective utilization of the system, interacting with the exploited areas, and implement functions aimed at environmental protection and resource saving. In this view the implementation of "Strategy and State Program of Conservation and Use of Specially Protected Nature Areas" will significantly increase the effectiveness of protected area management, will ensure the representation of biological and landscape diversity in the system, will create a national ecological network. The document analyses the current status of the protected nature areas of the RA, development strategy was developed, priorities and issues are proposed, and the respective national actions plan for 2014-2020. In the strategic development directions a special attention was paid to the fact that protected nature areas are viewed as "zones of protection and reconstruction of sustainability and eco-system services." Those actions are directed not only to protection of the environmental heritage, but also to the developments of the local residents' welfare.

I express my sincere gratitude to Transboundary Joint Secretariat (TJS) for its support in drafting this document. I appreciate those national experts, whose professional efforts made it possible to create this strategy and state action plan, which is a cornerstone of Armenian environmental protection policy.

Minister of Nature Protection
of the Republic of Armenia

Aramays Grigoryan

GOVERNMENT OF REPUBLIC OF ARMENIA

DECREE

25 September 2014 N 1059-U

**ON APPROVING MEASURES AND STRATEGY AND STATE PROGRAM OF
CONSERVATION AND USE OF SPECIALLY PROTECTED NATURE AREAS**

In conformity with the terms “a” and “b”, Paragraph 1, Article 8 of the RA law “On Specially Protected Nature Areas”, the Government of the Republic of Armenia

Decides

1. To approve:
 - 1) Strategy and State Program of Conservation and Use of Specially Protected Nature Areas according to Annex 1,
 - 2) 2014-2020 Measures of Strategy and State Program of Conservation and Use of Specially Protected Nature Areas of the Republic of Armenia, their conservation and use according to Annex 2.

**PRIME MINISTER OF
THE REPUBLIC OF ARMENIA**

H. ABRAHAMYAN

STRATEGY AND STATE PROGRAM OF CONSERVATION AND USE OF SPECIALLY PROTECTED NATURE AREAS

I. INTRODUCTION

1. Specially protected nature areas (hereinafter SPNA) are traditional and efficient conservation measures of natural habitat, biological and landscape diversity, natural state of the biosphere. SPNA functions are based on the application of comprehensive ecosystem approaches and are aimed at ensuring conservation of natural processes, prevention and elimination of hazards, research and continuous monitoring, as well as organization of sustainable natural use, participatory management, and intersectoral cooperation as well. Current conservation and development of SPNAs is considered to be one of the important components and warranty of Armenia's environmental policy implementation, as well as country's sustainable and long-term development. "State program and strategy of specially protected nature areas of the RA, their conservation and use" focuses on the implementation of the policy and on the definition of priorities and actions arising from it.

2. Role and meaning of SPNAs in the conservation and sustainable use of biological and landscape diversity.

1) SPNAs play pivotal role in the conservation and restoration of nature, as they contribute to the reduction of anthropogenic impact on the environment ensuring ecological balance, biological and landscape diversity conservation. Importance and necessity of SPNAs from the point of biodiversity conservation are affirmed by the article 8 of the "Convention on Biological Diversity" under which each country is obliged to create a SPNA system to ensure its regular functioning. In 2004 7th conference of parties(COP) of the Convention based on the Millennium Development Goals, implementation plan of the World Summit on Sustainable Development (WSSD) and Action plan of the 5th World Parks Congress, adopted Programme of work on protected areas the aim of which is to create and conserve: "...comprehensive, efficiently managed and representational ecosystems in terms of ecology" which will significantly reduce the amount of global biodiversity loss in land and marine areas. According to Programme of Work in order to improve management of SPNAs it is necessary to clarify biodiversity conservation issues, objectives, management strategies and use participatory and scientifically grounded territorial planning tools including monitoring projects. The indispensable role of SPNAs in biodiversity conservation was stressed by the adoption of "Strategic Plan for Biodiversity 2011-2020, with its Aichi Targets" in the 10th Conference of the Parties to the Convention on Biodiversity (COP 10 Decision X/2). Target 11 of Strategic Goal C(To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity) states: "By 2020, at least 17 per cent of terrestrial

and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes”.

2) According to ecosystem approach principles SPNAs act not only as environment healing object but also as educational model systems to display sustainable nature use at landscape level. Their role is significant in the reduction of harmful effects and load on landscape and its components, prediction of existing and anticipated natural and anthropogenic hazards and changes, lost qualities of landscapes, restoration of genetic resources and ecological services. SPNAs being integral part of the country's total environmental system, are included in the effective nature use system and in interaction with the operating areas implement environment conservative and resource-saving functions. Moreover, the nature of the impact on the natural environment is such that the functions of SPNAs can be fully realized only in the existence of coordinated and joint strategy between stakeholders. With this view, it is essential to link SPNA establishment and development plans with national biodiversity strategy, sustainable development strategy and with the provisions of the country's other strategic documents and socio-economic development projects of areas.

3. The role of SPNAs in the provisional issues of ecosystem services.

1) To ensure the actual living conditions of mankind during the modern conditions of natural ecosystem violations it is actual to unconditionally conserve still existing natural landscapes and ecosystems and ecosystem services (hereinafter ES) provided by them. That is why ES provision issue is highlighted by “2010-2020 Aichi Target 11” since the uniqueness of each flora and fauna species is conditioned not only by gene pool but also by their role in the ecosystem.

2) At present SPNAs are considered as ES stability, conservation and restoration areas- regional centers the activities of which are aimed at not only conservation of natural wealth but also the improvement of welfare of the local population, poverty reduction and sustainable development. This allows developing a comprehensive ecosystem model of environmental perception, in case of which all SPNA functions are aimed at solving practical problems and are consistent with the country's socio-economic conditions and needs.

3) In SPNA system the reveal of benefits received from ES may significantly contribute to conflict mitigation driven by environmental restrictions creating legal basis for the population to use natural resources. Moreover, the benefits received from ES should be distributed fairly to contribute to the improvement of social welfare of the communities. From the other hand the creation of benefit distribution and compensation mechanisms, as well as the decision of communities and individuals who bear expenses and receive benefits is rather a difficult issue, which can only be solved through detailed study of ES. It should be noted that ecosystems can adapt to changes and undergo self-recovery but in case of maximum violation their nature can be altered and some capacities of ES ceased. Thus, SPNAs being a

flexible environmental tool should ensure stability of ES solving a number of economic, social, cultural and spiritual issues.

4) Services provided by ecosystems mainly have provisional (food, spring water, fresh air, fuel, raw materials), regulating (climate, prevention of natural disasters and epidemics, shelters, habitat, erosion prevention), cultural (aesthetic, religious, scientific, social and spiritual values, traditions, recreation resources) and supportive (soil arising, photosynthesis, nitrogen, carbon, oxygen, water circulation) meaning. ES are of economic value and should be integrated into country's overall economic system. Reimbursement fees for their provision or conservation are new approaches in the environmental sphere that encourage the creation of additional financial flows aimed at landscape and biodiversity. At the creation of payment mechanisms for ES reimbursement the types of ES should be clearly specified, as well as the amount of resources directed to providers by consumers, legislative and institutional bases taking into account local peculiarities and socioeconomic situation. Thus economic long-term analysis of ecosystem services should be addressed to the solution of environmentally rational, socially equitable and economically profitable problems.

5) Theoretically state expenses of environmental sphere, resources of pollution organizations, donor organizations, payments for natural use, land owners, beneficiaries are considered main financial sources for ES conservation in SPNAs. Payments for ecosystem services can later be reproduced in the form of environmental funds contributing to provision of funds for the conservation of nature, creation of indemnity funds and creation of bases for green economy. The listed approaches are consistent with the RA Government protocol decree № 16 "On approval of the concept on innovative financing mechanisms in the environmental sphere" dated 25.04.2013.

6) Complex meaning of ES in SPNAs especially provision of living conditions by them does not yet have specific economic assessment that leads to ecosystem violation and biodiversity impoverishment. At present ES economic assessment methods are mostly used in mining, forest, water resources, as well as in ecotourism sphere. Ecotourism is characterized by a relatively weak negative impact on the natural environment, being an efficient means for ecological knowledge and information dissemination, tension easing between environmental and social-economic systems and integration promoting. It ensures influx of additional funds for SPNA management and growth in financial stability. Ecotourism is also an active way for local people to get stable incomes, as well as it is one of the effective methods to improve living standards and to increase participation in employment and management of SPNAs.

4. SPNA role in the view of climate change and desertification.

1) Biodiversity conservation, climate change and land degradation are strictly interrelated processes.

2) The ever-increasing amount of greenhouse gases emitted into the atmosphere and the reduction of green masses by humans contributes to the activation of global warming which increases the negative impact of climate component on biodiversity. It is reflected in the decrease in the number of populations and species, change of area of distribution, spatial-temporal lifecycle, at the same time with the violations of ongoing interactions (e.g.

plants and pollinating insects) change of demographic indicators of the species (e.g. vitality and fertility), increase in mass outbreaks of the number of pests and diseases, in violation of the balance between the competing species, invasive species and the spread of disease-causing organisms and so on. Such various changes, of course, have deep influence both on the condition of natural resources and on the healthy lifestyle of public. SPNAs being significant part of international and national processes contribute to the prevention of such changes in the following ways:

a. ensure active accumulation of carbon through a wide range of ecosystems (forests, wetland areas, meadows) close to natural state and having high carbon sequestration potential by reducing emissions of greenhouse gases in the atmosphere;

b. maintain ecosystem integrity serving buffers for local climate stability and mitigate the nature of natural disasters;

c. serve as “climate shelters” for many species of animals which in case of change in the usual conditions of habitat may create new sustainable populations in SPNAs;

d. are the source of genetic material that can provide the generation of new selective varieties;

e. contribute to the stability of ecosystems and ES preservation, reducing the negative effects of global warming.

3) As to desertification issues it is known that the vegetation and the diversity of its physical structure contribute to soil conservation and formation, as well as regulate surface water flow, local climate and absorption of atmospheric precipitation by soil ensuring ES conservation in arid and semi-arid areas. Moreover the violation of ES interrelation is considered one of the core factors of desertification of arid and semi-arid areas when environmentally unacceptable long economic use of natural resources (export of mineral resources, overgrazing, abuse of water and forest resources and so on) does not correspond to opportunities ensuring natural landscape and ecologically good condition of ecosystems. In the areas exposed to economic use the level and speed of expression of desertification processes depend not only on the wrong ways and methods of land use but also on the lack of balance/equilibrium between land use and conservation. Prevention or mitigation of desertification processes in each specific region is possible only in the identification of “use-improvement-conservation” interrelation of the area’s nature recourse potential that will ensure the conservation of landscape-ecological balance of natural environment. Here SPNA role is pushed forward serving as model sites for the prevention or mitigation of land desertification and for the demonstration of its outcomes. The existence of SPNA contributes to the preservation of vegetation, prevention of soil erosion, water balance and temperature regulation, disaster management and provision of ESs.

II. DEVELOPMENT PROCESS OF SPNAs OF ARMENIA

5. Brief historical review over the development of SPNA of Armenia.

1) Armenia’s SPNA establishment process began in 1958 when ASSR Council of Ministers created “Khosrov”, “Dilijan” and “Shikahogh” State reserves, as well as

“Akhnabad Yew Grove”, “Hazel”, “Juniper open forest”, “Gyulagarak”, “Open forests of Herher”, “Jermuk” and “Plane grove” state sanctuaries by the decree № Պ-341 dated September 30, 1958. Afterward in 1959 4 state reserves were established. The next stage of the process included 1971-1972 establishing 7 more state sanctuaries, after which in 1987-1989 “Lake Sev” state reserve and 2 state sanctuaries were established. Thus during the Soviet period of Armenia 4 state reserves and 20 sanctuaries were established. Moreover:

- a. SPNAs were created in the absence of relevant legislation and strategy;
- b. SPNAs were created without serious scientific grounds mainly aimed at forest conservation and reproduction;
- c. during the creation of SPNAs geographical regularities of landscapes specific to mountainous countries and vertical zonal distribution of their components were completely disregarded;
- d. SPNA border description, especially of state sanctuaries was mainly missing;
- e. protection regimes and activities allowed in these areas were not defined.

2) During the independent days of Armenia SPNA establishment process was conditioned by the “State development strategy and national action plan of specially protected nature areas of Armenia project” approved by RA protocol decree № 54 dated December 26, 2002. Only “Khor Virap” planned sanctuary was established from the planned ones, while out of national action plan “Zangezur” (RA № 1187-N decree dated October 15, 2009), “Zikatar” (RA decree № 380-N dated April 8, 2010), “Khustup” (RA decree № 1465-N dated December 19, 2013) sanctuaries and “Lake Arpi”(RA decree № 405-N dated April 16, 2009) and “Arevik”(RA decree № 1209- dated October 15, 2009). Besides the category of some SPNAs was changed. Thus:

- a. the category of “Sev Lake” state reserve was changed to state sanctuary by RA № 976 decree dated October 12, 2001;
- b. “Dilijan” national park was organized on the basis of “Dilijan” state reserve and neighboring territories by RA № 165 decree dated February 21, 2002.

3) An important step-forward towards Armenia’s SPNA development can be considered the approval of management plans of “Dilijan” and “Sevan” National parks by RA Government decrees № 204-N and № 205-N dated January 18, 2007, as well as 2010-2014 management plan of “Khosrov forest” state reserve approved by RA Government decree № 500-N dated April 23, 2009 and 2011-2015 management plan of “Arpi lake” national park by RA Government decree № 1854-A dated December 22, 2011.

4) The list of Armenia’s nature monuments was approved by RA Government decree № 967-N dated August 14, 2008 which includes 230 nature monuments. Given the circumstances that the rich diversity of living and inanimate natural objects and complexes existing in the territory of Armenia was not fully represented in the list, buffer zones of nature monuments are not mapped and adjusted, lands are not demarcated, nature monuments do not have passports envisaged by RA law, the program on “Replenishment of approved list of nature monuments in RA Lori and Tavush marzes/regions, adjustment of buffer zones, land demarcation and mapping program works” was included within 2012 state

budget in the implementation of which new list of Armenia's nature monuments was approved by RA Government decree № 473-N dated May 2, 2013- 232 names and the passport of "Trchkan" waterfall was approved by the order of the Minister of Nature Protection. At present 106 nature monuments are considered as geological, 46-hydrogeological, 40- hydrographic, 17 natural-historic and 21 as biological.

5) Thus the following SPNAs operate in the Republic (**Table 1**):

a. 3 state reserves ("Khosrov forest", "Shikahogh" and "Erebuni"), which cover 35 439.6 ha territory or 1.19% of Armenia's total area;

b. 4 national parks ("Sevan", "Dilijan", "Lake Arpi" and "Arevik") which cover 236802.1 ha territory or 7.96 % of Armenia's total area;

c. 232 natural monuments;

d. 27 state sanctuaries which cover 114 812.7 ha territory or 3.95% of Armenia's total area.

6) Important outcomes contributing to Armenia's SPNA system development are:

a. approval of "Methodological guidelines of SPNA management plan" by the decree № 364-A of the Minister of Nature Protection dated 27.10.2008;

b. approval of the order № 60-A of the Minister of Nature Protection of RA dated 12.02.2008 on "Uniform of legal entities, security officers in charge of SPNA conservation, conditions and order of wearing";

c. award of the European Diploma of Protected Areas to the Khosrov Forest Reserve (Adopted by the Committee of Ministers on 10 July 2013 at the 1176th meeting of the Ministers' Deputies).

Table 1

SPNAs of Armenia, their establishment, objective and distribution in accordance to the regions/marzes of Armenia

Name of SPNA	Government decree №	Objective	RA marz	Occupied area (ha)
<u>RESERVES</u>				
Khosrov Forest	ASSR Council of Ministers, September 13, 1958, № Պ-341	Conservation mountain arid coexistences, wild relatives of cultivated plants in Azat and Vedi river basins, arid open forests, animals and plants registered in the Red Data Book of Armenia	Ararat, Kotayq	23 213.5
Shikahogh	ASSR Council of Ministers, September 13, 1958, № Պ-341	Conservation of endemic and relic plant species, moist forests, oriental beech and Taxus baccata L. (yew) groves met only in Southern Armenia, animals and plants registered in the Red Data Book of Armenia	Syuniq	12 137.1
Erebuni	ASSR Council of Ministers, 1981, № 324	Conservation of wild cereal gene pool and habitats	Kotayq	89.0
<u>NATIONAL PARKS</u>				
Sevan	ASSR Central Committee of Communist Party of Armenia and Council of Ministers, March 14, 1978, № 125	Conservation of Lake Sevan ecosystems	Gegharqunik	147 455.0
Dilijan	RA Government, February 21, 2002, № 165	Conservation of oak and beech relic forests, Taxus baccata L. unique grove, natural pine groves, feeding surfaces of natural springs, animals and plants registered in the Red Data Book of Armenia	Tavush	33 765.0
Lake Arpi	RA Government, April 16, 2009, № 405-N	Conservation of Lake Arpi ecosystems, nesting sites of rare and migratory bird species, plant species registered in the Red Data Book of Armenia	Shirak	21 179.3
Arevik	RA Government, October 15, 2009, № 1209-N	Conservation of landscape and biological diversity of Meghri mountain range, natural and historical heritage	Syuniq	34 401.8
<u>SANCTUARIES</u>				
Akhnabad yew grove	ASSR Council of Ministers, September 13, 1958, № Պ-341	Conservation of relic Taxus baccata L. species	Tavush	25.0
Hazel	ASSR Council of Ministers, September 13, 1958, № Պ-341	Conservation of relic hazel and yew groves	Tavush	40.0
Juniper open forests	ASSR Council of Ministers, September 13, 1958, № Պ-341	Conservation of Juniperus excelsa M.Bieb, Juniperus foetidissima Willd and Juniperus oblonga open forests	Gegharqunik	3 312.0

Gyulagarak	ASSR Council of Ministers, September 13, 1958, № ᠓-341	Conservation of relic pine forests	Lori	2 576.0
Open forests of Herher	ASSR Council of Ministers, September 13, 1958, № ᠓-341	Conservation of relic juniper open forests	Vayots Dzor	6 139.0
Jermuk forest	ASSR Council of Ministers, September 13, 1958, № ᠓-341	Conservation of mountain forests of Quercus macranthera Fisch. et Mey. And fauna specific to them	Vayots Dzor	3 865.0
Plane grove	ASSR Council of Ministers, September 13, 1958, № ᠓-341	Conservation of Platanus orientalis L. Natural grove	Syuniq	64.2
Aragats Alpine	ASSR Council of Ministers, January 29, 1959, № 20	Conservation of Glacier Qari Lake and adjasenc alpine meadows	Aragatsotn	300.0
Banks' pine	ASSR Council of Ministers, January 29, 1959, № 20	Conservation of unique Bank's pine nursery	Kotayq	4.0
Sands of Goravan	ASSR Council of Ministers, January 29, 1959, № 20	Conservation of sandy desert and flora and fauna specific to it	Ararat	95.99
Caucasian rose bay	ASSR Council of Ministers, January 29, 1959, № 20	Conservation of relic Caucasian rose bay species	Lori	1 000.0
Arzakan-Meghradzor	ASSR Council of Ministers April 9, 1971, Order № 212	Conservation of forest rare animals (Երկաթաբույսի (Ursus arctos, Tetrao mlokosiewicsi (black grouse))	Kotayq	13 532.0
Gandzaqar	ASSR Council of Ministers April 9, 1971, Order № 212	Conservation of mountain forests, rare and valuable animals (roe, brown bear, Tetrao mlokosiewicsi)	Tavush	6 813.0
Getik	ASSR Council of Ministers April 9, 1971, Order № 212	Conservation of mountain forests, rare and valuable animals (roe, brown bear, Tetrao mlokosiewicsi)	Gegharqunik	5 728.0
Ijevan	ASSR Council of Ministers April 9, 1971, Order № 212	Conservation of forest landscapes and fauna specific to them	Tavush	5 908.0
Margahovit	ASSR Council of Ministers April 9, 1971, Order № 212	Conservation of moist forests and fauna specific to them	Lori	3 368.0
Yeghegnadzor	ASSR Council of Ministers, November 16, 1971, № 375	Conservation of forest landscapes and fauna specific to them	Vayots Dzor	4 200.0
Goris	ASSR Council of Ministers, November 6, 1972, Order № 775	Conservation of forest landscapes and fauna specific to them	Syunik	1850.0
Vordan Karmir	ASSR Council of Ministers, February 2, 1987, № 61	Conservation of Armenian Vordan karmir salty habitats and drimophilous plants	Armavir	219.85
Boghaqar	ASSR Council of Ministers, August 10,	Conservation of endemic plant species (Tulipa sosnovskyi	Syuniq	2 728.0

	1989, № 400	Achv. et Mirzoeva, Schophularia takhtajanii, Quercus araxina and etc.)		
Lake Sev	RA Government, October 12, 2001, № 975-N	Conservation high mountainous Lake Sev ecosystem	Syuniq	240.0
Khor Virap	RA Government January 25, 2007, № 975-N	Conservation of wet ecosystems	Ararat	50.28
Hanqavan hydrological	RA Government, September 17, 2009, № 1063-N	Conservation of feed basins of mineral springs	Kotayq	5 169.04
Jermuk hydrological	RA Government, September 17, 2009, № 1063-N	Conservation of mineral hot spring feed basins	Vayots Dzor	17 371.0
Zangezur	RA Government, October 15, 2009, № 1187-N	Conservation of meadow-steppe, subalpine and alpine ecosystems	Syuniq	25 870.64
Zikatar	RA Government, April 8, 2010, № 380-N	Conservation of forest ecosystems	Tavush	150.0
Khustup	RA Government, December 19, 2013, № 1465-N	Conservation of upper part of forest belt, meadow-steppe and steppe natural ecosystems	Syuniq	6946.74

6. “Implementation process analyses of Armenia’s SPNA development state strategy and national action plan” approved by RA Government protocol decision № 54 dated December 26, 2002.

1) This project was developed within the framework of UNDP “Capacity assessment for biodiversity of Armenia” project ARM97/G/31 and is planned for 8 years covering the following 5 sections:

a. Improvement of legislation. In 2006 RA law on SPNAs was approved for ensuring the implementation of which RA Government has adopted a number of legislative acts including “SPNA monitoring organization and implementation order”(Decision № 1044-N dated August 30, 2007), “SPNA state cadastre conducting order” (Decision № 259-N dated March 20, 2008), “SPNA establishment order”(Decision № 72-N dated January 22, 2009). 4 international conventions envisaged by the project were ratified- “The European Landscape Convention” in 2004, The Bern Convention on the Conservation of European Wildlife and Natural Habitats, the Convention on International Trade in Endangered Species of Wild Fauna and Flora(CITES) in 2008, The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) in 2010.

b. Improvement of management system. In 2007 management plans of “Sevan” and “Dilijan” national parks, in 2009 that of “Khosrov forest” State reserve and in 2011 that of “Arpi lake” national park were approved by the Government of the Republic of Armenia.

c. SPNA network expansion. During 2004-2009 the following mid-term projects were financed and implemented by the Government of the Republic of Armenia- Development of 6 new SPNA establishment projects(“Arevik” state reserve, “Arpi (Gnishik)” and “Jermuk” national parks, “Kirants” and “Vorotan” natural parks, “Ara mountain” sanctuary), establishment of SPNA cadastre, SPNA border specification and mapping activities (including “Khosrov forest”, “Shikahogh” and “Erebuni” state reserves, state sanctuaries) inventory of natural monuments, elaboration of the program on passport and list establishment.

d. Improvement of financial-economic mechanisms. In recent years, SPNA financing volume has significantly increased. During 2000-2013 the financing of state reserves, national parks and “Reserve-Park Complex” SNCO increased by about 4.8 times.

e. Improvement of HR personnel. Trainings financed by state budget and with the support of international institutions were organized for SNCO staff engaged in SPNA management; technical capacity strengthening of existing SPNAs and infrastructure development, academic staff replenishment, visitor center establishment, museum restoration and so on is being carried out.

2) In general it can be stated that the timing of activities envisaged by the project has not been mainly preserved while the main reason for their non-performance or poor performance is that some of the activities planned under the program are not realistic and their implementation goals are not clear, some activities are not consistent with legislation, for example the establishment of natural parks. Among major drawbacks of action plan is the absence of notion on the establishment of ecological network which are considered priority in

SPNA development process. In essence the creation of transboundary SPNAs, climate change impact threats are not considered.

7. Projects implemented by international organizations

1) International organizations have had significant input in the expansion, development and conservation of SPNA system in Armenia. Projects implemented by their financial contributions may be divided into the following directions:

- a. projects as a result of the implementation of which new SPNAs were created;
- b. projects the implementation of which contributed to SPNA management system and capacity strengthening;
- c. projects the implementation of which contributed to SPNA legislation improvement.

2) Larger financial contributions were carried out by World Bank, Global Environmental facility, BMZ, WWF, CNF.

3) Within some projects some rare animal species and their populations occurring in SPNAs of Armenia were studied, such as Dahl's jird, *Panthera pardus*, *Ovis orientalis gmelini*, *Capra aegagrus*, *Ursus arctos*, *Aegyptius monachus*, *Vipera Montivipera*, *Vipera darevskii* and so on. Conservation and monitoring projects of Caucasian leopard, Armenian mouflon and bezoar goat were developed and approved by WWF. Preliminary list of 18 important bird areas and 16 important botanical areas of Armenia were distinguished.

III. CURRENT STATE OF SPNAs OF ARMENIA AND COMPLIANCE TO INTERNATIONAL STANDARDS

8. Representation of Biodiversity

1) Representation of biodiversity is more highlighted in SPNAs as the loss of each fauna and flora species may have essential importance in ensuring ecosystem balance, human health and sustainable development. Biodiversity of Armenia is distinguished by its richness and variety. Armenia's geographic position, location in the transit routes of migratory animals and birds, landscape and high-altitude zones diversity and active processes of speciation have created favorable conditions for the formation of a rich and unique biodiversity. More than 4500 species of fungi, about 9000 species of lower and higher plants are registered in the territory of the Republic by the density of which Armenia ranks one of the leading spots-about 107 species for each 1km.

Fauna is rich as well; there are more than 17500 species of vertebrate and invertebrate animals. There are not only numerous endemic species, wild relatives of cultivated and domesticated crops the part of which is critically endangered, while significant part is endangered or vulnerable. Biodiversity in terms of environmental protection and socio-economy is vital in Armenia. Its components has been used for centuries and at present are widely used in various spheres of society-agriculture, food industry, construction, pharmaceuticals and so on.

2) By the legislation of the Republic of Armenia whole biodiversity is subject to conservation, but conservation of endangered and vulnerable plant and animal species is a priority. In recent years significant work has been done in the discovery and evaluation of rare and vulnerable plant and animal species. These data is included in the Red Books of flora and fauna of Armenia approved by RA Government decisions № 71-N and № 72-N dated January 29, 2010. Meanwhile registration in the Red Book is the supreme standard by which biodiversity representativeness in evaluated in Armenia's SPNAs (**Table 2**). The following becomes apparent from the given data:

a. there is lack of complete data on biodiversity in the vast majority of Armenia's SPNAs;

b. only 33 (82.5 %) of 40 species of fungi registered in the Red Book are represented in the SPNAs. The most represented is the area of "Dilijan" National Park. Lack of data in "Shikahogh" and "Erebuni" state reserves, "Lake Arpi" and "Arevik" National Parks, as well as in major parts of state sanctuaries testifies to the fact that in this areas no studies were carried out on the composition of fungi species;

c. 166 of 452 or 36,7 % high plants registered in the Red Book are represented in SPNAs which is certainly not a high rate. Moreover the level of representation of high plant registered in Red Data Book is relatively high in "Shikahogh" state reserve. The areas of state reserves are distinguished by low rates of red-listed plants. Moreover there is no data at all on a number of sanctuaries;

d. 145 or 93,5 % of 155 invertebrates registered in the Red Book can be met in SPNAs. "Khosrov forest" state reserve, "Arevik" and "Sevan" National Parks are distinguished by representativeness of species. Low level of representativeness is marked in "Shikahogh" and "Erebuni" state reserves, "Dilijan" and "Lake Arpi" national parks, as well as in state sanctuaries;

e. 96 or 62,7 % of 153 vertebrate species registered in the Red Book are represented in the SPNAs. Meanwhile almost part of them is at the same time met in a number of SPNAs. "Khosrov forest" and "Shikahogh" state reserves are distinguished by representativeness of species, all national parks. Low level of representativeness is marked mainly in state sanctuaries, which is probably due to insufficient studies and lack of data.

Table 2

Representation of Biodiversity in SPNAs of Armenia

Category	Name of SPNAs	Fungi		Higher plants		Invertebrates		Vertebrates	
		Total number	Red Data Book of RA	Total number	Red Data Book of RA	Total number	Red Data Book of RA	Total number	Red Data Book of RA
Reserve	Khosrov forest	No data	6	1849	26	1500	31	283	34
	Shikahogh	No data		1074	49	No data	6	220	21
	Erebuni	No data		292	20	774	5	99	1
National Park	Sevan	267	6	1619	19	683	20	336	52
	Dilijan	480	20	1200	9	1501	7	229	16
	Lake Arpi	13	0	656	12	2500-3000	4	249	18
	Arevik	No data		1462	24	528	32	253	28
Sanctuary	Hazel	No data		No data	1	No data		No data	
	Akhnabad yew grove	No data	2	No data	1	No data	0	No data	
	Aragats Alpine	2	0	158	1	No data	3	No data	
	Arzakan-Meghradzor	No data		No data	0	No data	4	No data	
	Banks' pine	No data		No data		No data		No data	
	Boghaqar	No data		No data	1	No data		No data	2
	Handzaqar	No data		No data		No data		No data	
	Getik	No data		No data		No data		No data	
	Juniper open forests	No data		No data		No data		No data	
	Goris	No data		No data		No data		No data	
	Sands of Goravan	No data		No data	8	No data	12	No data	7
	Gyulagarak	No data	1	No data	0	No data	0	No data	
	Yeghegnadzor	No data		No data		No data		No data	
	Zangezur	13	0	696	28	74	7	93	18
	Zikatar	No data		No data		No data		No data	
	Ijevan	No data		No data		No data	2	No data	1
	Khor Virap	No data		No data		No data	1	No data	
	Khustup	9	0	493	17	58	4	111	19
	Hanqavan hydrological	No data		No data		No data	2	No data	
Open forests of Herher	No data		No data	1	No data		No data		
Caucasian rose bay	No data		No data	1	No data	0	No data		

	Margahovit	No data		No data		No data	1	No data	
	Vordan karmir	No data		No data	5	No data	1	No data	1
	Jermuk forest	No data		No data		No data	4	No data	
	Jermuk hydrological	No data		No data		No data	3	No data	
	Plane grove	No data	2	No data	1	No data		No data	
	Lake Sev	No data		102	0	No data	2	No data	

9. Representation of Landscape Diversity

1) Armenia is a mountainous country the landscape of which forms multifunctional system. Given the geographical development of the territory and climatic specificities semidesert, steppe, forest, mountain-meadow and water landscapes were formed in Armenia the specific conditions of which generated rich variety of habitats of plant and animal species, unique symbiosis, high level of endemism, as well as rich agrobiodiversity. Therefore comprehensive representativeness of landscape diversity in SPNAs has strategic importance for biodiversity conservation. The analyses (**Table 3**) on representation of landscape biodiversity carried out in SPNAs reveals the following:

a. SPNAs are mostly covered by water landscapes - 127 254.08 ha or 4.28 % of the total area of Armenia, 32,9 % in SPNA system but the majority of it falls on Lake Sevan mirror (124 759.0 ha);

b. forest landscapes cover 110 269.2 ha or 3.7 % of the total area of Armenia, 28.5 % in SPNA system;

c. mountain-meadow landscapes cover 87 516.24 ha or 2.94 % of the total area of Armenia, 22.6 % in SPNA;

d. steppe landscapes 61 391.7 ha or 2.06 % of the total area of Armenia, 15.8 % in SPNA system;

e. semidesert landscapes cover 623.14 or 0.02 % of the total area of Armenia, 0,2 % in SPNA system.

2) From this we can conclude that semidesert and steppe landscapes are still insufficiently represented in SPNAs of Armenia. As to water landscapes without Lake Sevan mirror the area covers 2 495.08 ha or 0.08 % of the total area of Armenia. Thus in the creation of new SPNAs along with semi-desert and desert landscapes, it is required to pay attention to water or humid areas that are rich in biodiversity and rare symbiosis.

Table 3

Representation of Landscape Diversity in SPNAs of Armenia (According to WWF data) (ha)

Name of SPNA	Desert and semidesert	Steppe	Forest	Mountain landscape		Water and damp areas	Total
				Sub-alpine	Alpine		
<u>RESERVES</u>							
Khosrov forest		16 530.0	4 131.0	2 552.5			23 213.5
Shikahogh		1 654.6	10 482.5				12 137.1
Erebuni		89.0					89.0
<u>NATIONAL PARKS</u>							
Sevan		10 621.0	12 076.0			124 759.0	147 456.0
Dilijan+Akhnabad yew grove		6 161.7	24 679.0	2 924.3			33 765.0
Lake Arpi		3 666.2		8 417.5	6 840.8	2 254.8	21 179.3
Arevik+ Boghaqar sanctuary	307.3	7 403.7	16 615.0	5 679.4	4 396.4		34 401.8
<u>SANCTUARIES</u>							
Hazel			40.0				40.0
Aragats Alpine				284.0		16.0	300.0
Arzaqan-Meghradzor		2 357.2	9 527.0	1 557.0	90.8		13 532.0
Bank's pine			4.0				4.0
Gandzaqar		1 216.0	5 597.0				6 813.0
Getik		883.9	197.0	3 024.6	1 622.5		5 728.0
Juniper open forests		613.8	1 232.6	1 465.6			3 312.0
Goris		626.5	1 223.5				1 850.0
Goravan sands	95.99						95.99
Gyulagarak			2 576.0				2 576.0
Yeghegnadzor		1 117.6	3 082.4				4 200.0
Zangezur		1 246.2	636.3	6 874.04	13 567.0		25 870.64
Zikatar			150.0				150.0

Ijevan		1 279.3	4 628.7				5 908.0
Khor Virap						50.28	50.28
Khustup			3 731.2	2 445.5	770.0		6 946.7
Hanqavan hydrological		1 314.64		2 378.8	1 475.6		5 169.04
Open forests of Herher		1 360.5	4 778.5				6 139.0
Caucasian rose bay				825.0	175.0		1 000.0
Margahovit			2 866.7	501.3			3 368.0
Vordan karmir	219.85						219.85
Jermuk forest		1 914.4	1 950.6				3 865.0
Jermuk hydrological		1 335.5		12 971.0	3 064.5		17 371.0
Plane grove			64.2				64.2
Lake Sev					66.0	174.0	240.0
Total HA	623.14	61 391.7	110 269.2	87 516.24		127 254.08	387 054.4
Total of SPNAs %	0.2	15.8	28.5	22.6		32.9	100
Total of Armenia's territory %	0.02	2.06	3.7	2.94		4.28	13.0

10. Representation of Cultural Heritage.

1) SPNAs of Armenia are rich in monuments of cultural heritage many of which may be part of the cultural heritage of global significance. Temporal diversity of historical-cultural monuments ranges from the earliest period of Stone Age till the present era. Thus the territory of “Khosrov forest” state reserve is rich in more than 150 early medieval and medieval historical and cultural monuments, including 15 villages, 9 churches and monastery complexes, 4 fortresses and castles, cave dwellings, old cemeteries and etc. 1458 historical and cultural monuments are registered in “Sevan” National park and its buffer zone, 473 monuments in the territory of “Dilijan” national park and its buffer zone. There is no precise data on other SPNAs.

2) The conservation of historical and natural monuments distributed in SPNAs and security insuring are implemented by state bodies owning the territories in conformity with the requirements of Article 18th of RA law on “Law on Preservation and Use of Immovable Historical and Cultural Monuments and Historical Environment” but monument conservation competencies, organization of visits and excavations, establishment of infrastructures, as well as implementation of other constructional works related with the restoration of monuments sometimes does not meet SPNA protection regime. Therefore close cooperation with the Ministry of Culture of RA and other stakeholders is needed.

11. The legislation of the RA on SPNAs

RA legislation with regard to SPNAs includes the following legal acts:

- 1) International agreements ratified by RA:
 - a. UN Convention on Biological Diversity (Rio de Janeiro, 1992) ;
 - b. Convention on the Protection of the World Cultural and Natural Heritage (Paris, 1972);
 - c. Convention on the conservation of European wildlife and natural habitats (Bern, 1979);
 - d. European Landscape Convention (Florence, 2000);
 - e. Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979);
 - f. Convention on International Trade in Endangered Species of Wild Fauna and Flora, (Washington, 1979);
 - g. Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar, 1971);
 - h. UN Convention to Combat Desertification (Paris, 1994);
 - i. UN Framework Convention on Climate Change (New York, 1992);
 - j. UN Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 1992);
 - k. UNECE Convention on environmental impact assessment in a transboundary context (Espoo, 1991);

- l.** UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus, 1998);
- m.** Protocol on strategic environmental assessment (Kiev, 2003).
- 2) Codes of the Republic of Armenia:
 - a.** Forest code;
 - b.** Land code;
 - c.** Water code;
 - d.** Mining code;
 - e.** Code on administrative offences;
 - f.** Criminal code;
 - g.** Civil code.
- 3) Laws of the Republic of Armenia:
 - a.** On nature protection and nature utilization payments;
 - b.** On compensation payments for damages to flora and fauna due to environmental offenses;
 - c.** On environmental supervision;
 - d.** On the rates of environmental payments;
 - e.** On specially protected nature areas;
 - f.** On flora;
 - g.** On the targeted utilization of environmental payments performed by companies;
 - h.** On fauna;
 - i.** On alienation of property for public and state needs;
 - j.** On control over use of the land and maintenance of the restrictions on use;
 - k.** On environmental impact assessment;
 - l.** On hunting and conducting hunting management;
 - m.** On lake Sevan;
 - n.** On the annual and complex programs for the lake Sevan ecosystem restoration, conservation, reproduction and use;
 - o.** On local self-government;
 - p.** On preservation and usage of historical and cultural (immobile) monuments and historical environments;
- 4) RA Government decrees:
 - a.** On monitoring organization and implementation order in specially protected nature areas (August 30, 2007, Decree № 1044-N);
 - b.** On SPNA state cadastre conducting order (March 20, 2008, Decree № 259-N);

- c. On the creation of Inter-agency committee on the provision of plots of lands of specially protected nature areas for leasing and constructional purposes and on approving the working order of Inter-agency committee (December 18, 2008, Decree № 1578-N);
- d. On SPNA establishment order (January 22, 2009, Decree № 72-N);
- e. On the rates of environmental payments (December 30, 1998, Decree № 864);
- g. on Approving the list of specially protected basin areas or parts there of (February 19, 2009, Decree № 159-N);
- h. on contract for gratuitous use of lands of “Sevan” national park (Resolution № 1438, December 10, 2009).

5) RA legislation on SPNAs also includes RA Government decrees on the establishment of state reserves, national parks, sanctuaries and their statutes, RA Government decrees on the management plans of state reserves, national parks, sanctuaries, RA Government decree on the list of nature monuments, as well as ASSR Council of Ministers decree on the approval of RA Red Data Books of Flora and Fauna. Besides “Methodological guidelines on the development of management plans of specially protected nature areas” was approved by the order № 364-A of the Minister of Nature Protection of RA dated October 27, 2008.

12. SPNA management system

1) In Armenia SPNA management is carried out by Bioresources management agency of the Ministry of Nature Protection of RA, “Armforest” SNCO of the Ministry of Agriculture of RA and “National scientific laboratory after A.I. Alikhanyan”(Yerevan Institute of Physics). SNCOs implementing SPNA conservation are of significant importance in SPNA management system (**Table 4**).

Table 4.

SPNAs included in the structure of SNCOs implementing SPNA conservation

SNCO	SPNAs
SPNAs included in the structure of the Ministry of Nature Protection of RA	
“Khosrov forest” state reserve	“Khosrov forest” state reserve “Khor virap” sanctuary “Sands of Goravan” sanctuary
“Zangezur biosphere reserve”	“Shikahogh” state reserve “Arevik” national park “Boghaqar” sanctuary “Plane groove” sanctuary “Zangezur” sanctuary “Khustup” sanctuary “Lake Sev” sanctuary

“Dilijan” national park	“Dilijan” national park “Akhnabad yew grove” sanctuary
“Sevan” national park	“Sevan” national park “Juniper open forests” sanctuary
“Reserve complex” SNCO	“Erebuni” state reserve “Vordan karmir” sanctuary “Jermuk hydrological” sanctuary “Hanqavan hydrological” sanctuary
“Zikatar” environmental centre	“Zikatar” sanctuary
SPNAs included in the structure of the Ministry of Agriculture of RA	
“Armforest”	“Hazel ” sanctuary “Arzakan-Meghradzor”sanctuary “Banks' pine” sanctuary “Gandzaqar” sanctuary “Getik” sanctuary “Goris” sanctuary “Gyulagarak” sanctuary “Yeghegnadzor”sanctuary “Ijevan” sanctuary “Open forests of Her-her” sanctuary “Caucasian rose bay” sanctuary “Margahovit” sanctuary “Jermuk forest” sanctuary
SPNAs included in the structure of the Ministry of education and science of RA	
A. I. Alikhanian National Science Laboratory (Yerevan Physics institute)	“Aragats alpine” sanctuary

2) Despite the fact that legislation of the Republic of Armenia for efficient management of SPNA system is mostly favorable, however the analyses of SPNA management specifications revealed the following weaknesses:

a. Imperfection of SPNA management mechanisms. In Armenia SPNA management is characterized by strongly expressed vertical structure the inflexibility, lack of technical and financial resources of which prevents the strengthening the links between different levels of SPNA management system and function harmonization. In particular, though there are regular relations between almost all SPNAs, territorial administration, local self-government and land users, however during decision making issues arise mainly conditioned by low level of public awareness. Successful examples and practice of SPNA participatory management, sustainable tourism management, decision making and provision of sustainable funding are still few. Assessment of community capacity analysis shows that they are still unable to actively participate in SPNA management processes with their own means. Lack of professional potential and corresponding finances in community budgets and so on hinders it. In SPNA adjacent communities there is low level of awareness on SPNA issues, objectives, as well as legal acts on SPNAs, lack of environmental education and education level. There is little

experience of community participation in developing management plans. Most local population do not realize the basic values which are the basis for separation of various SPNA categories that can be profitable for the locals. As a result the level of public activity is low in SPNA conservation and use issues. Important steps towards the improvement of SPNA management mechanisms are the latest additions in the charters of SNCOs implementing management of state reserves and national parks according to which collegial management bodies should act in SNCOs, as well as “Methodological guideline on the establishment of institutional links on sanctuary management” and “Methodological guideline on the introduction of SPNA management models” approved by the order № 195-A dated August 30, 2013 of the Minister of Nature Protection of RA.

b. Technical, human and financial capacity shortage of SPNA system. Due to benefits received from E,S SPNAs should contribute to population's quality of life carrying out environmentally sound entrepreneurial activity. But existing shortage of technical, human and financial capacity in SPNA system hinders the solution of such issues. Only a small part of management system workers have corresponding professional qualifications, the number of employees implementing surveillance duties is considerably lower from the required quantity, whereas this few and low-wage workers perform their duties in technically ill-equipped conditions. Strong scientific ground is needed for SPNA proper management-on biodiversity, ES, social issues and management strategies. Although SPNAs are one of the most important sources on acquisition and dissemination of ecological knowledge, most of the research outcomes implemented in them are not used by SPNA managers. The activity of science departments stipulated in SNCO charters under the jurisdiction of the Ministry of Nature Protection of RA are highlighted from the perspective of institutional capacity strengthening which actually is not implemented due to lack of appropriate highly qualified scientific personnel. As a result many problems arise related to cadastre management, monitoring, preparation of reports and as well as to right decision making in the sphere of SPNA management. The experience of central and local government bodies, SPNA managers and staff is extremely limited in SPNA management. Managers must make decisions and use clear and reliable data sources for which the establishment of biodiversity monitoring system is mandatory. Meanwhile there are limited opportunities for acquiring scientific information in SPNAs.

c. Flawed implementation of SPNA management plans. In Armenia “Khosrov forest” state reserve, “Sevan”, “Dilijan” and “Arpi lake” national parks of operating SPNAs have management plans. Despite the efforts made by the Government and international organizations, SPNA management planning is still in the development phase, while existing management plans need reviewing. The implementation of activities envisaged by management plans is mainly conditioned by financial, technical and human potential which is still severely insufficient. As a result significant part of activities envisaged by management plans is carried out by drawbacks.

d. Drawbacks of SNCOs implementing SPNA management. Efficiency of works carried out by SNCOs is mainly possible to assess by the analyses of their reports. Such

analyses implemented within the last three years shows the fulfillment of statutory functions by SNCOs can be assessed as satisfactory but there are common drawbacks for all SNCOs hindering SPNA management efficiency. They are:

da) there are no equipment technical standards for SNCOs, moreover they are inherited from soviet period and do not meet today's requirements, for example maintenance area of 1 inspector in hectares and technical reequipment of 1 inspector;

db) some types of entrepreneurial activities targeted and efficient use of income received from those activities are not carried out completely (eg. organization of ecotourism, production, processing and marketing of agricultural products);

dc) enhancing mechanism for staff encouragement, revenue received from entrepreneurial activities is missing;

dd) main part of economic and financial revenues (nature utilization payments, environmental penalties, compensation fees for damage caused to the environment etc.) received in the result of environmental use in the territory of national parks is not returned to environmental sector;

de) awareness raising of SPNA adjacent community population on the objective of SPNAs, adopted decisions, possible advantages is incompletely implemented, lack of PR;

df) lack of highly qualified specialists, as well as total number of posts, long-term approved projects on qualification improvement and training;

dg) monitoring results implemented in some SPNAs are not used in management process;

dh) cooperation level of SPNAs and other stakeholders is imperfect.

13. Research, monitoring and cadastre management in SPNAs.

1) Sustainable guarantee of conservation of nature and its components are those SPNAs in which the following activities aimed at efficient administrative decision making are carried out:

a. researches including ecosystems, flora and fauna recovery, regeneration and sustainable use;

b. ecosystem and biodiversity monitoring;

c. SPNA cadastre implementation.

2) Organization and implementation of researches in SPNAs is mandatory requirement stipulated by RA legislation. Though there exist scientific departments in SNCOs implementing SPNA management, goals of thematic scientific works are not specified, studies are too limited and are not related to SPNA specific management needs. This is mainly due to the insufficiency of highly qualified personnel and material facilities. During the last 20 years scientific studies have been carried out by the scientists of the institutes of zoology, hydroecology, fishery and botany of the National Academy of Sciences of the Republic of Armenia (hereinafter NAS of the RA) and in the scope of international grant projects which included the following directions:

a. ecological status assessment of aquatic ecosystems;

b. forest territory inventory;

- c. assessment of vegetation condition;
- d. assessment of fauna condition;
- e. biodiversity inventory;
- f. assessment of hydrobiohouse resources as an object of industry;
- g. tourism and recreation peculiarity reveal.

3) The outcomes of implemented researches have been used during the development of “Khosrov forest” state reserve, “Sevan”, “Dilijan” and “Lake Arpi” national parks, “Zangezur” and “Khustup” sanctuaries.

4) Monitoring is the integral part of SPNA management planning and is aimed at the development and implementation of preventive and mitigation/elimination measures of negative impacts on ecosystems and their components. At present systematic monitoring activities are not carried out in Armenia’s SPNAs (except monitoring of ecological status and fish resources of lake Sevan, monitoring of some large mammals and reptiles of “Khosrov forest” and “Shikahogh” reserves) which is due to lack of relevant financial resources and qualified personnel. Practically “Introduction of biodiversity monitoring program”, as well as monitoring implementation software elaborated for “Khosrov forest” state reserve, “Sevan” and “Dilijan” national parks are not applied. Despite this some researches implemented in SPNAs still comprise monitoring elements (inventory of rare and endangered species, hunting animals, plants and animals of economic value and assessment of their status, reveal of invasive species etc.).

5) SPNA cadastre management is of significant importance for coordination and comparison of data quantitative and qualitative characteristics. At present data collection, coordination activities are not carried out in Armenia’s SPNAs and information systems for cadastre management have not been formed.

14. SPNA compliance to international standards

1) International Union for Conservation of Nature (IUCN) classifies SPNAs according to categories and forms of governance. It enables to compare and summarize information on SPNAs around the world irrespective of their national peculiarities. According to categories SPNAs are classified into following 6 groups:

- a. strict nature reserve is an area which is protected from all but light human use in order to preserve the geological and geomorphic features of the region and its biodiversity and where ecotourism is allowed;
- b. national park where ecosystems are conserved mainly for recreational purposes;
- c. nature monument where objects of interest or complexes of nature are conserved and used for scientific, educational and ecotourism purposes;
- d. managed area of species and their habitats where rare and valued species and habitats are conserved and are used for scientific purposes and sustainable use of resources;
- e. areas separated for the conservation of terrestrial and marine landscapes which are used for recreation purposes;

f. protected areas with managed resources which are used for the thrifty use of resources.

2) Analyzing current specificities of Armenia's SPNAs the following can be stated:

a. "Khosrov forest", "Shikahogh" and "Erebuni" reserves correspond to 1st category;
b. all 4 national parks of Armenia fit to 2nd category;
c. nature monuments of Armenia correspond to 3rd category;
d. sanctuaries where concrete species and their habitats are under specific conservation are of 4th category, including "Akhanabad yew", "Hazel", "Juniper open forests", "Gyulagarak", "Open forests of Herher", "Plane grove", "Caucasian rose bay", "Vordan karmir";

e. there are no SPNAs in Armenia of the 5th and 6th category.

3) According to management form the following SPNA classification is internationally adopted:

a. SPNAs governed by state bodies;
b. SPNAs governed by two or more state and/or public bodies;
c. SPNAs governed by landowners or resource owners;
d. SPNAs governed by community or mid-community institution.

4) Of the listed way of governance only state institution governed SPNAs operate in Armenia.

IV. SPNA STRATEGY

15. The objective of SPNA strategy

1) Main significance of SPNA system is the provision of conservation, restoration and long-term usage of natural heritage-ecosystems, genetic resources, biological and landscape diversity. In the conditions of climate change and current desertification processes Armenia's SPNA development strategy should focus on the establishment of new SPNAs with the reveal of areas rich in biodiversity and vulnerable towards climate warming, as well as on current SPNA border specification and actions towards ecological network creation. From this perspective the objective of Armenia's SPNA development strategy is as follows:

a. provision of country's ecological sustainability and everyone's right to live in a healthy and favorable environment, conservation of natural and cultural heritage for present and future generations through by increasing the effectiveness of SPNA system;

b. Contribute to ecological, social and economic, scientific, educational, recreational and spiritual values of SPNAs which must be carried out by the provision of ecosystem approaches, natural processes, as well as by the application of the principles of intersectoral collaboration, researches and continuous monitoring.

2) Taking into account ecosystem approach ideology in line with international developments and ecological and environmental issues existing in Armenia, it is necessary to review traditional principles of SPNA functioning guided by the indicators given in **Table 5**. Principles specified in column 3 of the Table are the main targets of SPNA development strategy through introduction of which efficient conservation of landscapes and their

components, self-regulating or self-organizing potential of ecosystems, reasonable long-term nature usage, mutually coexistence of society and nature will be ensured.

Table 5

SPNA development standards and principles

SPNA characterizing standards	Traditional principles of SPNA functioning	Modern principles of SPNA functioning
Conservation of ecosystems and biodiversity	Human intervention to natural processes and phenomena(except sanctuaries)	Support to ecosystem self-organizing property
Area planning and establishment	Mostly spontaneously, without taking into account landscape and region peculiarities, locals' needs	Consideration of ecological, biological features, social-economic development projects, public participation in SPNA establishment and management processes
Area management forms	Withdrawal of territories from economic use	Demonstration of sustainable nature use possibility
SPNA management forms	Centripetal and vertical management	Introduction of participatory and community models of management, compensation and incentive system
SPNA management by state bodies	Financial resources allocated mainly from state budget	Use of economic mechanisms and various financial resources, equitable distribution of income
Spatial distribution of SPNAs	SPNAs of various categories separated from each other	Creation of national ecological network ensuring normal state of nature and people's sustainable vital functions

16. Recommended categories for SPNAs

1) It is obvious from the history of development of Armenia's SPNAs that current operating four categories(reserve, sanctuary, national park, nature monument) are not yet enough to ensure conservation of unique natural objects and complexes, as well as to guarantee socio-economic development of SPNA adjacent communities. Thus it is necessary to improve institutional links of existing SPNAs, take measures in the introduction of various management models of SPNAs but also stipulate by legislation the establishment of internationally recognized new SPNA categories in Armenia. From this perspective it is advisable to activate 5th (protected landscape) and 6th (Protected area with sustainable use of natural resources) of IUCN protected area management categories.

2) SPNA establishment should serve to the region's sustainable development as stipulated in the Working program of Protected Areas. In this context the establishment privilege of above mentioned two categories of SPNAs is more emphasized in the management of which local-self government bodies can have main role ensuring social-economic development of communities

17. Legislation improvement on SPNAs is key notion for strategy the solution of which will enable compliance of various categories of SPNAs to international standards, as well as efficient management, including introduction of participatory management mechanisms. For this purpose Armenia's legislation on SPNAs has been analyzed during the implementation of various international projects which includes discovery of inconsistencies and contradictions existing in the legislation and development of recommendations for their elimination. As a result RA laws on "Specially protected nature areas", "Local self-government bodies", "Environmental supervision" were reviewed, as well as Land Code of the Republic of Armenia and corresponding amendments and additions were made. Hence improvement methods of SPNA legislation are as follows:

1) Review of RA Government decree № 72-N dated January 22, 2009 on "Endorsement of the order on establishment of specially protected nature areas". It is necessary to clearly define SPNA establishment criteria and separately define SPNA establishment processes by the Government of the Republic of Armenia and by Local Self-Government bodies.

2) Review the charters of organizations implementing SPNA management. It is necessary to conform the charters to the new requirement of above mentioned RA laws, stipulate ensuring mechanisms of SPNA protection regimes, scientific researches and monitoring specificities, as well as means of formation of institutional links between stakeholders.

3) Formation of management plans. SPNAs should have management plans and ensure their continuousness. In this view elaboration process of SPNA management plans is urgent, whereas management plans of "Khosrov forest" state reserve, "Sevan" and "Dilijan" national parks need to be reviewed. Their elaboration and review should be based on the outcomes of scientific studies, thematic mapping activities and on recommendations recorded during cooperation with adjacent communities. Taking into account costly and long-term elaboration of management plans there is a need to apply new approaches (administrative, zoning, monitoring, ecotourism, disaster management etc.) for the review of operative subprojects listed in it. It is necessary to quickly respond to urgent issues, have justified documents for decision making and differentiate between the development of management plan subprojects and detailed study of the biodiversity of the area (including inventory of biological resources, forest building plans, mapping etc.). The latter is costly and time consuming while SPNAs often need solution of operative issues of management. During the preparation of each management plan volumes and need of the above mentioned studies should be specified, target species and main objects of conservation need to be limited. Further review of management plans in this way will include significantly short period of time and will be less costly. From the other hand RA Legislation envisages approval of management plans by RA Government while information contained therein (on biodiversity, natural phenomena, anthropogenic influences, hazards, etc.) does not have the necessity of legal approval. Thus only SPNA mapping results, border amendments and action plans should be submitted to approval. For this reason it is necessary to review currently existing

methodological guidelines of SPNA management plan elaboration, specify the content of management plans to be submitted to RA Government approval.

4) **Introduction of compensation and incentive mechanisms.** Introduction of compensation and incentive mechanisms can play significant role for Armenia's SPNA system development. Moreover introduction of compensation mechanisms is aimed at the compensation of landowners during the processes of expansion of SPNA borders, establishment of new SPNAs, formation of "Emerald network" and establishment of ecological corridors, which may allow achieving agreements without any conflict situations. Introduction of incentive mechanisms will promote both efficiency raising of staff of organizations implementing SPNA management and that of stakeholders involved in SPNA participatory management processes. Finally introduction of compensation and incentive mechanisms provided to legal and physical entities for the conservation of ES will contribute to biodiversity conservation and equitable sharing of benefits derived from ES.

5) **Provision of surveillance in SPNAs.** The following is necessary for the prevention of landscape degradation, illegal use of bioresources, offense of ecosystem balance and other types of environmental offenses and proper conservation in SPNAs:

- a. introduce round-the-clock surveillance system;
- s. define official responsibilities of surveillance/inspection personnel, incentive criteria of salary, additional salary and bonus calculation;
- c. define separation standards for SPNA protected part;
- d. increase number of personnel implementing surveillance functions;
- e. introduce exchange of experience between staff implementing SPNA surveillance functions.

18. One of the main issues of improvement of SPNA management mechanisms is the implementation of joint policy in this sphere. To achieve this, as international experience shows, the most favorable conditions are created when in SPNAs under various bodies, common standards, technologies, norms are introduced, and surveillance is carried out over their execution and protection regime. SPNA departmental subordination is not limited by RA legislation. In this view improvement ways of SPNA management mechanisms are as follows:

1) Application of rapid assessment and priority determining methods of SPNA management. Application of rapid assessment methods for SPNA management efficiency enables policy developers and SPNA managers quickly determine main trends, obstacles, risks and issues that should be addresses to the improvement of management efficiency. In order to assess SPNA management efficiency it is necessary to develop and apply long-term monitoring and assessment projects. Main outcomes received from assessment efficiency of management need to be considered for SPNA management plan review and for the organization of further activities.

2) Establishment of institutional links between stakeholders. Success of the environmental policy largely depends on the integration of socio-economic systems. Thus urgent or strategic issues of the sphere cannot solely be implemented by the Ministry of

Nature Protection of RA or by SNCOs carrying out SPNA management. There is a need of harmonization and coordination between state governing system, local self-government bodies, international organizations and private sector. At present in Armenia there are no clear mechanisms for inter-sectoral cooperation, necessary joint activities for corporate responsibility and risk mitigation are not defined in SPNA management sphere. For efficient SPNA management necessary preconditions will be created by the participation of stakeholders for possible conflict resolution and cooperation. To achieve this it is necessary to clearly specify SPNA conservation goals, objectives and required actions solutions which require joint efforts. Moreover before the establishment of conscious, stable and efficient institutional links, first of all there is a need to determine joint solution to current problems and appropriate scope of the actions. The creation of committee supporting SPNA management in the Ministry of Nature Protection of the RA can be as way of establishing institutional links which will ensure cooperation in SPNA sector and the efficient implementation of adopted decisions. In this view Methodological guideline on the introduction of management models of specially protected nature areas of the Republic of Armenia” approved by the decree № 195-A dated August 30, 2013 of the Minister of Nature Protection is noteworthy which includes possible mechanisms to issues. Ensuring stakeholder participation it will be possible to contribute to the solution of the following issues:

- a. implementation of joint SPNA management policy;
- b. efficient implementation of legislation requirements;
- c. overcoming of interdepartmental contradictions;
- d. systemized solution of current issues and provision of rapid response system activities;
- e. access to information and systemized exchange.

3) Improvement of SPNA financial-economic mechanisms. In order to ensure SPNA efficient management, first of all it is necessary to solve sustainable and targeted funding of area conservation. SPNA long-term conservation requires more expenses than income possibilities and benefit receiving opportunities are more focused on local residents. In general clearly designed and implemented projects by the participation of local stakeholders should be considered as preliminary contributions. SPNAs should possibly contribute to the implementation of community development projects focusing on the improvement of the living conditions of the population that can form a positive attitude towards SPNA conservation. The success of those projects is mainly conditioned by the availability of current financial resources (state support, donor organizations), as well as by active, interested people who wish to make investments. Potential benefits to a large extent will depend on individual situations and developments. SPNA efficient management may generate economic benefits which can be direct or indirect, permanent or occasional. Tourism and regulated recreation organization can be referred to examples of economic profit. It should be noted that stable and continuous growing of Armenia’s SPNA financing is significantly conditioned by professional qualification of staff of organizations implementing SPNA management and required logistical reequipment for the execution of their functions.

The following analyses should be done for investment purposes of necessary financial resources:

a. analyses of envisaged expenses, which should include the following expenses on the management of each SPNA - conservation, monitoring and researches, tourism and recreation organization, implementation of ecotourism and active management interventions, establishment of substructures, acquisition of fixed assets;

b. analyses of expected benefits, which should include those benefits that can be obtained in the result of the following activities prescribed by the law of the Republic of Armenia – donor organizations or beneficiary contributions, services, leasing contracts, use of natural resources and so on.

4) Development and introduction of communication, educational and public awareness programs. Implementation of activities contributing to public awareness raising is invaluable in SPNA efficient management. In order to raise public awareness on SPNA significance of primary importance is the assessment of needs of different layers of society. This will enable to organize public awareness raising services, prepare necessary informative materials, made up community-awareness raising programs. Their implementation will facilitate the involvement of representatives of different social groups to decision making on SPNAs and their implementation processes. It is necessary to activate the preparation and update of websites of SPNAs, as well as mass media activities related to the presentation of SPNA issues, their solution ways, global significance to public. The above mentioned activities based on mutually agreed and sustainably financed project that should include the following issues:

a. provision of knowledge on the purpose, values of SPNAs, benefits and services received from ecosystems, including classification, categories, accessible explanations of terms and phrases;

b. community participation forms in the conservation, use and ecotourism development processes of SPNAs;

c. active participation forms of all stakeholders in communication, including webpage availability, information dissemination and SPNA management processes;

d. preparation, publication and distribution of brief descriptions, photos, maps, multilingual information printed materials on SPNAs;

e. organizations of competitions between journalists for the preparation of best articles, TV shows, video films on SPNAs.

5) Possibilities of applying new SPNA management models. Relationship between communities and SPNAs is among environmental challenges which are related to the provision of compromise between resources of common use and rights and needs of an individual. Working program of protected areas emphasizes the expansion of SPNA management models and mechanisms. At present other models of SPNA efficient management are widespread-joint or cooperative management or managed purely by the community. Specificities and introduction opportunities of those models for Armenia are stipulated in “Methodological guideline on the introduction of management models of

pecially protected nature areas of the Republic of Armenia” approved by the decree № 195-A dated August 30, 2013 of the Minister of Nature Protection.

6) Management of nature monuments. Management mechanisms of nature monuments should be based on private planning, on ensuring balance and achieving agreement between conservation needs of the given monument and ensuring people's livelihood in case of which the following factors are taken into account:

a. typological group of natural monuments-geological, hydro-geological, hydrographic, historical, biological;

b. location, geographic position of natural monuments - for example state reserves, proximity to state reserve borders or communities, and a number of monument groups situated not far from each other;

c. the area occupied by the monument of nature-less activities will be required for the management of nature monuments occupying small area (for example - separate age-old tree);

d. the area occupied by the monument of nature as a place of recreation or tourism;

e. existence of historical and cultural monuments close to monument of nature.

The valuation of above mentioned activities will serve as a basis for the development of passports for each monument of nature in the absence of which stakeholders can have only a superficial understanding of the nature monuments. In this view nature monuments can be divided into the following two groups: monuments of nature requiring active management measures during which hazards expected from anthropogenic impacts on monuments of nature are essential and monuments of nature requiring passive management measures during which monuments of nature are located in places difficult to assess and are free from anthropogenic influence.

7) Structural improvements. Generally important step towards the improvement of SPNA management mechanisms can be the reorganization and review of competences of SPNA management department of Bioresources management agency of the Ministry of Nature Protection. There is a need of fundamental changes as in terms of competences and human resources (7 positions) this department cannot efficiently manage SPNA system of Armenia. In different countries specially protected nature areas are governed by separate agencies or departments where departments of zoology and biology, ecotourism, monitoring implementation, cadastre and other operate.

It would be advisable to establish new department of sanctuaries in “Hayantar” SNCO (Armforest) of the Ministry of Agriculture of the RA which would enable to implement relevant activities defined by legislation in 13 sanctuaries under the jurisdiction of SNCO.

19. The expansion of researches and introduction of monitoring system in SPNAs.

1) The guarantee of effective implementation of SPNA state policy is to be scientifically justified. The discovery of the causes of environmental problems and assessment, scientific research results aimed at their efficient solution are important prerequisites that

are the basis of activities aimed at the prevention or mitigation of adverse effects on SPNAs: Thematic scientific studies of the given SPNA as a an environmental structure should be aimed at the solution of practical problems that are related to the conservation and restoration of ecosystems and their components, provision of ES, implementation of ecological monitoring. Depending on the specific problems of the given SPNA priority research topics should be identified and effective mechanisms for the application of research results should be developed. For this purpose the scope of research should include development and improvement of mechanisms on environmental monitoring methods, the normalization of allowable impacts on natural systems and objects, determination of permissible limits of nature use (for national parks and sanctuaries), valuation of benefits received from ES, identification and assessment of adverse trends and their causes in natural systems, as well as prediction of the effects, improvement of technologies on the conservation and restoration of natural systems, study of rare and endangered species, ecological features of co-existences and ecosystems, scientific substantiation of ecological tourism organization. In the result of execution of the studies listed practical recommendations contributing to the solution of key problems or the improvement of conservation measures at different levels to be given to all stakeholders and to ensure management improvement. Moreover the results obtained should be used in the development of management plans, planning of environmental events, covering of environmental topics, tourism and recreation, as well as for the sound use of bioresources in SPNAs and their buffer zones and for the assessment of implemented economic impact. Naturally such complex scientific studies require significant capital investments, introduction of advanced technologies, methods, and techniques.

In SPNAs scientific research activities are closely related to the implementation of biodiversity monitoring activities. It is an integrated part of SPNA management planning and is aimed at the prevention and mitigation of negative impacts on ecosystems and their components. The introduction of biodiversity monitoring system will enable to predict the developments of processes resulting from natural and anthropogenic impacts and contribute to conservation improvement of landscapes, natural environments and species in SPNAs through the intervention of necessary management processes, as well to the dissemination of knowledge Armenia's nature. The introduction of biodiversity monitoring is a multistage process the main phases of which are:

a. Analyses of key issues. The major hazards threatening to each SPNA should be clearly defined and evaluated which will contribute to the right formation of needs and management issues, implementation of new or additional studies.

b. Determination of the purpose and issues of monitoring. During monitoring information gathering is carried out in accordance with defined goals and issues, the quality of the collected material of which depends on their clear formulation. Objectives should be realistic and accessible within a reasonable time, while the parameters defining them should be measured quantitatively. The choice of monitoring type and its frequency should proceed from the management priority issues, hazards and risk analysis, main target significance.

c. Selection of standards and methods. Determination of species, populations and individual components of ecosystems and prediction of change is directly related to the detailed development and use of standards system. Selected “targeted” species are monitored for their special importance for SPNAs. SPNA management plan execution, natural phenomena (forest fires, landslides, etc.), anthropogenic hazards and impacts caused by ecotourism, illegal natural use are monitored for determining SPNA management efficient evaluation, the condition of natural environment, the degree of anthropogenic influence.

d. Implementation of monitoring, data collection and analyses. Monitoring methodology should ensure accuracy of monitoring and measurements, comparability and unity of data processing and submission formats. From this perspective the key task is to ensure data collection, processing, analysis, conservation system of sustainable financing and constantly operating. Required scientific-technical and technological base should meet the level of development and trends of information technologies.

e. Provision of data for decision-making. Monitoring project can be ineffective if it not done in due time or collected data are not used in decision making process. Centralized management and coordination of the entities involved in monitoring are considered as main preconditions of monitoring implementation effectiveness. Here definition of mutual relationship and scope of clear responsibilities between specialized organizations, governing agencies and decision-making responsible, as well as financial and technological cooperation is significant.

20. Professional development of staff.

SPNAs as “stability zones” may also turn to regional centers for sustainable development. To achieve this of special significance is the professional qualification of staff of organizations implementing SPNA management. In the result of professional, technical, economic and communication personnel improvement, the staff will more efficiently carry out functions aimed at awareness raising on the conservation of objects of flora and fauna, historical-cultural monuments, studies, regulated tourism, including ecotourism organization, public awareness raising, provision of cooperation with SPNA adjacent communities and other managerial issues. Professional qualification is needed not only for young staff but also for persons with long working experience in SPNAs. As a result SPNA specialists will acquire skills to harmonize economic, social and ecological sectors of public life and would be able to apply that knowledge in establishing relations with businessmen, tourists, locals and other stakeholders. It is noteworthy that organizations implementing SPNA management are not included in civil service system in the result of which professional qualification development processes of staff in most cases are implemented within international projects which are not ongoing. Development and implementation of professional qualification projects will enable SPNA staff systematically and regularly undergo trainings. In the result the difference between the knowledge and capacities of civil servants involved in state managerial system and SPNA staff will decrease to minimal which will lead to the improvement of overall management of SPNAs.

21. Areas to be included in SPNA system. Current territory of SPNAs for such a country like Armenia rich in biological and landscape diversity and with active anthropogenic influence on natural ecosystems is strongly insufficient. Strategic issues of biological and landscape diversity sufficient representativeness of Armenia's SPNA system are as follows:

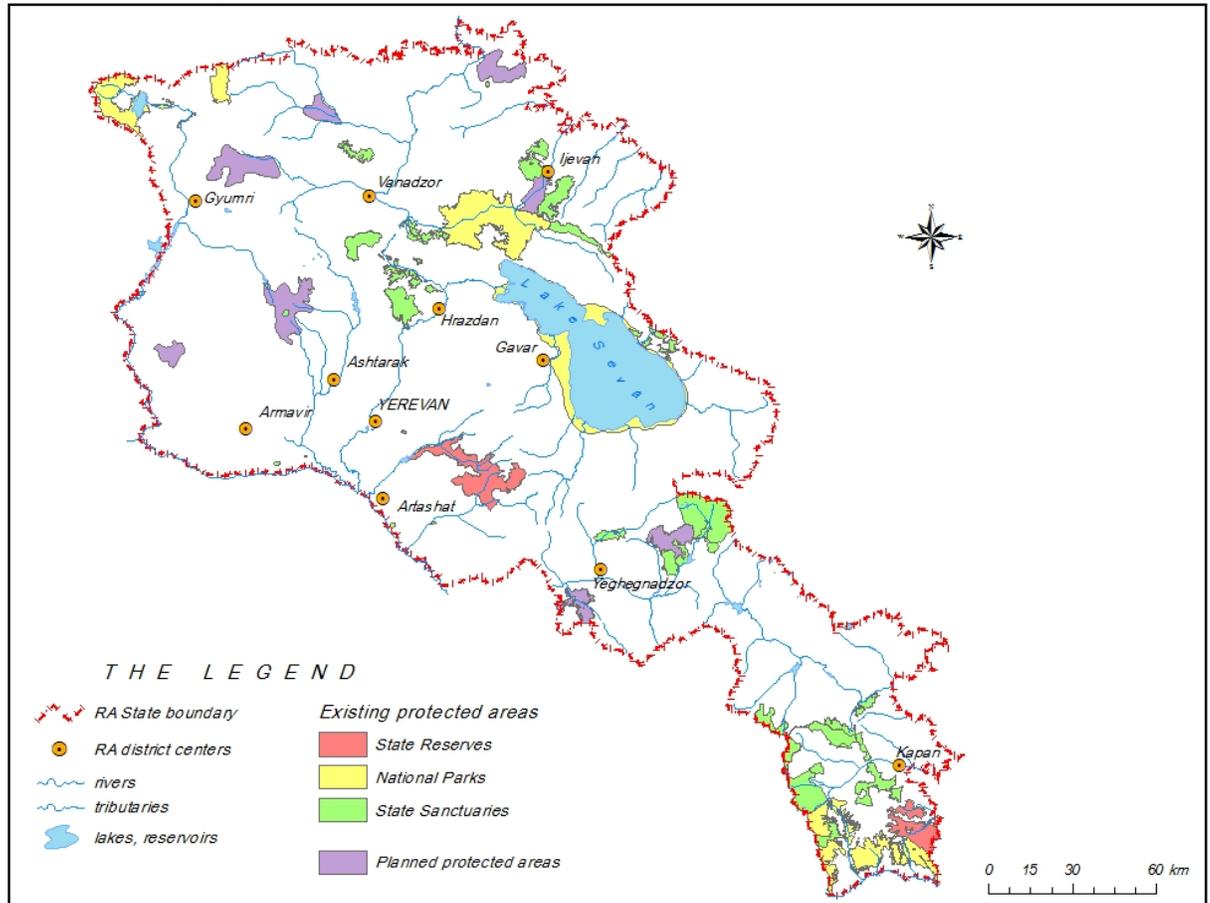
1) **SPNA border review and fragmentation removal.** Main basic principles of SPNA planning are conditioned by ecosystem integrity, goods and ES provided by them, as well as by the factors of economic activity regulation impacts (including climate change) carried out by humans and mitigation necessity/inevitability. Main directions for the implementation of that objective are:

- a. reveal key problems related to SPNA spatial distribution and border fragmentation;
- b. develop system expansion and ecosystem representativeness provisional projects.

2) **Maximum inclusion of flora and fauna species registered in the Red Data Book of Armenia in SPNA system.** Taking into account current biodiversity representativeness in SPNA system of Armenia and habitats of species out of SPNA system registered in the Red Book of Armenia, a number of areas with dense area of distribution and rich biodiversity are singled out that are appropriate to be included in SPNA system in the future (Pic. 1). It's noteworthy that such accumulations were found in such sites of the Republic where there are no SPNAs making the necessity of their establishment more actual. Species, one of the populations of which is situated in the area of any SPNA, having relatively large area of distribution are not included in this analysis. In the future the existence of Armenia's SPNA system given in picture 1 will not only ensure maximum inclusion of species registered in the Red Book of Armenia and ecosystem integrity in SPNA system but will lay the groundwork for the establishment of national ecological network.

3) **Implementation of current projects on SPNA establishment.** It's worth mentioning that during 2004-2005 mid-term expenditure project on the establishment of "Jermuk" national park was implemented by the allocations from state budget. Later WWF Armenia office conducted additional studies in the result of which the creation of "Jermuk" national park was once again substantiated. "Open forest of Herher", "Jermuk forest" and "Jermuk hydrological" sanctuaries will be united by the establishment of "Jeremuk" national park. This will ensure ecosystem integrity conservation and support economic development of communities located in the buffer zone of national park, promote tourism development and raise living standards of population.

Map-scheme of existing and planned protected areas of RA



Picture 1.

Besides based on the studies conducted by WWF Armenia office it is also necessary to establish “Ijevan forest” sanctuary by the unity of “Gandzaqar”, “Hazel” and “Ijevan” sanctuaries ensuring the integrity of ecosystems. It should also be noted that under Bern Convention residual lakes of RA Lori marz were distinguished within the project on the establishment of “Emerald” network in Armenia. This enables to establish “Lori Lakes” protected landscape in the future.

4) **Provision of sufficient landscape representativeness in SPNA system.** Semidesert, steppe, high mountain (alpine and subalpine) and over humid landscapes are insufficiently represented in SPNA system of Armenia. From this perspective areas occupied by new SPNAs as shown in the picture 1 are almost entirely allocated to these landscapes. Thus by solving the 1st strategic issue of biodiversity sufficient representativeness in SPNA system landscape diversity provision issue is solved as well.

5) **Climate change factor role in the process of new SPNA establishment.** As the global climate warming creates new challenges in terms of conservation of biodiversity and ecosystems, the role of SPNAs sharply rises and there rises a necessity to consider climate change factor during the establishment of new SPNAs or during the review of their borders.

According to “The Second National Communication on Climate Change” it is necessary to carry out proper zoning of SPNAs to resist climate changes and to ensure biodiversity conservation in SPNAs by shifting of the zones upwards on mountain slopes by 200-250 m analyzing current or predictable degree of vulnerability of landscapes and ecosystems (species, coexistences), outcomes and areas of special protection (areal) in case of possible climate change scenarios.

6) Ways of new SPNA establishment. For the solution of above mentioned issues it is necessary to develop and to carry out a project on the establishment of new SPNAs, as well as on the expansion of borders of existing SPNAs. To develop and do this it is necessary to clearly define grounds for the development of new SPNAs and for the review and expansion of borders of existing SPNAs, financial mechanisms addressed to management and community participation mechanisms in the management processes. The following may be considered as risk factors for those processes:

a. lands under the jurisdiction of different departments in the areas planned for SPNAs;

b. lack of interest on the creation of new SPNAs on community lands (socio-economic issues are more important and have priority over environmental issues, which hampers SPNA regime maintenance and establishment of new SPNAs);

c. the issue of category change of lands belonging to other owners (there is a need of relevant compensation if it is taken of state needs or community council decision to donate to the Republic of Armenia);

d. the issue of border coordination of newly established SPNAs with other land owners;

e. low awareness of communities on the importance and possible benefits of SPNAs (financial and non-financial) and consequently difficulty of providing community land.

22. Establishment of national ecological network and development

1) On the basis of above mentioned principles the establishment of new SPNAs and expansion of borders of already existing SPNAs will significantly contribute to the establishment national ecological network which will be based on the principles of landscape planning. Besides the actual problem is not to focus on the establishment of traditional SPNAs but to improve management of existing areas, initiate the merging of existing and planned SPNAs in one ecological network for the implementation of which it is necessary to develop the project “Strategy and action plan on the establishment of national ecological network”. The necessity of establishing national ecological network in Armenia is conditioned the following circumstances:

a. In practice it is almost impossible to separate SPNAs with such wide areas in the territory of which it will be possible to conserve all species;

b. SPNAs isolated from each other do not provide full biodiversity conservation, migration of species and exchange of genetic resources;

c. Administrative borders of SPNAs often do not comprise full areal of species.

2) Goal 1.1 “To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals” of Programme of work of “the Convention on Biological diversity”, a number of specific actions refer to “areas of natural habitats” connecting SPNA i.e. ecological corridors, that serve as stopping and resting sites for migratory species. The existence of ecological network ensures natural conservation of genetic diversity of all types of living organisms in ecosystems and natural complexes, as well as long-term development of adjacent territories and provision of favorable living conditions for the population.

3) Change of land ownership of ecological corridors included in ecological network is not intended therefore it is necessary to actively engage the owners of those lands in ecological network management processes for their efficient management. It is obvious that during the design, establishment, management, conservation organization and use of ecological network and its components in Armenia it is necessary to provide development compliance of ecological network to social-economic development of the region, as well as to show differentiated approach to (legislative, institutional) functional elements of ecological network taking into account spatial distribution and protection regime compliance with natural and social-economic particularities. It is worth mentioning that “Emerald network” is being established in Armenia 8 of 12 sites included in which are in the system of SPNA of Armenia (“Khosrov forest” state reserve, “Sevan”, “Dilijan”, “Lake Arpi” national parks, “Khor Virap”, “Plane grove”, “Aragats alpine”, “Ijevan” sanctuaries). The establishment of “Emerald network” is one the important steps towards the implementation of provisions of the Convention “On biological diversity” and is considered as a precedent towards the establishment of “Ecological network” in Armenia and towards joining international ecological networks in this case to Pan-European Ecological Network (PEEN). “Khosrov forest” state reserve after being awarded to European Diploma of Protected Areas is already considered as PEEN core area, whereas the rest 11 sites of “Emerald network” after being discussed at Standing Committee of the Convention, in accordance with the established procedure, will officially be accepted as sites of “Emerald network” of Armenia, consequently as PEEN core areas.

4) For the clarification of the above mentioned issues of great importance is the project “Promotion of eco-corridors in Southern Caucasus” the objective of which is to create favorable environment in the Caucasus region (Armenia, Georgia, Azerbaijan) for the establishment of four large ecological corridors. The project ensuring SPNA biological sustainability will allocate financial resources in selected ecological corridors to support ecologically sustainable land use practices. This will contribute to biodiversity conservation in the country without reducing the incomes of rural population. Project indicators are:

a. the population of species in SPNAs connected through selected ecological corridors does not decrease;

b. compared with 2012 the number of cases of conflicts of interest between SPNAs connected through selected ecological corridors and adjacent local self government bodies does not increase;

c. locally elaborated development plans that meet environmentally friendly land use practices are implemented in selected ecological corridors.

5) Within the project framework under WWF “Ecological corridor fund” was established as a tool to promote sustainable use of natural resources in ecological corridors. After the development of main practical capacities ECF will initiate financing of land use planning implementation. Along with other actions the project plans to raise awareness of local population on the value of ES, as well as to build capacities for various levels of ecological corridor management for the introduction of sustainable practice. Main measures are:

a. selection of eco-corridors and detailed mapping of target regions according to standards defined by ECP.

b. development of local land use plans on the basis of participatory approach.

The formation of biosphere reserves (hereinafter BR) may become as an important prerequisite for the establishment of national ecological network in Armenia which serves as one of the efficient ways of solving various environmental and socio-economic issues. The following basic requirements are presented to BR:

a. BR should contribute to overcoming of land use conflicts, biodiversity conservation, ecological education, reveal of practical methods for the development of recreation and tourism in order to efficiently solve problems of conservation and sustainability;

b. BR ideally consist of central zone (core areas are securely protected sites where limited human activity is allowed), buffer zones (this surrounds the core area and is used for co-operative activities which do not damage the ecology of the area) and transition areas (external auxiliary area, where local communities are encouraged to sustainable use of natural resources);

c. BR may include SPNAs of various categories (reserve, national park, sanctuary, natural monument and so on), as well as internationally recognized areas (of which are World Heritage Sites or Ramsar Wetlands and sites included in “Emerald Network”) and watersheds of special protection;

d. BR should have sufficient area to carry out environmental and support functions;

e. BR may include natural and cultural landscapes, as well as areas exposed to different anthropogenic impacts;

f. BR should provide comprehensive approaches for the management of sites having different environmental values and property forms, which is impossible in case of other types of SPNAs.

6) It becomes clear from the above listed that main functions of BR, aims and objectives of their establishment are consistent with the main approaches of ecological network creation, while structural elements also have certain similarity. In this view the following may be considered as potential sites of BR in Armenia:

a. “Shikahogh” state reserve, its buffer zone and adjacent areas which include “Plane groove”, “Zangezour” and “Khustup” sanctuaries. Mentioned sites may be combined in one

system through relevant ecological corridors. It is noteworthy that this area is distinguished by its unique forest landscape, nature, cultural and historical monuments;

b. “Sevan” national park and its buffer zone areas. Here the prerequisites for creating BR are as follows- altitudinal zone, existence of about 1489 natural and cultural monuments which are considered as tourism, recreation and ecotourism powerful resources, water catchment basin of Lake Sevan with its unique natural ecosystems;

c. Aragats mountain mass the prerequisites of which are- unique orography (isolation from Caucasus Minor and mountain chains of Armenian volcanic plateau), clearly expressed altitudinal zone, the existence of “Aragats alpine” state sanctuary, a number of natural objects and complexes (glaciers, lakes of glacial origin, unique cirque glaciers, waterfalls, freshwater and mineral springs, volcanic formations, lava flows, caves, mass of stones and so on), historical and cultural monuments(cyclopean castles, medieval churches, tombs, etc.).

7) As ecological networks are considered large part of social and ecological landscape their creation and regular operation is closely related to adjacent land and water areas and habitats of locals. Authorities who are in charge of ecological network management are obliged to carry out their management in such a way as not to restrict locals’ rights, local population should contribute to the conservation of ecological network, it must have a guaranteed income received from ecologically sustainable use of resources.

23. Development of international cooperation.

1) In the last decade Armenia has effectively promoted international cooperation in SPNA sphere and currently all prerequisites for further development are available. In particular, the following areas of development for international cooperation can be prescribed which will enable further integration of Armenia to international processes. They are:

a. expand transboundary cooperation through the establishment of new SPNAs, ecological corridors and regional ecological network;

b. engage staff conducting SPNA management in international scientific and environmental processes.

24. SPNA strategy priorities.

1) Given Armenia’s SPNA strategy goals and objectives, as well as analyses carried out in this document the following can be considered as strategic priorities of SPNA development and:

a. improvement of legislation on SPNAs;

b. improvement of SPNA management and strengthening of institutional links;

c. provision of biological and landscape diversity representativeness in SPNA system.

V. 2014-2020 STATE PROGRAM ON THE CONSERVATION AND USE OF ARMENIA’S SPNAs

25. The objective of state program. The objective of 2014-2020 state budget program on the conservation and use of Armenia's SPNAs is to ensure the definition of realistic activities ensuring the implementation of Armenia's SPNA strategic priority development and definition of reasonable deadlines for their implementation.

26. State program content. "Strategic plan for the conservation and sustainable use of biodiversity" approved by COP 10 to the convention "On Biological diversity", "The Strategic Plan for Biodiversity (2011-2020) and the Aichi Biodiversity Targets", as well as "The Programme of Work on Protected Areas" served as a basis for the development of this program (Annex 2). Given project includes 3 groups of measures that are consistent with the above mentioned SPNA strategic priorities of development. Each activity has its purposes, performers, deadlines, financial source and expected outcome.

27. Funding sources for state program implementation.

- 1) Funding sources for Armenia's SPNA state program implementation can be:
 - a. state and community budgets of RA;
 - b. RA state budget transfers to organizations implementing Armenia's SPNA conservation and payments for the implementation measures and various services by the organizations, sponsorship, charitable, as well as other revenues not contradicting to the legislation of RA;
 - c. investments by businessmen, foundations, non-governmental and other organizations at national level;
 - d. international sources.
- 2) Project implementation can be organized both by above mentioned separate financial sources, and by their combination.

28. Expected outcomes from state budget implementation.

- 1) Expected outcomes from the implementation of 2014-2020 Armenia's SPNA state program globally refer to:
 - a. SPNA management efficiency raising;
 - b. provision of biodiversity and landscape representativeness in SPNA system;
 - c. establishment of National ecological network.

29. State program implementation risks. The efficiency of Armenia's SPNA state program is conditioned by the mitigation or prevention of a number of risk factors. Risk factors, their possible consequences and necessary operations towards their prevention are given in Table 6.

Table 6

Project implementation risk factors, consequences and necessary operation towards their mitigation or prevention

N	Risks	Consequence	Mitigation or prevention activities	Responsible for the activity
1.	Lack of funding	The program is not being implemented	a/ Planning of appropriate costs in state budget. b/ Implementation of negotiation processes with donor organizations.	Ministry of Nature Protection of RA, Ministry of Finance of RA, SNCOs implementing SPNA conservation (to be agreed)
2.	Lack of stakeholder awareness on national action plan	Failure of SPNA participatory management process organization	Awareness activities on the objectives, envisaged measures, expected outcomes of national action plan	Ministry of Nature Protection of RA, SNCOs implementing SPNA conservation (by consent), Mass Media (by consent), Environmental law research center of Yerevan State University (to be agreed).
3.	Stakeholder indifference or weak engagement in project implementation processes.	The program does not serve its purposes	Explanatory and awareness activities on SPNA value system and socio-economic significance.	Ministry of Nature Protection of RA. SNCOs implementing SPNA conservation (to be agreed)
4.	Delays of draft legal act development, discussions and adoption processes specified in the program	SPNA development and efficient management process is being hindered	Definition of responsible for the development of legal acts and discussions and formation of schedule	Ministry of Nature Protection of RA, Environmental law research center of Yerevan State University (to be agreed).

30. Implementation of state program monitoring and assessment.

1) The objective of national action plan monitoring implementation and assessment of Armenia’s SPNAs is to ensure its efficient implementation within the stipulated time. This will enable to learn lessons from the implementation operation results and in case of necessity make relevant changes and amendments in the project, ensure objectiveness, transparency and corporate responsibility of appropriate processes. Annually all the activities/operations implemented with the Project are subject to monitoring. From this perspective, the following serve as monitoring standards:

- a.** scheduled term for the implementation of each action;
- b.** action implementation process compliance to action purposes;
- c.** the cost of funds allocated annually for the implementation of each activity;

d. Reports on the implementation of each activity submitted in due time and format;
e. level of stakeholder involvement in implemented activities and the amount of done work.

2) Project implementation monitoring and evaluation is implemented by the Coordinating Committee of SPNAs of RA to be established in the Ministry of Nature Protection.

**MINISTER-CHIEF OF
THE RA GOVERNMENT STAFF**

D. HARUTYUNYAN

MEASURES ON 2014-2020 STATE PROGRAM ON THE CONSERVATION AND USE OF SPECIALLY PROTECTED NATURE AREAS OF ARMENIA

N	Name of the activity	Objective	Executor	Execution period	Funding	Expected outcome
1. Improvement of legislation						
1.1	Development of legal acts “On Making Amendments and Additions in RA law on Specially Protected Nature Areas” and submission to RA Government	Provision of Law application	RA Ministries of Nature Protection, Territorial Administration, Agriculture, Local self-government bodies (by consent), Environmental law research center of Yerevan State University (to be agreed).	2015-2018	RA state budget and other sources not prohibited by RA law	Legislation improved
1.2	Review and approval of charters of organizations implementing SPNA management	Compliance to new RA Law on “Specially Protected Nature Areas”	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed)	2014-2016	RA state budget and other sources not prohibited by RA law	SPNA conservation, scientific activities and monitoring implementation, relations with stakeholders are regulated
1.3	Review of “Methodological guidelines on SPNA management plan establishment” approved by the Order № 364-A of the Minister of Nature Protection	Clarify the content of management plans to be submitted to RA Government	Ministry of Nature Protection	2014-2015	RA state budget and other sources not prohibited by RA law	Preparation of management plans is implemented in a short period of time and is less costly

1.4	Development/review and approval of management plans of reserves and national parks	Improved functioning of reserves, national parks	RA Ministry of Nature Protection, SNCOs implementing reserve and national park management (to be agreed)	2014-2018	Other sources not prohibited by RA law	Management process of reserves and national parks and relations with adjacent communities are regulated
1.5	Development and approval of management plans of sanctuaries	Improved functioning of sanctuaries	RA Ministries of Nature Protection, Agriculture,	2015-2017	Other sources not prohibited by RA law	Sanctuaries have management plans
1.6	Approval of passports of monuments of nature of RA Lori and Tavush marzes	Improved management of monuments of nature	Ministry of Nature Protection of RA	2015	RA state budget and other sources not prohibited by RA law	Monuments of nature are being managed
1.7	Development of legal acts on the establishment, expansion of SPNAs and on incentives and compensation related to use of buffer zones	Mitigation of conflicts and SPNA efficient management	RA Ministries of Nature Protection, Agriculture, Local self-government bodies (by consent), Environmental law research center of Yerevan State University (to be agreed).	2015-2017	RA state budget and other sources not prohibited by RA law	Incentive and compensation mechanisms are embedded
1.8	Development of legal act on the introduction of twenty-four hour control in SPNAs	Implementation of offenses prevention and protection during the night time	RA Ministries of Nature Protection, Agriculture	2015-2017	RA state budget and other sources not prohibited by RA law	Twenty-four hour control system embedded in SPNAs
1.9	Definition of additional salary of SPNA staff implementing protection service and definition of incentive standards.	Specification of duties of SPNA staff and provision of incentives	RA Ministries of Nature Protection, Agriculture	2015-2017	RA state budget and other sources not prohibited by RA law	SPNA conservation efficiency raised
1.10	Specification and introduction of separation standards of SPNA protected sites.	Provision of conservation effectiveness by a single person implementing conservation	RA Ministries of Nature Protection, Agriculture	2015-2017	RA state budget and other sources not prohibited by RA law	SPNA conservation effectiveness raised

1.11	Definition and introduction of standards on the equitable distribution of benefits received from	SPNA integration in socio-economic programs of communities	RA Ministries of Nature Protection, Territorial administrataion, Local Self-Governmnt (to be agreed).	2015-2017	RA state budget and other sources not prohibited by RA law	Mitigation of conflicts between SPNAs and adjacent communities
2. Management system improvement						
2.1	Establishment of Coordinating Committee contributing to SPNA management in the Ministry of Nature Protection	SPNA activity coordination and implementation of joint policy	RA Ministries of Nature Protection, Territorial administrataion, Agriculture, Finance	2014-2015	RA state budget and other sources not prohibited by RA law	Efficiency of decrees adopted on SPNAs is high
2.2	Review of competences of SPNA department of Bioresources management agency of the Ministry of Nature Protection, development of recommendations on capacity strengthening and reorganization	Improvement of SPNA management mechanisms	Ministry of Nature Protection of RA	2014-2015	RA state budget and other sources not prohibited by RA law	SPNA management is systemized
2.3	Establishment of new department of sanctuary management in “Hayantar” SNCO(Armaforest) of the Ministry of Nature Protection	Improvement of management mechanisms of 13 sancturies under the juristicition of SNCO	Ministry of Agriculture of RA	2014-2015	RA state budget and other sources not prohibited by RA law	Sanctuary management is consistent with the RA Legislation
2.4	Choosing of priority research topics on SPNAs and implementation	Provision of natural resource conservation and efficient use in SPNAs	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed), RA NAS(to be agreed), Environmental law research center of Yerevan State University (to be agreed).	2014-2020	RA state budget and other sources not prohibited by RA law	Scientific research results are used in making managerial decisions

2.5	Introduction and implementation of monitoring system in SPNAs	SPNA management efficiency raising	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed)	2014-2020	Other sources not prohibited by RA law	SPNA management efficiency raised
2.6	Establishment of cadastre in SPNAs and provision of its management works	Creation of data bank in SPNAs	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed)	2014-2020	Other sources not prohibited by RA law	Data on SPNA is systemized, are periodically collected and analyzed
2.7	Tourism implementation capacity strengthening in SPNAs	Tourism regulation and establishment of infrastructures	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed)	2014-2020	Other sources not prohibited by RA law	In SPNAs tourism is regulated, infrastructures established
2.8	Development and implementation of staff qualification training programs of organizations implementing SPNA management	Increasing the level of professional qualification of staff	RA Ministries of Nature Protection, Agriculture, Environmental law research center of Yerevan State University (to be agreed).	2014-2020	Other sources not prohibited by RA law	SPNA management efficiency raised
2.9	Development and implementation of public awareness raising and environmental education program on SPNAs	Public awareness raising and Activation of participatory management process	RA Ministries of Nature Protection, Agriculture,	2014-2020	Other sources not prohibited by RA law	SPNA management efficiency raised
2.10	Valuation of benefits received from ecosystem services in SPNAs, awareness raising on them among local population	Provision of SPNA operation through nature use improvement mechanisms in SPNAs	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed)	2015-2017	Other sources not prohibited by RA law	Ecosystem services are economically valued in SPNAs
2.11	Technical capacity strengthening of SPNAs	SPNA management efficiency raising	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed)	2014-2020	Other sources not prohibited by RA law	SPNA technical reequipment is sufficient

2.12	Development and implementation of pilot projects on community managed SPNA establishment	Introduction of SPNA community-managed models	Ministry of Nature Protection of RA, Local Self-Government bodies (to be agreed)	2014-2020	Other sources not prohibited by RA law	Community-managed models are tested
2.13	Reveal of community participaton forms in SPNA conservation, use and ecotourism development	Enhancement of the role of communities and expansion of possibilities of receiving alternative income	RA Ministries of Nature Protection, Agriculture, Local Self-Government bodies (to be agreed), Local NGOs(to be agreed)	2016-2017	Other sources not prohibited by RA law	Preconditions have been created for the increase of income of locals
2.14	Development and application of monitoring and evaluation programs for assessing SPNA governance and management effectiveness	Evaluation of activity and charter function implementation given in management plans	RA Ministries of Nature Protection, Agriculture	2015-2020	Other sources not prohibited by RA law	Provision of SPNA efficient management, review of governance and management gaps
3. SPNA system development						
3.1	Development of project on the establishment of new SPNAs, border review of existing SPNAs	Provision of biological and landscape diversity representativeness in SPNAs	RA Ministries of Nature Protection, Agriculture, SNCOs implementing SPNA management (to be agreed) Local NGOs(to be agreed)	2014-2020	RA state budget and other sources not prohibited by RA law	Preconditions created for the provision of biological and landscape diversity representativeness in SPNAs
3.2	Establishment of “Jeremuk” national park	Ecosystem integrity conservation	Ministry of Nature Protection of RA, RA NAS(to be agreed) WWF Armenia office(to be agreed)	2017-2020	RA state budget and other sources not prohibited by RA law	Ecosystem integrity conservation ensured
3.3	Establishmmt of “Ijevan forest” sanctuary	Ecosystem integrity conservation	RA Ministries of Nature Protection, Agriculture, RA NAS(to be agreed)	2015-2020	RA state budget and other sources not prohibited by RA law	Ecosystem integrity conservation

			WWF Armenia office(to be agreed)			ensured
3.4	Establishment of “Lori lakes” protected landscape	Fulfillment of commitments under EC Bern convention and ecosystem integrity conservation	Ministry of Nature Protection of RA Local Self-Government bodies (to be agreed)	2015-2016	RA state budget and other sources not prohibited by RA law	Ecosystem integrity conservation ensured
3.5	Development and implementation of the project “On the replenishment of approved list of nature monuments, justification of buffer zone areas, land demarcation and mapping works in the areas of RA Aragatsotn, Ararat, Gegharkunik, Kotayq, Armavir, Vayots Dzor, Syunik, Shirak marzes and Yerevan city”	Replenishment of the list of monuments of nature and management improvement	Ministry of Nature Protection of RA, Local Self-Government bodies (to be agreed) RA NAS (to be agreed)	2014-2020	RA state budget and other sources not prohibited by RA law	The list of monuments of nature replenished, passports approved
3.6	Development of actions plan on the establishment of “National ecological network”	Provision of ecological connectivity of ecosystems	Ministry of Nature Protection of RA, SNCO implementing SPNA management(to be agreed), Local Self-Government bodies (to be agreed), WWF Armenia office(to be agreed)	2014-2020	RA state budget and other sources not prohibited by RA law	RA Government has approved “ Concept, schematic map, and Action Plan on the creation of National Ecological Network”
3.7	Development of project “On the establishment of biosphere reserve in Armenia”	Solution of environmental and socio-economic issues	Ministry of Nature Protection of RA, SNCO implementing SPNA management(to be agreed), Local Self-Government	2014-2020	RA state budget and other sources not prohibited by RA law	There are preconditions for the establishment of biosphere reserves

			bodies (to be agreed), International and public organizations (to be agreed),			
3.8	<p>Reveal of possible impacts of climate change and desertification (especially due to mining industry) on ecosystems and ES in SPNAs and development and implementation of action plan aimed at mitigation of its effects</p> <p>ԲՀՊՏ-ների Էկոհամակարգերի և ԷԾ- ների վրա կլիմայի փոփոխության և անապատացման (հատկապես՝ լեռնահանքային արդյունաբերությամբ պայմանավորված) հնարավոր ազդեցության բացահայտում և դրա հետևանքների մեղմացմանն ուղղված գործողությունների ծրագրի մշակում և իրականացում</p>	Creation of conditions for adaptive mechanism strengthening and mitigation of effects of landscapes and their components towards climate change	<p>RA Ministries of Nature Protection, Agriculture, Territorial Administration, Health, Local Self-Government bodies (to be agreed), RA NAS(to be agreed), International and public organizations (to be agreed)</p>	2015-2020	RA state budget and other sources not prohibited by RA law	Areas vulnerable towards climate change revealed in SPNAs
3.9	<p>Reveal of hazards threatening to SPNA system development in strategies of different sectors, projects, plans and development of action plan aimed at their mitigation</p>	Elimination / reduction of barrier factors hindering SPNA creation, border changing and efficient operation	<p>RA Ministries of Nature Protection, Agriculture, Environmental law research center of Yerevan State University (to be agreed).</p>	2015-2017	RA state budget and other sources not prohibited by RA law	Hazards threatening to SPNAs decreased

**MINISTER-CHIEF OF STAFF,
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