



Promoting cooperation in nature conservation

Recommendatory Guidelines on Development of Management Plans for the RA Specially Protected Nature Areas

*The guidelines are envisaged to support development of management plans for the RA
specially protected nature areas*

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CONTENTS

Introduction	1
Chapter 1. General information	2
1.1 RA Specially Protected Nature Areas	2
1.2 Legal Regulation of SPNA's Management Planning	2
1.3 Main Approaches of IUCN Guidelines	3
Chapter 2. Development and Implementation of Management Plans	5
2.1 Requirements for Management Plan Development	5
2.2 Objectives of Management Plans	5
2.3 Organization of the Management Planning Process	6
2.4 Development of Draft Management Plan	7
2.5 Consultation and Approval of the Management Plan	12
2.6 Implementation of the Management Plan	12
2.7 Monitoring and Assessment of the Management Plan	13
2.8 Revision of the Management Plan	13
Chapter 3. Management Work Programs	14
3.1 Programs to be Included in the Management Plans	14
3.2 Operational Plan of Management	14
3.3 Conservation Program	16
3.4 Monitoring Program	18
3.5 Program of Scientific Research	21
3.6 Ecoeducation and Awareness Program	23
3.7 Ecotourism and Visitor's Program	25
3.8 Zoning Plan	28
3.9 Action Plan	31
References	32
Appendix 1. Management of Specially Protected Nature Areas	33
Appendix 2. Planning of Internationally Recognized Areas	38

ACRONYMS AND ABBREVIATIONS

BM	Biodiversity Monitoring
BMA	Bioresources Management Agency
EP	Ecotourism Program
IUCN	The World Conservation Union
LSGB	Local Self-Governing Body
MoA	Ministry of Agriculture
MoNP	Ministry of Nature Protection
MoTM	Ministry of Territorial Management
MP	Management Plan
OP	Operational Plan
RA	Republic of Armenia
SNCO	State Non-Commercial Organization
SPNA	Specially Protected Nature Area
SRA	Scientific-Research Activities
TJS	Transboundary Joint Secretariat

Introduction

The strategic objective of the management of specially protected nature areas (SPNA) of Armenia is protection of the landscape and biological diversity of natural complexes. The objectives of the State Strategy on Developing Specially Protected Nature Areas and National Action Plan (2002) are to ensure protection, restoration and sustainable use of the landscape and biological diversity of Armenia, bringing the SPNA's system in line with international agreements, standards and criteria as well as integration of the system with the field of social-economic development.

Modern management plans of SPNAs are crucial for effective implementation of the above-mentioned objectives. During recent years significant progress was registered in the field of SPNAs planning in Armenia. In 2007 the management plans of Sevan and Dilijan National Parks were approved by the RA Government. The management plan of Khosrov Forest State Reserve (was approved by the RA Government in 2009) and draft management plan of Shikahogh State Reserve were developed with financial support of different international organizations and development of the management plan of planned Arevik National Park is in the process. In 2008 the works on inventarization of Natural Monuments of Armenia as well as preparation and approval of their list were finalized.

The experience gained during development of the SPNA's management plans shows that it is necessary to develop guidelines to support management planning with consideration of international experience and national legal framework. For the above mentioned purpose the RA Ministry of Nature Protection approved the initiative to prepare national guidelines for management plan development by the program Transboundary Joint Secretariat (TJS) in the framework of the Caucasus Initiative funded by the KfW German Bank for Reconstruction and Development.

The main aim of the guideline is to present general approaches to support the MP development for SPNAs of Armenia (except nature monuments as their management is determined by their passports). The RA Law on Specially Protected Nature Areas, the Methodological Instructions for Management Planning of the Specially Protected Nature Areas approved by the RA Ministry of Nature Protection, the IUCN Guidelines as well as other documents related to the MPs served as the basis for this guideline.

The guideline is envisaged for the specialists dealing with the issues of SPNA's management, SPNA's planning, use, development and research as well as nature protection and social-economic development. At the same time it can be used for development of the management plans for the SPNA's to be established except those sections of the guidelines, which present planning approaches for the activities implemented in SPNAs in the past or the actions based on the previously implemented activities.

Chapter 1. General Information

1.1 RA Specially Protected Nature Areas

The total territory of the RA specially protected nature areas makes about 309 thousand ha including the surface of Lake Sevan (124.7 thousand ha). The establishment of the SPNA's system started in 1958. It includes the following protected areas:

3 State Reserves - Khosrov Forest, Shikahogh and Erebuni, where human activity is limited only to scientific research, stock-taking, monitoring as well as to limited educational tourism, educational and field studies for educational institutions, haymaking and bee-keeping on the plots allocated for those purposes in order to meet the needs of the state reserve and its staff according to the order established by the authorized state body. The reserves in Armenia mainly correspond to IUCN category I.

25 Sanctuaries – Their establishment started since 1958. On the territory of sanctuaries any activity contradicting the objective of the sanctuary should be limited or prohibited. At present 8 sanctuaries are in the structure of the RA Ministry of Nature Protection; out of them 6 have charters approved by the RA Government. Out of the rest 17 state sanctuaries 14 are in the structure of “Hayantar” SNCO of the RA Ministry of Agriculture and included in forest enterprises (branches). One sanctuary - Aragats Alpine Sanctuary is in the structure of the Institute of Physics of the RA Ministry of Economics. Hankavan Hydrological and Jermuk Hydrological Sanctuaries are located out of administrative borders of communities on the state (reserve) lands. The sanctuaries mainly correspond to IUCN category IV.

3 National Parks – Sevan, Dilijan and Arpi Lake. Sevan national park was established in 1978 with the territory of 147.5 thousand ha, out of which 124.7 thousand ha is the surface of Lake Sevan and 22.7 thousand ha – terrestrial territory. Dilijan national park was established in 2002 on the basis of Dilijan reserve; its territory makes 33.765 thousand ha. Arpi Lake national park was established in 2009; description of its borders and area designation will be done during 2010. The national parks mainly correspond to IUCN category II.

230 Natural Monuments – The list of nature monuments was approved by the RA Governmental decision N 967-N from 14 August 2008; it includes 230 natural monuments. The natural monuments correspond to IUCN category III.

According to the State Strategy on Developing Specially Protected Nature Areas and National Action Plan for 2003-2010 it is envisaged to establish 11 new SPNAs including 1 State Reserve, 2 National Parks, 6 Sanctuaries and 2 Natural Parks (new category of protected areas for Armenia). The programs on establishment of Arevik, Arpi, Jermuk and Lake Arpi National Parks, Vorotan and Kirants Natural Parks as well as Khor Virap Sanctuary were developed by the RA Ministry of Nature Protection.

1.2 Legal Regulation of SPNAs Management Planning

Article 6 of the RA Law on Specially Protected Nature Areas (27.11.2006) defines management plan as an official document, which regulates the activities on development, protection, restoration and use of a given territory, which should include the following:

- a) key information about the SPNA including description of ecosystems and their components (including their resources, state and threats) as well as evaluation of the changes during previous period and development perspectives;

- b) thematic maps and plans on SPNA zoning, borders and biological diversity including distribution of natural resources, land use and others;
- c) social-economic and nature use peculiarities of the SPNA;
- d) ways of stakeholder participation in protection and use of the SPNA;
- e) annual plan and timetable for the activities aimed at prevention and mitigation (elimination) of negative anthropogenic impact on the basis of the monitoring data from the SPNA;
- f) sources of required financing for protection, scientific research and other activities in the SPNA.

By the Law (Article 6) the management plan of the specially protected nature areas should be developed according to methodological instructions approved by the authorized state body. The Methodological Instructions for Management Planning of the Specially Protected Nature Areas was approved by the RA Ministerial Decree (N 364-A, 2008). It defines the order on management plan development for the RA specially protected nature areas. By the Instruction the SPNA management plan is an official document, which regulates implementation of complex activities on protection, restoration, use and development with the activities aimed at the following:

- Research of natural systems and objects and their reliable protection;
- Meeting of the requirements on protection regime defined by legislation;
- Regulation of financial-economic activities and nature use (including in the buffer zone of SPNA);
- Identification of the realistic level and sources of financing;
- Compliance of scientific research with conservation issues;
- Improvement of cooperation between state bodies, local self-governing bodies, scientific and nature protection structures and SPNAs by the order established by the legislation;
- Optimization of administrative-organizational structure and staffing, improvement of professional qualification of the staff;
- Ecological awareness raising and provision of information;
- Protection of historical-cultural heritage;
- Integration of SPNAs with the processes of social-economic development in the region.

1.3 Main Approaches of IUCN Guidelines

The World Conservation Union (IUCN) prepared guidelines on development of protected areas management plans (Guidelines for Management Planning of Protected Areas, IUCN, 2003). By the guidelines the planning process should be finalized with production of a framework document – Management Plan, which should be revised through implementation of activities and continuous monitoring as well as evaluation. In general management plans are result-oriented documents, which define the vision for the area development as well as the mechanisms and activities to achieve it.

MP supports purposeful decision-making based at the process of analysis – objective – implementation – output – assessment – revision. MP is a tool to achieve long-term objectives (vision) starting from the baseline situation. It specifies priorities, objectives, effective

mechanisms to achieve the objectives, complex approaches to overcome obstacles and continuous activities.

The planning process should be based at international commitments by the country as well as requirements of national legislation to ensure analysis and assessment of the features and needs of each protected area, existing human resources and institutional capacities, regional resource use and inter-sectoral relations.

MPs should be developed in accordance with national strategies on SPNAs management. In order to ensure long-term vision for PA development the general direction of applied environmental policy is important. It can be based at different strategic approaches such as confrontation (only protection), compensation (compensation for non-use of resources), compromise (provision of alternative nature use opportunities) or integration.

Development of management plans supports PAs development, improved management and enhanced efficiency through cooperation and understanding between management authorities and other stakeholders. The planning process should be “participatory” and involve those stakeholders which are affected by the management of a given protected area. In order to ensure participatory planning it is necessary to identify the stakeholders of a given SPNA, ensure provision of information and their involvement in planning process, organize meetings, analyze possible conflicts, collect suggestions and inform about the course of planning activities. Wide consultations contribute to identification of conflicts and obstacles and their joint solution as well as to improved cooperation.

Table 1. IUCN Categories of Protected Areas

IUCN Classification	By RA Legislation
IA. STRICT NATURE RESERVE – Nature reserve (undisturbed ecosystems) with strict protection regime, used mainly for scientific purposes.	Reserves
IB. WILDERNESS AREA – Area with strict protection regime, used mainly for wilderness protection.	<i>Absent</i>
II. NATIONAL PARK – National Park – ecosystem protection, tourism.	National Parks
III. NATURAL MONUMENT – Natural Monument – protection of outstanding natural objects (complexes).	Natural Monuments
IV. HABITAT/SPECIES MANAGEMENT AREA - Sanctuary – protection of species and their habitats through active management.	Sanctuaries
V. PROTECTED LANDSCAPE/SEASCAPE – Conservation of landscapes/seascapes, recreation.	<i>Absent</i>
VI. MANAGED RESOURCE PROTECTED AREA - Protected areas of managed resources – sustainable use of resources.	<i>Absent</i>

Chapter 2. Development and Implementation of Management Plans

2.1 Requirements for Management Plan Development

In general the main result of the spacial (including SPNAs) planning is justification of future management decision-making on the basis of reliable data analysis through clear definition of objectives and planning of activities to achieve them. The aim of the SPNAs management planning is to optimize their management system and activities, definition of perspectives for sustainable development, protection of biological and landscape diversity. MPs should be clear, accurate, precise, understandable, accessible (not only for specialists) and supported by logically coherent analytical materials (including tables, schemes, map and description materials) and ensure in practice development of the areas. They should include realistic activities based at analysis of required financial, human and technical resources. The activities aimed at implementation of MP should be logically coherent with the general strategic vision as well as aims and objectives of a given SPNA. The timeframe of their implementation should be clearly defined together with responsibilities, expected outcomes and indicators for performance assessment.

For the management plan development the followings are of crucial importance:

- General strategic vision;
- Legislative requirements;
- Charter and management objectives of the given PA;
- Natural, historical-cultural and social-economic features of the area;
- Financial, human and technical potential of the given PA.

The management plans are subject to periodic revision and adjustment (adaptive plans) to address specific issues of purposeful activities implemented by SPNA, which are the result of legislative, structural, situational or other changes. The MP should be able to respond quickly in terms of revision of previously made decisions.

2.2 Objectives of Management Plans

The features of MPs are conditioned by the aim of SPNA establishment, protection regime, availability of administrative and economic resources and other factors. MPs are mainly aimed at effective management and development of areas with taking into consideration natural-historic and social-economic features of the areas, trends of perspective development, complex approaches for effective and rational use of resources.

The main objectives of SPNAs planning process are as follows:

- Analysis of current state, identification of constraints and threats and their prioritization;
- Clarification of the mechanisms for threat prevention, risk mitigation and problem solution;
- Identification of ways for stakeholder involvement;
- Realistic planning of activities.

The main result of the planning process is the planning of activities, respective decision-making and their implementation on the basis of data collection and analysis. MPs should define realistic, continuous and operative activities aimed at the following:

- Reliable protection of natural complexes and biological diversity;
- Improvement of defined special regime of protection;
- Regulation of economic activities and nature use within the borders of PAs and their buffer zones;
- Link of scientific research with nature protection objectives;
- Protection of historical-cultural heritage;
- Ecological education, upbringing and raised awareness;
- Identification of realistic level and sources of financing;
- Optimization of administrative-organizational structure and work positions;
- Improved professional qualification of PAs staff;
- Integration of PAs with regional processes of social-economic development;
- Improvement of social-economic conditions of adjacent communities;
- Improvement of interrelations between state management and local self-governing bodies, private sector and scientific and non-governmental organizations;
- Provision of transparent decision-making and enhanced public participation in decision-making process.

The activities on MPs development and their further implementation should be implemented in the following sequence:

1. organization of the MP development process;
2. development of the preliminary version/draft;
3. consultation and approval;
4. implementation of activities;
5. monitoring and assessment; and
6. revision of the action plan.

2.3 Organization of the Management Planning Process

In Armenia the works on development of SPNAs draft management plans are organized through tenders or orders by the order established by the RA Government. Development of management plans are carried out at least once every five years by the means of state budget or other sources envisaged by the RA legislation.

The works on development of SPNAs draft management plans are carried out by organizations having respective professional capacities and experience with involvement of the staff from the given SPNA and other stakeholders. The duration of the works on draft management plan development are defined by the authorized state body (minimum 8-10 month) on the basis of the scope of the task.

The decision on organization of the works on management plan development is made by the authorized state body. Then the organization and necessary specialists to develop the plan are selected/identified and the timeframe and requirements for plan development are clarified.

2.4 Development of Draft Management Plan

The process of SPNAs draft MP development includes the following steps:

- a) preparatory step;
- b) data collection and analysis;
- c) assessment of impacts and threats;
- d) clarification of the protected area's importance;
- e) definition of priorities and area development strategy;
- f) drafting management plan with the plan of activities and timetable.

a) Preparatory step

During preparatory works the following is implemented: analysis of availability of data on the area and accessibility of its sources, identification of the lack of data and the ways of their obtaining, definition of the MP development steps and methods, identification of target groups and stakeholders, definition of approaches on comprehensive and complex assessment of SPNA state, identification of interdisciplinary and inter-sectoral relations and clarification of the objectives of the Terms of References for MP development, steps to implement the work and timetable.

b) Data collection and analysis

The step on data collection includes collection of main data on SPNA, their classification as well as organization of additional surveys to get missing data. The information to be collected at this stage includes existing data on PAs natural environment, biodiversity, ecosystems, natural resources, historical-cultural heritage, infrastructure (roads, constructions, electricity and water supply lines and other structures), management peculiarities, socio-economic situation of adjacent territories, activities implemented and planned for adjacent territories. The charter of the respective SPNA, existing documents on spacial planning (forest management plans, land plans, cadastre, mapping and other materials) and other documents of long-term planning are also used for management plans development.

Data collection is needed for complex assessment of SPNAs activities, clarification of its significance, definition of objectives and planning of activities.

Data analysis includes identification of the current state and problems of PA on the basis of collected data as well as their prioritization. The analysis of the current state is carried out in the context of perspective programs on social-economic and cultural development of the region. In the course of data analysis the need for additional surveys, their main directions and scales are identified. At the stage of data analysis the following information about the PA is summarized:

- Spacial structure, including location and area, operational zoning (for national parks), land use structure, description of the buffer zone and others;
- Current state, problems and solutions regarding biodiversity, natural complexes and historical-cultural heritage;
- Conservation status of natural systems and objects, including main findings of fighting ecological violations during recent 2 years, staff of protection service, technical capacities and others;

- State of administrative-organizational activities, structure of financial resources and sources, incomes and expenditures, state of economic infrastructure (including buildings, constructions, transport depots, production units and others);
- State of implementation of the charter objectives in the fields of protection and nature use, including the structure of land use in the given PA and legal regulation of land use;
- Objectives, character, scales and results of special measures being implemented (bio-technical, forestry, anti-fire activities, constructions for recreation and others), the ways to increase their efficiency;
- Results of biodiversity monitoring, activities in the fields of scientific research, ecoeducation and awareness raising;
- Assessment of practical integration of SPNA in the social-economic structure of the province (Marz), main aspects of integration (economic, nature protection, educational, scientific);
- Interrelations between local population, territorial bodies of state management and local self-governing bodies;
- Perspectives of area development and mechanisms of management improvement based on the current state and available resources;
- Ways and options to solve existing problems, possibilities to mitigate and eliminate existing threats.

c) Assessment of impacts and threats;

At this stage the typical, stable and most dangerous impacts for the SPNA and adjacent areas should be identified. The most vulnerable natural and historical-cultural objects/complexes should be identified, which are subject to natural and anthropogenic impacts. The aim of impact assessment is to identify potential negative impacts for the area, clarify the nature of the biggest impacts and their possible consequences, assess the possibility of impacts and mechanisms and possibilities of their prevention and elimination as well as possibilities of natural restoration of natural objects.

The impacts by origin can be divided into two main groups – natural and anthropogenic.

Natural impacts include climate change (aridisation), desertification, geomorphological, hydrological and biocenotic phenomena, natural calamities (snowstorms, landslides, avalanches, fires, floods, droughts, wind storms, pests) and other undesirable phenomena.

Anthropogenic impacts are conditioned by undesirable pressures from economic activity (agriculture, town building, industry, hydrotechnology, land reclamation and others), nature use (forest, mineral resources, water and soil resources, hunting, collection and harvesting of plant resources, visitation, tourism and recreation, damage or destruction of natural-historical monuments) as well as construction and use of communication lines and infrastructures.

Natural and anthropogenic impacts are divided into internal and external impacts. The sources of internal impacts are within the SPNAs and considered the consequences of phenomena happening inside the SPNA. The sources of external impacts are outside of SPNA.

The criteria for impact assessment are as follows:

- Nature and consequence of the impact (direct, indirect or mediated), expression of the impact and changes in populations, associations and ecosystems due to impact;

- Strength of impact - critical (when the impacted object does not recover from the impact), significant and non-significant (which does not jeopardize the existence of impacted object);
- The scale of impact expression (large scale – entire territory of SPNA, broad – majority of SPNA territory, partial – in some districts and local – in some places);
- Dynamics of impact (impact mitigation, stabilization or strengthening);
- Possibility and terms of natural restoration of natural complexes upon impact mitigation or elimination (very long – centuries and millenniums, long – 200-300 years, average – up to 100 years, short – up to 10 years and very short – up to 2-3 years)

d) Identification of the protected area's significance

At this stage the significance of a given PA is identified, the values which make the PA important are clarified along with the measures on their protection and development. In order to define the value of the territory the following general assessment criteria should be applied:

1. diversity and features of flora and fauna, natural complexes and landscapes of the territory;
2. designation of the area or its part as protected area of international significance (Ramsar Site, Biosphere Reserve, World Heritage Site);
3. presence of rare, endangered, endemic and relict species as well as those under extinction, presence of species having economic and/or social importance;
4. ecological integrity of the area;
5. presence of underrepresented or undamaged natural complexes and virgin ecosystems;
6. vulnerability of biodiversity habitats, their sensitivity towards use;
7. scientific significance of the area (ecological, biological, geological and others);
8. presence of objects having historical-archeological, cultural and world significance;
9. educational, aesthetical and recreational significance of the area;
10. possibilities of resource use for local communities for subsistence.

The values identified through assessment criteria are used to define the main significance of the SPNA, which can include the following:

When assessing *ecological (conservation) significance of the area* the following should be taken into account: presence of endemic species and those having economic and social significance, landscape and biological diversity, undisturbed or low impacted natural complexes, threatened and rare species, associations and ecosystems, geographical objects having big impact on ecological situation, rare and unique natural objects (monuments) and others.

When assessing *historical-cultural significance of the area* the following should be taken into account: to what extent the historical-cultural heritage is rare, concentrated, protected and integral, to what extent the population follows traditions, history of settlement and nature use, main stages of territory reclamation, main forms of folk arts, peculiarities of the way of life, main types of historically developed cultural landscapes, features of spiritual culture, specially valuable objects of cultural heritage, spiritual places and others.

When assessing *educational, recreational and aesthetical significance of the area* the following should be taken into account: presence of natural and historical-cultural objects having special educational significance, presence of objects having special recreational significance and their accessibility for visitors, presence of natural and historical-cultural objects having special aesthetical value, presence of natural-historical complexes, spectacular places and others.

When assessing *social-economic significance of the area* the following should be taken into account: the role and significance of SPNA in the social-economic system of adjacent territories and main ways of integration, features of traditional ways of local nature use, accessibility of natural resources for population for subsistence, possibilities and terms of new job opportunities, the SPNA potential in terms of tourism, protection of economically important resources, development of infrastructure, small business and ecologically sound agricultural production, ecoeducation, awareness raising as well as provision of services.

e) Definition of priorities and area development strategy

On the basis of the results from previous stages the participatory discussions and public hearings should be organized to clarify problems, ways of conflict resolution, possibilities for the areas perspective development and its main objectives. The main aim of this stage is to define the strategic vision of SPNA management, its direction, main and priority activities and measures, which should ensure solution of problems and contribute to SPNA integration into social-economic structure of the region. Strategic directions should be defined for long-term perspective (more than the lifespan of the management plan being developed) and can remain actual for long time.

The SPNA management strategy is based at the area significance, the aim and objectives of its functioning. The problems of PA should be assessed by their significance, urgency, currency and priorities classified by the following main directions:

- Protection, use and restoration of natural complexes/objects;
- Scientific-research activities and ecological monitoring;
- Ecological education-upbringing and public awareness raising;
- Educational tourism (ecotourism);
- Protection of historical-cultural heritage;
- Improvement of financial-economic activities;
- Improvement of administrative-organizational structure;
- Enhancement of social-economic significance.

f) Drafting management plan

At this stage the preliminary version/draft of the management plan should be developed, which unites the results of the works implemented during the previous steps while taking into account strategic directions identified for the SPNA and priorities to implement defined objectives. There are no standard formats for MPs, they depend on the features, state and development perspectives of the given territory. The structure of the management plan below can be changed depending on specific objectives of the given SPNA.

Summary of the structure of protected area draft management plan.

<p>Summary of MP</p> <p>General information</p> <p>Aim of SPNA establishment, its status and significance</p> <p>Location, borders and structure</p> <p>Results of the previous MP (if exists) implementation</p> <p>Aims and objectives of this MP</p> <p>Arrangement of the planning process</p> <p>Possibilities for MP implementation</p> <p>Strategic vision of the SPNA development</p>
<p>Natural environment and biodiversity</p> <p>Climate and hydrology</p> <p>Geological structure and relief</p> <p>Soils</p> <p>Landscapes and ecosystems</p> <p>Flora and vegetation</p> <p>Fauna</p>
<p>Assessment of SPNA functioning</p> <p>Functions of SPNA</p> <p>Administrative-economic arrangement</p> <p>Main assets and infrastructures</p> <p>Protection, zoning*</p> <p>Biodiversity monitoring, scientific research*</p> <p>Ecoeducation and awareness raising*</p> <p>Analysis of implementation of SPNA functions*</p> <p><i>*(more detailed presentation can be done in operational, protection, monitoring, ecoeducation and awareness raising, scientific research and zoning programs)</i></p>
<p>Assessment of social-economic significance</p> <p>Adjacent communities, population</p> <p>Demography, settlement</p> <p>Social-economic features of adjacent territories</p> <p>Social-economic significance of SPNA</p> <p>Nature use and nature protection issues</p> <p>Possibilities of SPNA integration in social-economic system</p> <p>Enhancement of social-economic significance</p>
<p>Assessment of natural-historical heritage</p> <p>Historical data, culture and traditions</p> <p>Historical-cultural and archeological monuments</p> <p>Historical-cultural significance of the area</p> <p>Natural monuments and natural-historical complexes</p> <p>Educational, recreational and aesthetical significance of the area</p> <p>Sustainable use of natural-historical heritage*</p> <p><i>*(more detailed presentation can be done in ecotourism program)</i></p>
<p>Assessment of natural complexes and ecosystems</p> <p>Ecological significance of the area</p> <p>Ecological integrity of the area</p> <p>Species diversity, representativeness</p> <p>Vulnerability of ecosystems and biodiversity</p> <p>Analysis and assessment of impacts</p>

Restoration of natural complexes
<i>Management work programs*</i> Operational plan for management Conservation program Monitoring program Scientific research program Ecoeducation and awareness raising program Ecotourism and visitors program Zoning Other programs Action plan <i>* (presented in Chapter 3)</i>
<i>Maps – external borders, districts, zoning, ecotourism trails, landscapes, infrastructure, biological diversity, forestry, soils and other thematic maps.</i>
<i>Bibliography</i>
<i>Appendices</i>

2.5 Consultation and Approval of the Management Plan

At this stage the draft MP should be presented to stakeholders and public. The draft management plans are discussed during public hearings to ensure accessibility of information and public awareness. On the basis of comments and suggestions received the revised final draft of MP should be presented to respective body for approval in accordance with the procedure defined by the RA Law on Legal Acts. By requirements of the RA Law on Expertise on Environmental Impact Assessment some activities envisaged by the MP are subject to environmental expertise.

The management plans of the specially protected nature areas of international and republican significance should be approved and revised by the Government of the Republic of Armenia. The management plans of the specially protected nature areas of local significance should be approved and revised by the authorized state body, namely the RA Ministry of Nature Protection.

Upon management plan approval it should be copied and provided to respective subdivisions.

2.6 Implementation of the Management Plan

The main objective of management plan implementation is to carry out Action plan incorporated in the MP. It includes information on different aspects of PA management system, such as legislation, structure, administrative-organizational, financial-economic and other issues, measures (or sub-programs) aimed at improvement and development, responsibilities for their implementation, timeframe and expected results.

The factors causing obstacles to MP implementation may be directly linked with weaknesses of the MP – insufficient analysis, non-justified activities, insufficiency of resources required for their implementation or poor stakeholder involvement, low capacities and others. Non-realistic budget, unreliable financial information, wrong formulation of objectives, negligence of specific features of SPNA, weak links between expected results, ways to achieve them and respective activities as well as unclearly defined responsibilities for plan implementation can also cause problems.

Non-justified overestimation of some management issues and/or underestimation of other issues (for example, too much attention at ecotourism or recreation and insufficient conservation or vice versa) can also have negative impact on effective implementation of the MP.

If respective management bodies were not fully involved in management plan development, then they may not have “sense of ownership” or “direct responsibility” regarding the document and be fully ready for its implementation. Poor system of monitoring, evaluation and reporting on envisaged activities may also contribute to insufficient implementation of the management plan.

2.7 Monitoring and Assessment of the Management Plan

The following criteria defined in the IUCN guidelines should be used for assessment of the MP implementation process:

- The current stage of MP implementation
- The scheduled stage of MP implementation
- What is needed for implementation
- What is needed to improve the situation

The MP Action Plan should include indicators for effectiveness assessment (desirable for each envisaged action). On the basis of the indicators the MP monitoring and assessment can be done by the protected area staff (self-assessment), scientific-technical council, respective subdivisions of the authorized state body, the authorized state body board, independent auditing organization, a group of independent experts and others. Respective decisions should be made by the authorized body to eliminate deficiencies identified during MP monitoring and assessment.

2.8 Revision of the Management Plan

In parallel with the MP implementation the effectiveness of activities should be analyzed. The problems during implementation can result in need to change and revise the activities, timeframes and resources required for their implementation. In case of need (in the result of scientific research and monitoring of ecosystems and biodiversity, changes of purposeful significance of SPNA lands and their borders, of SPNA category and management system and infrastructure, in case of need to revise inaccurate data identified in the management plans and those hampering management of SPNA, as well as in case of natural calamities and force majeure) the authorized state body can suggest revision of management plans of SPNAs of international and republican significance.

Chapter 3. Management Work Programs

3.1 Programs to be included in the Management Plans

Depending of the RA international commitments, the status and significance of the given SPNA, social-economic status and problems of natural complexes and adjacent territories the management plans of PAs can include programs for different areas management based on global or regional problems (Appendix 2). Other programs conditioned by local problems can also be included in MPs (natural resource management, improvement of inter-sectoral communication, management of visitations, protection of cultural and natural heritage, conservation or monitoring of separate species of flora and fauna, agro-biodiversity management, land and forest management planning programs or watersheds management plans and others). The need to have them is conditioned by the nature of priorities of the given protected area, its development objectives, need to update data and other issues.

The data obtained for management plan development, their analysis and actions can be presented in accordance with the summary presented in section 2.4 (draft management plan structure – Section “Work programs of management”) and grouped in separate work programs with detailed description of analysis and planned activities by fields. In order to avoid duplications the sections which are presented in detail in work programs should be removed from other chapters of the MP.

Below this guidelines present the descriptions and structure of those work programs, which (in accordance with the analysis of international experience) are usually included in the MP and stemming from the main functions of SPNA. In case of need they can be supplemented or replaced by other programs. This guideline does not present those programs, which are not directly stemming from the RA environmental legislation in spite of their need for SPNA effective management and of being consistent with international criteria (for example, management programs for transition, support zones or intensive use areas).

3.2 Operational Plan of Management

Operational plans (OP) define the administrative-economic and organizational activities ensuring implementation of objectives and priorities of the protected area and are aimed at their planning, effective implementation and control. OPs determine the methods, scales and timeframes for implementation of separate management actions. OPs are especially necessary for the PAs having large area or serious conservation problems.

The activities of the OPs are defined and implemented in the form of short-term, mainly annual work plans. They include activities derived from the priorities and objectives of the PA management plan as well as approaches of result assessment. The operational plans should be clearly integrated (or to be compatible) with other programs and long-term activities of the management plans.

The OP implementation includes the following main steps:

- Planning of annual activities;
- Preparatory work for implementation of activities;
- Implementation of annual activities;
- Monitoring of annual implementation of the management plan;
- Development of proposals for possible revision of the management plan;

- Preparation of annual budget requests;
- Search and use of required out-of-budget resources.

The structure of OP is based at the PA features. It mainly includes subprograms on administrative-organizational and financial-economic issues, natural, human and technical resources as well as other sub-programs derived from specific state and problems related to infrastructure. Based on general management objectives the OPs can also be integrated with operational plans of local and regional development as well as those of other authorities and organizations active in the region.

The financial analyzes and plans aimed at SPNA financial sustainability and development make an important part of the OP. They include data on protected area services, marketing and financial support for envisaged activities. The activities are planned and implemented in compliance with the problems of adjacent territories (out of the borders of protected area) and population with definition of compatible forms of nature use and mechanisms of public participation.

Operational plans for MP usually include the following information:

<p><u>1. Administrative-organizational activities by SPNA</u></p> <ul style="list-style-type: none"> • Organizational units (other SPNAs, districts, branches, etc. in the structure of PA); • Management responsibilities (subordination, departments, staff and others); • Human and technical capacities, infrastructure; • Obstacles for implementation of activities; • Assessment of SPNA functioning, weaknesses and strengths; • Improvement of administrative-organizational activities (annual activities by years including administrative-organizational improvement, clarification of functions and responsibilities of staff, infrastructure development, training courses, capacity building and others).
<p><u>2. Management of economic activities</u></p> <ul style="list-style-type: none"> • Scales and sources of financing; • Structure of incomes/expenditures; • Availability of financing for priority activities; • Results of financial audits and future progress; • Strengths and weaknesses of financial policy; • Possibilities for getting resources and investment out of the budget; • Activities to improve the profitability of PA and effectiveness of resource use.
<p><u>3. Management of nature use</u></p> <ul style="list-style-type: none"> • Structure of land use; • Features of the buffer zone; • Forms of traditional nature use; • Assessment of natural resource use; • Improvement of nature use management; • Operational zoning of PA (<i>can be presented as a separate program</i>).
<p><u>4. Regional integration and development</u></p> <ul style="list-style-type: none"> • Main aspects of PA integration into regional social-economic structure (economic, nature protection, scientific-educational, touristic and other aspects); • Existing problems and possibilities for integration; • Mechanisms of cooperation with local population and local self-governing bodies;

- Promotion of local markets and ecologically sound agriculture;
- Provision of information on PA functioning;
- Improvement of mechanisms on population involvement and participatory management.

3.3 Conservation Program

In accordance with the RA Law on Specially Protected Nature Areas (Article 21) the objectives of SPNA protection are as follows:

- a) ensure natural development of natural ecosystems, biological diversity, landscapes and natural heritage of the specially protected nature areas;
- b) eliminate or mitigate any activity that affects the natural processes;
- c) identify and prevent violations made by nature users as well as people who entered the specially protected nature areas;
- d) ensure implementation of the regime specified for the specially protected nature area.

The activities aimed at conservation and restoration of natural systems and objects, including direct protection of the territories is a priority for all SPNAs. They are aimed at implementation of the following objectives:

- Conservation of biological and landscape diversity, safeguarding of integrity and natural development of natural systems;
- Protection of historical-cultural heritage of the areas including traditional lifestyle of local inhabitants;
- Restoration of damaged/disturbed natural systems.

In order to deal with the above issues the conservation activities in SPNA should be implemented in two main directions:

1. Activities supporting the natural state of the nature;
2. Fight against activities (violations) disturbing the regime of a given protected area.

The activities implemented in the first direction include:

- Implementation of special measures on conservation of natural systems and objects which have special value (rare species and those under extinction, unique ecosystems, natural monuments and others);
- Restoration of damaged/disturbed natural systems and objects through implementation of forest restoration, reintroduction, re-cultivation and other measures;
- Safeguarding natural state of natural systems and appearance of historically developed cultural landscapes through periodical implementation of forestry, bio-technological, regulatory, maintenance and other activities;
- Activities aimed at prevention, identification and in case of need fighting against fires in forested and other areas covered by vegetation;
- Activities aimed at prevention and mitigation of negative consequences of natural calamities;
- Activities aimed at elimination or mitigation of consequences of human impact (area pollution, recreational pollution, waste dumping and others);

- Promotion of allowed forms of nature use in SPNA and its buffer zone, including development of rational and ecologically sound nature use with use of technologies, which do not disturb environment and exhaust natural resources;
- Provision of information to public on defined regime and special conservation measures (installation of road-blocks and information signs, awareness raising and education activities with different groups of population).

When implementing activities in this direction of conservation program the priority problems and activities should be defined for each SPNA taking into account the SPNA status, natural and socio-economic conditions (including adjacent territories), historical-cultural features, peculiarities and current state of conservation regime and forms of use defined by the protected area charter.

In the framework of activities implemented in the second direction (fight against activities disturbing the regime of a given protected area) of Conservation program the staff of protection service of the legal person dealing with SPNA conservation is responsible for prevention of any activity disturbing the regime defined for the specially protected nature area to ensure observance of environmental norms and rules defined by the SPNA charter (RA Law on Specially Protected Nature Areas, Article 23). The activities of conservation program aimed at the above described objective include:

1. Improvement of protection service, optimization and improved efficiency of service staff performance;
 - Establishment of operative groups (central operative group and operative groups of territorial sub-divisions);
 - Improved material-technical support to operative group;
 - Periodical trainings for technical supervision group;
 - Periodical technical trainings for inspection group;
 - Improvement of professional qualification of inspection group;
 - Selection and recruitment of new qualified staff;
 - Material encouragement of human potential;
 - Moral encouragement of inspection group;
 - Involvement of police staff and other state bodies in conservation of the area;
 - Planning and implementation of periodical checks in the enterprises, institutions and hydro-technical constructions, which are located in SPNA or its buffer zone;
 - Improvement of works to proceed with ecological violations, creation of a data-base;
 - Activities aimed at prevention of conservation regime violation, such as:
 - construction of new ranger stations;
 - installation of road-blocks and check points;
 - control over access gates, roads, bridges and other structures in SPNA;
 - periodic dissemination of warning information and materials on violation of SPNA conservation regime through mass media;
 - Operative data collection:
 - appointment of a staff member responsible for operative data collection and analysis;

- identification of main sources of information;
 - identification of methods and ways to get information (including radio communication, telecommunication);
 - definition of possibilities and ways for material encouragement to providers of information.
2. Development and improvement of material-technical basis for protection service:
- Procurement/renovation of technical means, equipment and uniforms;
 - Establishment, renovation and maintenance of conservation infrastructures.

Conservation programs of MP usually include the following information:

1. Aims, objectives and priorities of PA conservation;
3. Conservation action plan aimed at:
 - Identification and prevention of activities violating the regime of protected area (including its buffer zone);
 - Encouragement of allowed forms of nature use;
 - Restoration of natural systems and objects;
 - Safeguarding of natural state of ecosystems;
 - Protection of cultural landscapes;
 - Organization of anti-fire and forest protection measures;
 - Prevention and mitigation of natural calamities;
 - Elimination or mitigation of negative consequences of anthropogenic impact.
4. Improvement of protection service;
5. Development of protection infrastructure;
6. Mechanisms on provision of operative information about conservation measures.

3.4 Monitoring Program

Biodiversity monitoring (BDM) in specially protected nature areas is a system of assessment of the state and development processes of plant and animal organisms, their habitats, ecosystems, natural monuments and natural resources and for prediction of impacts. Monitoring ensure obtaining of objective information for effective management of specially protected nature areas, which is necessary for protection and sustainable use of ecosystems, habitats and species.

According to the RA Law on Specially Protected Nature Areas (Article 14) the monitoring in specially protected nature areas is aimed at:

- a) identification of the current state of distribution, species composition, abundance, habitats and migration routes of biological diversity;
- b) assessment and prediction of quantitative and qualitative changes of ecosystems and their components;
- c) identification of the impact of natural and anthropogenic factors on ecosystems and their components;
- d) development of measures to prevent and mitigate/eliminate the adverse impacts on ecosystems and their components;
- e) research, assessment and prediction of the status of plant and animal species listed in the Red Data Book of the Republic of Armenia.

The same Law sets forth that the monitoring in SPNAs of international and republican significance should be carried out by the authorized state management body (MoNP) and in SPNAs of local significance within administrative borders of communities – by LSGB (Articles 10, 11).

Monitoring in buffer zone of SPNA is aimed at identification, prediction and prevention of changes of buffer zone landscapes, terrestrial and water ecosystems, flora and fauna components due to negative impacts caused by economic activity running counter the SPNA charter.

According to the RA Governmental decision N 1044-N from 30.08.07 on Establishment of the Order for Organization and Implementation of Monitoring in the Specially Protected Nature Areas the order on organization and implementation of monitoring was approved. By this order the monitoring in SPNAs of international and republican significance is carried out by SNCOs in the structure of the authorized state body, in case of accredited management – by accredited manager and in case of SPNAs of local significance – by the bodies dealing with protection and use. Monitoring data obtained in SPNAs of all categories and significance should be presented to the authorized state body no later than in 10 days upon their obtaining, which coordinates monitoring data and maintains data-base.

For BDM respective indicators to characterize the state should be defined. Their choice depends on the features of the territory, specific objectives of monitoring, availability of financial resources and other factors. In the course of identification of biodiversity indicators the following main requirements should be taken into account:

- applicability in terms of measures of biodiversity conservation;
- scientific justification;
- sensitivity towards environmental factors;
- representativeness;
- low cost of indicator assessment (application of indicator should require as much as possible low financial resources)
- possibility for wide application (i.e. should be applicable in different ecosystems and different functional zones of NP).

The majority of indicators selected for BDM in SPNAs are “target” species, which are monitored due to their special significance for the SPNA. Out of ordinary species (wide occurrence) those species should be selected as indicators, which through monitoring can provide information having high importance for characterizing the state of ecosystems.

Monitoring protocol should be developed for each indicator. The monitoring protocol includes the following sections:

Part A. Sampling

- a) the number and size of observation points/sample plots for data obtaining;
- b) location of mentioned observation points/sample plots (geographical coordinates, descriptive and map documents);
- c) large scale maps, schemes and plans of sample plots with information on the size, sub-parts, trails, markers of the territory.

Part B. Data collection

- a) characteristic of samples/data (what are collected data), features of indicator selection;

- b) methodology, number of repetitions, timeframe and frequency of sample/data collection, methods of treatment and storage of samples (it is important that monitoring is implemented during the same period in the year).

The most common field methods of data collection include checking all districts and individuals, survey of districts and habitats, interviews with local population, reports of scientific department, targeted photos and others.

Part C. Data management and analysis

- a) detailed instructions on data storage and information management;
- b) procedure on data analysis and detailed instructions on applied statistical methods;
- c) format of data presentation (reporting) and procedure on providing information to administration on results.

Part D. Allocation of resources

- a) instructions on number, role of and required training courses for involved staff;
- b) required technical resources – equipment and its technical maintenance or calibration;
- c) required financial resources.

For indicators at species/population level the most common and informative are the following indices:

- presence or absence;
- number of individuals in each population;
- distribution;
- distribution borders (areal);
- absolute and relative density;
- density of individuals in population;
- number of populations;
- age composition;
- gender composition;
- phonological indices by years;
- biological productivity and others.

Appropriate selection of the mentioned indices should ensure successful BDM. The list of mentioned indices should be supplemented and verified during monitoring system development after completion of biodiversity stock-taking and inventory as well as mapping activities. It is important also to discuss the mentioned list with stakeholders to clarify details on phased approach for BDM introduction.

The methods applied for quantitative measuring of the selected indices should identify changes occurred (if any), assess their size and mention their causes. As a rule these requirements can be met when applying different methods. For the method selection the feasibility of their application and their cost are very important. The following should be taken into account:

- Availability of the staff with appropriate qualification to collect, process and analyze samples/data;

- Accessibility of sample plots and/or observation points for sample collection;
- Availability and reliability of equipment required for collection and processing of samples/data;
- Availability of technical means for data analysis and interpretation (computers);
- Availability of financial-technical resources to ensure continuity of the program.

Obtaining and collection of baseline monitoring data should be carried out through an observation network determined by provisions 12-15 of the Republic of Armenia Governmental decision N 1044-N from 30 August 2007. It includes permanent or temporary (seasonal) observation points, sample plots, trails, trans-trails (trails, which cross two or more ecosystems and have sample plots located at certain distance from each others).

In order to have justified and full predictions the observation points, sample plots and trans-trails should be established in all zones of SPNAs including different landscapes and areas subject to risks. In addition, it is desirable to include as much as possible big diversity of ecological micro-conditions. When selecting location of observation points, sample plots or trans-trails it is necessary to ensure as much as possible their accessibility (they should not be located in inaccessible areas).

Monitoring programs included in the MPs of SPNAs should clearly define the forms, timeframe and responsible persons for monitoring, the methods of MP revision on the basis of monitoring as well as envisage financial resources required for its implementation. Monitoring programs should be linked and integrated with the work programs on scientific research.

The monitoring programs of MP usually include the following information:

1. Aim and objectives of BDM in a given PA;
2. Assessment of the course and results of previously implemented BDM (staff, financial and technical resources, data base and others)
3. Development/revision of monitoring protocols (formats, methods, selection of observation network and others);
4. Selection/revision of indicators at species, population and ecosystem levels;
5. Measures, steps and timeframe for development/introduction of biodiversity monitoring system;
6. Scientific research required for improvement of monitoring system;
7. Introduction/updating the system to maintain database and provide information.

3.5 Program of Scientific Research

Scientific-research works in SPNA is a necessary component of their functioning. They ensure effective implementation of the SPNAs main functions – conservation of biological and landscape diversity and historical-cultural heritage.

According to the RA Law on Specially Protected Nature Areas scientific research in SPNAs should contribute to the following:

- State stocktaking of ecosystems and their components, creation of a coordinated database and state cadastre maintenance;
- Development of forms and methods for protection and use of ecosystems and their components;
- Development of indicators for monitoring of ecosystems and their components;

- Effective management planning of specially protected nature areas.

Information received through scientific-research activities (SRA) should be used for planning of nature protection measures, including protection and restoration of ecosystems and their components as well as their effective assessment, assessment and prediction of the state of protected systems and objects, implementation of ecological monitoring, elucidation of ecological issues, tourism and recreation as well as impact assessment of economic activities implemented in PAs and their buffer zones.

Prioritization of the problems in a given protected areas should serve as the basis of SRA in SPNA. The prioritization should take into account natural features and actual needs of the SPNA as well as requirements of state authorities and the bodies dealing with the management. The scientific-research activities should be implemented in three main directions – inventory of flora and fauna, provision of data for organization of monitoring and targeted research aimed at solution of specific issues.

The priority inventory activities should include the following:

- Development of annotated (concise) lists of vascular plant and vertebrate animal species and widely represented families of dominating orders of invertebrates;
- Cadastre of rare, unique living and alive natural objects and those requiring special attention as well as habitats of endemic and rare animals and plants;
- Geo-floristic and land mapping.

The management of SPNA is carried out through SNCO, with the functions including organization of scientific research, development and introduction of scientific methods for nature protection, elucidation of ecological issues and implementation of ecological monitoring. Comprehensive monitoring is not possible without scientific research, particularly without inventory data. In this regard it is important to have proper inventory works organized by the following scheme:

- Collection of mapping information;
- Collection of scientific and historical information on a given protected area;
- Mapping of geo-floristic and land information;
- Inventory of biota and development of annotated lists;
- Creation of a cadastre of rare, unique living and alive natural objects and those requiring special attention as well as habitats of endemic and rare animals and plants;

In order to monitor natural processes it is a priority to get scientific data on biological diversity and changes of the qualitative composition of biota (flora and fauna) first of all through implementation of observations of vertebrate animals and vascular plants. This includes information on the following:

- State of populations:
 - endemic and rare species of plants and animals;
 - animal species having hunting-production values and animals important from epidemiological perspective;
 - specially valuable medicinal plants;
 - other species having important economic and social significance;

- edifiers of natural associations and indicator species for ecosystems.
- Status of ecosystems, especially:
 - etalon ecosystems for certain physical-geographic regions;
 - rare and unique (including relict) ecosystems;
 - ecosystems, which are habitat for and important for protection of rare and endemic species.

In case of long-term observations (more than 10 years) of natural objects and phenomena in order to have sets of data without interruption, it is important to ensure the continuity of SRA by using the same method of data collection in the same places and period in the year.

In SPNA the researches targeted at solution of a specific problem should be considered priority. They should be focused on:

- Development and improvement of methods for ecological monitoring;
- Setting norms for tolerable impact on natural systems and objects;
- Definition of tolerable scales of nature use;
- Identification, assessment and prediction of consequences of unfavorable trends in development of natural systems and their causes;
- Development and improvement of protection and restoration technologies for natural systems and objects;
- Research on ecological features of rare and endangered species, associations and ecosystems;
- Elucidation of ecological issues and scientific justification of educational tourism;
- Enhancement of self-reproduction and self-regulation capacities of protected ecosystems and landscapes.

The programs on scientific-research activities and organization of scientific research in PA usually include the following information:

1. Analysis of the current state of scientific research implemented in PA;
2. Scientific justification of activities implemented in the fields of area protection, monitoring, ecological education, ecotourism and recreation;
3. Perspective plan of scientific research by priorities, including:
 - Directions, timeframe, resources and implementers of scientific research;
 - Program on introduction/development of GIS and other modern technologies;
 - List of published monographies and other scientific works;
 - Measures on development of material-technical capacities for scientific research;
 - Program on establishment/improvement of field scientific points;
 - Measures aimed at training and retraining for improvement of the staff scientific capacities.

3.6 Ecoeducation and Awareness Program

Implementation of educational, upbringing and awareness raising activities is an important function of each protected area. They are aimed at development of ecological consciousness and culture of wide public, development of appropriate approach towards nature and dissemination

of ecological knowledge and information. First of all the ecoeducational activities of SPNA should be aimed at provision of information about the modern role of PA in protection of biological and landscape diversity as well as social-economic development of the region; this can contribute to recognition of SPNAs significance as national value.

Coordinated ecoeducational activities are possible if the following activities are implemented in a given protected area:

- Creation of scientifically justified foundation to support educational, upbringing and awareness raising activities on the basis of available scientific, historical and other archive materials as well as experience and potential of SPNAs scientific departments;
- Targeted and coordinated activities with the main groups of population in each region;
- Work with visitors of SPNAs;
- Close cooperation with educational institutions, state authorities and local self-governing bodies, mass media and other stakeholder organizations;
- Support to professional retraining of respective field specialists;
- Participation in creation of a common information framework, which supports exchange of ecoeducational information and work experience at national and international levels;
- Organizational and material-technical base for ecoeducational activities;
- Continuous development and strengthening of methodological basis for effective implementation of ecoeducational activities at modern level – use of national and international experience, development of methodological documents for own use.

Educational-upbringing and awareness raising activities in SPNAs are implemented in the following directions:

1. Development of museums, visitors centers and exhibitions:
 - Improvement of functioning museums and visitors centers;
 - Establishment of new museums and visitors centers with provision of equipment;
 - Design, installation and maintenance of stationary thematic exhibitions and expositions;
 - Creation of portable exhibitions and expositions, decision on optimal frequency of their update and installation in the most appropriate and frequently visited places;
2. Work with mass media:
 - Preparation of publications in press;
 - Radio and TV programs;
 - Publication of own periodicals;
 - Creation and maintenance of own internet web-site;
 - Provision of information through other internet web-sites;
 - Cooperation with journalists.
3. Advertising-publication activities

- Production of booklets, photo-albums, calendars, information and mapping materials, tapes and other information-publication materials as well as badges and souvenirs;
 - Creation of films and video-products.
4. Work with schoolchildren
 - Organization of ecological camps and excursions for children;
 - Creation and functioning of hobby groups for young naturalists;
 - Thematic trainings, field works and excursions with school children;
 - Organization of contests, quizzes, olympiads and conferences;
 - Participation of school children in ecological events and actions.
 5. Cooperation with pedagogical staff and educational institutions:
 - Organization and implementation of thematic seminars and methodological consultations for teachers (first of all teachers of biology, ecology, geography and others);
 - Participation of teachers in organization and implementation of courses aimed at improvement of their professional capacities;
 - Provision of information and other materials (photos, posters, video-films and others) as well as respective literature on protection of biological and landscape diversity and reserves.
 6. Implementation of specialized events linked with environmental days and actions (“March of Parks”, Day of Reserve Staff, International Day of Environment, Day of Forestry Staff, Birds Day and others). The main directions of educational-upbringing and awareness raising activities for each SPNA should be decided with consideration of its status, natural and socio-economic conditions (including adjacent areas), historical-cultural features, peculiarities and current state of defined regimes of protection and use.

The MP programs on ecoeducation and awareness raising usually include the following information:

1. Assessment of educational-upbringing and awareness raising activities of SPNA;
2. Organization of work with main groups of population and stakeholders (visitors, school children, population of PA adjacent communities, local teachers, educational institutions and others);
3. Improvement of activities aimed at mass media;
4. Development of museums;
5. Advertising-publication activities;
6. Involvement of main target groups in environmental events;
7. Improvement of mechanisms and capacities for provision of information.

3.7 Ecotourism and Visitor's Program

Ecotourism is a practical and effective tool for dissemination of ecological knowledge and information, support to ecologically sound use of areas, mitigation of tensions between environmental and social-economic systems and their integration. The objectives of ecotourism implementation in SPNAs include improved protection of natural and historical-cultural heritage

and natural ecosystems of the area as well as improved effectiveness of conservation measures by resources obtained from ecotourism.

Ecotourism can ensure additional resources and improvement of financial sustainability for implementation of nature protection activities in SPNAs. SPNAs get a chance to provide services with generation of financial resources contributing to other management functions such as improvement of protection and monitoring of biodiversity, landscapes and genetic resources, of ecoeducation and scientific activities as well as full implementation of other charter objectives. In addition, ecotourism is a good opportunity for local population to get sustainable income and improve livelihood, employment, awareness and participation.

Ecotourism programs (EP) should be developed on the basis of surveys on natural-historical heritage of the area, analysis of touristic, recreational and educational potential of the territories as well as forecasts on ecotourism efficiency. In order to prevent possible negative impacts from ecotourism and visitations the MP ecotourism programs should include impact assessment and management implemented through periodical monitoring of respective indicators. This monitoring should be aimed at identification and assessment of quantitative and qualitative changes of infrastructure, natural systems and their components due to impacts and service provision. In the result the measures on prevention and elimination of impacts should be identified and planned.

Definition and control over provided services are key components of ecotourism management. The monitoring of service quality includes collection, analysis and assessment of information on meeting the visitors requirements.

Negative impacts on environment from tourism depend on the features of the territory, intensity of use for tourist purposes and tourism management capacities. The main requirements for ecotourism (scientific-educational combined excursions) in protected areas are as follows:

- PA staff should define and control visitations, their number and duration;
- PA staff should be responsible to organize ecotourism in the area and to ensure observation of environmental norms;
- Only the forms of tourism compatible with the PA charter objectives should be allowed;
- Service of ecotouristic trails should be based at the principle of excluding negative impacts on natural landscapes;
- Ecotourism advertisement should be based only at description of natural and cultural values and ideas of their protection;
- Pollution and littering of area should be prohibited.

The main impacts of ecotourism are linked with the negative factors affecting nature (environment) and socio-economic conditions of local communities.

The indicators for assessment of impacts on nature (environment) are divided into the following categories:

Physical (waste, water resource use and its quantitative changes, changes of water drainage and sewage system, new trails, use of lands for infrastructure development, destruction of natural and historical monuments, fire).

Biological (disturbance of plant cover and forests due to visitations, qualitative changes of water resources, reduction of bird nesting sites, changes of areals of animals, disturbance of animals, impact of invasive species of flora and fauna, increased number and frequency of fire).

The impacts affecting socio-economic condition can be divided into the following categories:

Socio-cultural (statistical data on adjacent communities and their dynamic, state of historical-cultural heritage, changes of land use forms and scales, scales of goods and service provision connected with tourism, types and number of visits during month and season, relations between local population and tourists, impacts on livelihood, behavior and traditions of local population).

Economic (financial effectiveness of ecotourism, income of population and organizations dealing with tourism, provided services and their effectiveness, availability of new job opportunities and sources of income, income generated by service provision, resources spent for tourism management purposes, changes in prices of goods and service provision, number and quality of infrastructure, presence of guest houses, restaurants and other services, reduction of local handicraft, impacts on traditions and others).

Ecotourism program should define respective trails in those areas of PA and adjacent territories, which are of big interest from educational, recreational and aesthetical perspectives (natural and historical monuments, areas with beautiful and interesting landscapes, areas suitable as flora and fauna observation points and others). Trails planning should take into account environmental restrictions and PA regime requirements and avoid wide involvement of vulnerable ecosystems and habitats of endangered or rare animals. Ecotourism trails should be aimed at observation without disturbance of animals.

For ecotourism trails the following should be defined: suitable groups of tourists, requirements for their physical training, duration of trails, tolerable load, location of infrastructure and required means for information provision. Some special forms of ecotourism should be defined, such as tours on observation of wild animals and plants as well as geo-ecological, archeological, architectural, agrarian, cultural or other combines tours.

EPs should clearly define responsibilities of respective sub-divisions with their main objectives to provide high standard services, assess visitors needs, ensure security, manage ecotourism and recreational resources, provide information on ecotourism, cooperate with organizations and individuals providing services in adjacent areas.

EPs should envisage special courses and study tour programs to retrain the staff and train highly qualified tour-guides. To support organization of ecotourism activities the tourist equipment and uniforms should be envisaged, such as binoculars, horses, saddles, tents, sleeping bags, field equipment as well as equipment for organization of search, first aid and rescue activities, such as means of radio communication, first aid kits, ropes, other equipment for first aid and rescue.

For effective ecotourism the respective support infrastructure should be developed (visitors centers, shelters, meal and sale places, observation points, tents, roads, trails, information network, domestic services and waste removal, road-blocks, stop points, transition points, billboards and others) with regular maintenance. The infrastructure should be designed, constructed and maintained in harmony with surrounding natural and cultural environment, be very limited, low-scale and if possible be located out of the PA borders (except those planned for ecotourism trails).

To raise awareness and ensure appropriate behavior by visitors respective information materials and information infrastructure should be developed (provision of information in visitors centers, museum pieces, regulatory signs, exhibition halls, billboards, published materials, brochures, regulations). Respective information should be displayed also along the trails and nearby historical-cultural and natural monuments. They mainly include direction signs, regulatory signs or billboards.

In order to have effective tourism management the EP should include survey of tourism market, provision of services, response to requirements and requests, development and dissemination of advertisement materials, involvement of local population, web-site maintenance and a number of other activities. Research on touristic capacities of adjacent areas and other interesting places

as well as involvement of local population, tourist organizations, local tour-operators and private sector in ecotourism organization are also effective forms of marketing.

In order to get support from local population it is necessary to envisage mechanisms on their involvement in decision-making regarding the areas as well as ensure awareness on tourism opportunities and environmental problems. The possibility for local population to benefit from tourism is important also to prevent nature exploitation due to tourism.

The MPs ecotourism programs usually include the following information:

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| <ol style="list-style-type: none"> 1. Assessment of natural-historical heritage of the territory; 2. Assessment of the potential for ecotourism and visitations; 3. Organization and management of visits; 4. Definition of ecotourism trails and services; 5. Provision of long-term financial sustainability, marketing; 6. Development of infrastructure and services; 7. Monitoring and assessment of EP; 8. Provision of information; 9. Training courses for PA staff and capacity building; 10. PA integration with regional touristic activities. |
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3.8 Zoning Plan

By RA legislation in SPNAs with the status of national park the zones should be designated as territories with different management regimes. Zoning defines functional significance of areas. As a planning tool it is not limited to description of the current state of territories, but defines directions for development of the territories. Protected areas zoning is applied to regulate and facilitate management of protected area as well as define main and allowable types of activities.

In accordance with the IUCN guidelines the zoning is a widely used flexible tool to ensure different objectives on protection and use through administrative-operational (functional) classification of territories. There are no common schemes of zoning. Zoning is conditioned by the features of territory and should be done in accordance with legal requirement of a given country. There are certain differences between zoning approaches defined by IUCN Guidelines and RA Law on Specially Protected Nature Areas (Articles 7, 8) as well as different definitions.

Table 2. Titles of IUCN Zones

Titles of Zones	
By IUCN Guidelines (I-IV Categories)	Relevance with the RA Law on Specially Protected Nature Areas
Virgin (wild nature, “core”) zone	Mainly reserve zone
Zone of special and/or unique values	Separate districts of sanctuaries, economic and recreational zones; natural monuments
Zone of limited development	Mainly recreational zone
Zone of intensive development/services	Mainly economic zone

Zone of traditional use	Mainly economic zone
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PA zones are defined on the basis of natural, social, cultural and administrative features as well as the main objective of a given national park. The spacial model of SPNA zoning should ensure easy and clear recognition of zones by managers, visitors and local population as well as provide information on the rights and limitations stemming from their management regimes. General models on synthesis of data from inter-disciplinary research, mapping and others are used for zoning of territories (synthesis of materials on lands, flora and fauna, forestry, infrastructure, administrative and topographic issues, historical-archeological monuments and other materials as well as thematic maps). Main ecological and economic characteristics and potential of territories as well as peculiarities of impacts and land use should be analyzed, on the basis of which the territories are grouped within a specific zone. The main objectives of zoning are derived from management objectives and defined with consideration of the following factors:

- Protection of ecosystems and other outstanding values;
- Protection of historical-cultural values;
- Restoration of damaged areas and resources;
- Policies and decisions of management system;
- Limitations conditioned by ecological factors;
- Elimination or mitigation of undesirable uses and activities;
- Promotion of desirable forms of use and ways of development for the area;
- Results of participatory consultations;
- State of use of natural resources and lands;
- Regulation of types of activities and others.

In accordance with the RA legislation the zoning should be done only for the territories within administrative borders of national parks. However, according to international approaches the zoning principles are applicable also to SPNAs of other categories, such as reserves, sanctuaries, biosphere reserves and others. By the RA Law on Specially Protected Nature Areas the national park territories should be divided into reserve, recreational and economic zones on the basis of protection and use regime, functional significance as well as ecological, scientific, recreational, economic, historical-cultural and aesthetical values.

The main aim of the reserve zone (strict protection area, core) is to protect valuable, representative and vulnerable ecosystems (biodiversity). In the course of zoning of reserve areas it is necessary to avoid fragmented pattern to ensure integrity of habitats and ecological corridors. The main types of activities in this zone include prevention of human intervention to ensure natural state of the area, scientific research, ecoeducation and monitoring. On the territory of this zone the protection regime defined for RA state reserves should be applied with all kinds of visits limited and minimal infrastructure. For designation of this zone the vulnerability indicators applied for designation of Important Biodiversity Areas by IUCN guidelines, critical thresholds defined for threatened species as well as RA Red Data Book and IUCN Red List can be used. According to international approach this strictly protected zone cannot border with economic zone; the buffer zone should be located in between.

Recreational zones are mainly designated adjacent to natural-historical monuments and recreational areas near settlements in the areas with beautiful landscape with the aim of tourism development, recreation, sustainable use of areas and income generation. In this zone the natural environment should remain undisturbed with limiting anthropogenic impacts as much as

possible. Infrastructure should comply with the principles of landscape planning. Visits should be organized only in permitted areas with the principle of minimal impact and should be regularly monitored. The recreational zone in its turn should have a buffer function of reducing pressures on the reserve zone. Ecotourism programs developed for SPNAs should mainly focus on this zone and its adjacent territories.

Economic zone (areas of traditional use) is mainly adjacent to community or private lands adjacent to the national park. The main aim of this zone is to ensure low impact and long-term sustainable use of natural resources as well as supervision. In fact this is a transitional zone to have a function of transition between protection on one hand and intensive use on the other hand. The forms of use should be defined to meet the requirements of NP charter as well as of local population having direct dependence upon natural resources. Forms of use including use of land, water and forest resources as well as use of pastures and other forms of agricultural use should contribute to protection of SPNA ecosystems.

According to the RA Law on Specially Protected Nature Areas to mitigate the negative anthropogenic impact on SPNAs the Government of the Republic of Armenia defines buffer zone. The buffer zone is a designated area surrounding the specially protected nature area with only those economic activities allowed, which do not harm the SPNA ecosystems. In the buffer zone it is prohibited to carry out economic activity, which can jeopardize stability of ecosystems and their natural development and protection of flora and fauna representatives and objects having scientific or historical-cultural value. The buffer zones have special importance for SPNAs and if possible should be included in their administrative borders and located adjacent to reserve zones requiring strict protection in order to prevent possible impacts.

General principles and methods of landscape planning are applied for recreational and economic zones of SPNAs as well as buffer zones located out of the SPNA administrative borders (by international approach – transition, support zone). The principles of landscape planning are especially important for regulation of constructions, settlements and land use. The landscape planning contribute to harmonization of social-economic development of the area and environmental protection issues, land use and development trends of the territories, ecological requirements and desirable forms of use.

The MPs zoning programs usually includes the following information:

1. Border description of PA functional zones and spacial model;
2. Land categories and land use schemes;
3. Zoning analysis and spacial-functional features;
4. Aims of changes in zone regimes or borders as well as justifications for revision;
5. Proposals on changes of SPNA external borders or administrative-organizational structure;
6. Proposed land use changes by zones.

3.9 Action Plan

The MPs Action Plans usually include the following information:

N	Activities	Timeframe	Responsibilities	Budget and sources	Performance assessment (indicators)
	Legislation				
	Institutional				
	Conservation				
	Monitoring				
	Scientific research				
	Ecotourism and management of visits				
	Ecoeducation				
	Zonning and mapping				
	Awareness				
	Provision of information				
	Other activities				

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Appendix 1. Management of Specially Protected Nature Areas

Classification of Specially Protected Nature Areas

The Specially Protected Nature Areas of Armenia are classified as follows:

- by significance – international, national and local specially protected nature areas;
- by category – state reserve, national park, state sanctuary and natural monument*.

The Law on SPNAs sets forth that SPNAs of international and republican significance shall be owned by the state (Article 5). In order to ensure integrity and protection regime of national parks in recreational and economic zones in addition to state owned lands can be included also lands belonging to other than state owners.

Specially protected nature areas of international significance are specially protected nature areas, which comply with international standards and approved by international regulations and procedures and have the internationally unique ecosystems and their components, where comprehensive ecological monitoring should be implemented.

Specially protected nature area of republican significance are those protected areas, which have unique ecosystems, vulnerable, threatened and endangered species in the context of the Republic of Armenia, as well as plant and animal species listed in the Red Data Book of Armenia.

Specially protected nature areas of local significance are those protected areas, which have ecosystems and their components with nature protection values of community significance in the Republic of Armenia.

RA SPNAs can be united in biosphere territories, which are established for implementing general ecological monitoring as well as development and introduction of effective methods and ways of joint nature use. Biosphere territory is a system of areas encompassing scientifically, socially, historically and economically valuable landscapes, ecosystems and their components from scientific, educational, aesthetical and economic points of view and affected at different extent by natural and anthropogenic impacts where, on a basis of scientific research and comprehensive regional monitoring, the biological diversity conservation, reproduction, restoration and sustainable development are ensured.

In specially protected nature areas of different categories included in biosphere territories the regimes and limitations envisaged by the RA Law on SPNAs shall be applied. Biosphere territories can be incorporated in international ecological network in compliance with regulations and procedures of international organizations.

State Reserves are the areas of international and (or) republican significance having unique nature protection and aesthetical features and scientific, educational and historical-cultural value, where the habitat evolution processes are ongoing without direct human intervention. The reserves mainly correspond to IUCN category I.

National Parks are the area (water areas) of international and (or) republican significance having nature protection, scientific, historical-cultural, aesthetical and recreational values and which due to combination of natural landscape and cultural values can be used for scientific, educational, recreational, cultural and economic purposes and which has a special protection regime. RA National Parks correspond to IUCN category II.

* In Armenia so far there are no SPNAs belonging to other categories of IUCN classification (IB, V, VI), such as protected landscapes, protected area with managed resources and others.

Natural Monuments are natural objects having special scientific, historical-cultural and aesthetical value. Natural Monuments correspond to IUCN category III.

State Sanctuaries are areas having scientific, educational, historical-cultural and economic value and which ensure protection and natural reproduction of ecosystems and their components. Sanctuaries correspond to IUCN category IV.

Specially protected nature areas of different categories can be combined in an ecological network through ecological corridors and protection zones.

Status of SPNAs in the RA

The status of SPNAs is defined according to the requirements of the RA Law on Specially Protected Nature Areas and their objectives and peculiarities of the regime are set forth by the SPNA Charters approved by the RA Governmental decision. The fulfillment of the requirements established in the SPNAs Charters (except Natural Monuments) is ensured by the State Non-Commercial Organizations; the state-owned asset is handed over to them by property right as well as buildings, constructions and respective land areas – for free of charge use without time limits.

According to the RA Law on State Non-Commercial Organizations (2001) the State Non-Commercial Organization is a non-profit non-commercial organization with the status of legal person established for carrying out activities in environmental and other non-commercial fields.

State Non-Commercial Organizations dealing with SPNA charter requirements are environmental, scientific-research and scientific-educational (ecoeducational) organizations with the status of legal person, which function in accordance with the Republic of Armenia Constitution, Republic of Armenia Civil Code, Republic of Armenia Laws on State Non-Commercial Organizations and on Specially Protected Nature Areas, other laws, their Charters and other legal acts.

The financial means of the State Non-Commercial Organization come from the Republic of Armenia state budget allocations and fees from activities implemented and services provided by the organization, sponsorship, donations and other sources not contradicting the legislation of the Republic of Armenia. The income generated through entrepreneurial activities by the organization should be used in accordance with its charter objectives.

According to the acting legislation “Khosrov Forest”, “Erebuni” and “Shikahogh” State Reserves are non-commercial state organizations with the status of legal person and fulfilling nature protection, scientific and social-cultural activities. The protection of state reserves is implemented by their protection services.

Dilijan and Sevan National Parks SNCOs are nature protection, scientific-research and scientific-educational (ecoeducational) non-profit organizations, which act in accordance with the Republic of Armenia Constitution, Republic of Armenia Civil Code, Republic of Armenia Laws on State Non-Commercial Organizations and on Specially Protected Nature Areas, other laws, their Charters and other legal acts.

State sanctuaries have no a status of legal person and protection regime of natural monuments should be defined by their passports.

Competences of different bodies in the field of SPNA establishment, designation, management, protection and use

The Law on SPNAs (Chapter 2, Articles 8-11) defines the competences of the bodies dealing with SPNAs, namely the RA Government, authorized state body, territorial bodies of state management and local self-governing bodies.

RA Government

The competences of the RA Government in the field of establishment, designation, management, protection and use of SPNAs include formulation of SPNAs policy and approval of SPNAs strategy, approval of state programs in the field of SPNAs protection and use, approval and revision of management plans of the SPNAs of international and republican significance, approval of SPNAs Charters, definition of the orders on state cadastre, monitoring and use and a number of other competences.

Authorized state body (RA Ministry of Nature Protection)

The competences of the RA Ministry of Nature Protection (MoNP) as the state management body in the field of establishment, designation, management, protection and use of SPNAs include development of the state policy and strategy on protection and use of SPNAs, management of SPNAs of international and republican significance, approval of management plans for the SPNAs of local significance, development of SPNAs charters and a number of other competences.

The functions vested with the MoNP in the field of SPNAs management are implemented by structural and separated subdivisions under the Ministry (Bioresources Management Agency – BMA, State Environmental Inspection – SEI, Department on Environmental Protection and others) as well as through SNCOs in the structure of Ministry.

According to the RA Law on SNCOs the MoNP authorities (as authorized state body in the field) in the field of management of organizations include establishment of entities, branches or representations by defined order, definition of their management system, approval of their work plans, supervision over use and protection of state property handed over to them.

MoNP implements its functions in the field of SPNA management through BMA. The Bioresources Management Agency was established in the structure of the RA MoNP by the RA Governmental decision N 1236-N from 08.08.2002. Sevan National Park, Dilijan National Park, Lake Arpi National Park, Khosrov Forest State Reserve, Shikahogh State Reserves and Reserve-Park Complex SNCOs are subordinate to it. The mentioned SNCOs include Sevan, Dilijan and Lake Arpi national parks, Khosrov Forest, Shikahogh and Erebuni state reserves as well as the state sanctuaries Vordan Karmir, Sev Lich, Akhnabad Yew Grove, Juniper Open Woodland, Plane Grove, Khor Virap, Goravan Sands and Gilan.

The aims of BMA are to ensure scientific research, protection, reproduction and sustainable use of natural ecosystems on the RA territory, including forests, landscape and biological diversity, flora and fauna objects and natural heritage, as well as to support state policy development and management in those fields. The BMA coordinates activities on protection and sustainable use of SPNAs.

In order to fulfill its charter functions the BMA ensures implementation of measures on sustainable use, restoration and reproduction of fauna and flora objects as well as other functions. The Agency includes Departments on Fauna Resources, Flora Resources, Specially Protected Nature Areas and Arboretums Management. The BMA through Departments on

SPNAs and Arboretums Management implements also the function of support to the management of ex-situ objects of protection.

Territorial Bodies of State Management

In the field of SPNAs protection and use the territorial bodies of state management participate in development of state programs and management plans related to the SPNAs, support the protection services of SPNAs and others. Territorial bodies of state management are represented by respective departments (Environmental Department) of Marz Administrations.

Local Self-Governing Bodies

The competences of local self-governing bodies (LSGB) include participation in development of state programs and management plans of SPNAs of international and republican significance located within their administrative borders and in safeguarding protection regime of those SPNAs. In addition, the Law sets forth rather wide competences to LSGBs on submission of proposals to the authorized state body regarding establishment of SPNAs of local significance located within administrative borders of communities, development of their management plans as well as in the field of their management, protection, use and monitoring.

Public participation in SPNAs management

According to the RA Law on Specially Protected Nature Areas (Article 29) the authorized state body should provide information on the activities planned for SPNA territory, decisions on protection and use as well as ecological status of the areas. The methods to provide information about SPNAs include mass media, means of electronic communication, organization of public hearings and responses to requests.

In order to get information the public (Article 30) has the right to request and get information on protection, use and state of specially protected nature areas from the authorized state body or local self-governing body, which has protected area of local significance within its administrative borders.

In accordance with the Methodological Instructions on Development of SPNAs Management Plans stakeholders – legal and physical persons should be involved in development of draft management plan. Stakeholders of SPNAs participatory management can include state management bodies, local self-governing bodies, specialized and academic scientific-research organizations, higher education institutions, land users, tourist and public organizations, mass media, representatives of private sector and others. In order to ensure participation the organization dealing with management planning should organize meetings with local population to analyze possible conflicts, get proposals, prepare respective meeting minutes and provide information on the course of planning activities. As a result of the mentioned activities the stakeholders are identified.

SPNAs Establishment Procedure

According to the RA Law on Specially Protected Nature Areas (Article 5) the establishment and definition of the category for new SPNAs in the country should be done by the RA Government. The proposals on designation of specially protected nature areas for the specially protected nature areas and objects of local significance are made by local self-governing bodies to the

state authorized body (Ministry of Nature Protection); then the state authorized body by established order submits the draft decision on establishment for Governmental approval.

New SPNAs should be established by the established procedure for the approval of the RA Governmental draft decisions in accordance with the RA Law on Legal Acts (2002). In accordance with this procedure the draft package of the RA Governmental decision on establishment of new SPNAs should include justification for the need to establish a proposed SPNA, the reference document on changes in the expenses and incomes of the budget of the state or local self-governing body as well as in acting legislation connected with the approval of the draft decision. The package should be submitted for discussion of the stakeholder ministries and organizations connected with the new SPNA, including the RA Ministry of Justice. After discussion and summarization of the remarks and comments received from the stakeholders the draft decision package is submitted by the RA Ministry of Nature Protection for discussion of the RA Governmental session. The RA Government makes decision on establishment of the SPNA and SNCO, approval of their Charters, of definition and changes of categories and zones as well as of size and description of borders.

According to the RA Governmental decision N 72-N from 22.01.09 the area envisaged for SPNA establishment should meet the following criteria:

- presence of globally, regionally or nationally endangered ecosystems and rare, threatened and endangered species;
- presence of species registered in the Red Data Book of Armenia and/or IUCN Red List;
- presence of ecosystems having special role for existence of breeding sites, migration routs and species;
- presence of Important Bird and Plant Areas;
- rich species composition of biological diversity;
- presence of endemic and relict species;
- presence of wild (virgin) ecosystems not affected by anthropogenic impact.

For establishment of SPNAs the following should also be taken into account: aesthetic significance of the area (unique landscapes, hot and mineral water springs, objects of natural and historical-cultural heritage), recreational capacities, high importance for science and/or education as well as the need to ensure representation of ecosystems and species, which are not included or partly included in the system of SPNAs.

Appendix 2. Planning of Internationally Recognized Areas

World Heritage Sites

The purpose of management of World Heritage values is to ensure the protection of “outstanding universal value” for present generation and its transmission unimpaired to future generations. The approaches of management planning are based at the principles of the World Heritage Convention. The approaches can differ depending on perspectives of area development, types of cultural and natural values, available resources and other factors. They can include existing traditional, town planning, special and regional planning methods and other planning mechanisms both officially accepted and informal. The transparency of monitoring and reporting systems for cultural and natural values is important. Regular annual reports make an important component of management planning activities.

The main approaches of management planning for World Heritage Sites include provision of feedback on planning, implementation, monitoring, assessment and revision, planning based at assessment of values, full involvement of partners and stakeholders, capacity building for the parties involved in the planning process and use of approaches on impact prevention.

Ramsar (wetland) Sites

The management programs and priorities of Ramsar Sites (wetlands) are based at the policy implemented by the country as well as data received from area survey, assessment of natural factors and current state and inventory. Protection and restoration of wetlands are considered priorities of management programs. They have multiple purposes, such as biodiversity protection, food supply, water balance regulation and water protection, recreation and others.

The planning process should be aimed at restoration of the natural state as well as prevention of undesirable phenomena (floods, epidemics, spread of diseases, water salination and others). The prioritization of the idea of economic profitability of wetland management and protection over restoration of water ecosystems or habitats is an important approach in the planning process. The restoration activities should be defined with taking into account the entire complex of catchments basins and the link of wetlands with other ecosystems. The details on Ramsar management planning are presented in international manuals on Ramsar Sites management (Ramsar Handbook for the Wise Use of Wetlands, N8, Frameworks for Managing Wetlands of International Importance and Other Wetlands).

UNESCO Biosphere Reserves

There is no fixed format for development of management plans for Biosphere reserves. Biosphere reserves include state and privately owned lands. The activities of management plans include wide framework and can comprise sub-programs for territories of different significance and status. Different organizational and administrative components of biosphere reserves can have separate management plans. Strictly protected areas, which as a rule make a core of biosphere reserve, usually have detailed management plans and adjacent areas are managed by respective existing programs, plans or policies on land use, nature use, town building or agriculture. The management objectives of buffer (support, transition) zones can include sustainable nature use, such as ecologically sound agricultural production, application of sustainable water use methods, promotion of ecotourism and scientific research.

Participatory management planning is an important requirement for biosphere reserves. Wide consultations are important for development of management plans for biosphere reserves. If their development and acceptance is not participatory, then the possibility of implementation of envisaged activities and measures as well as their effectiveness can be very low.

There are the following main requirements for biosphere reserves:

- It should promote resolution of land use conflicts, protection of biological and landscape diversity, identification of practical ways for ecoeducation, recreation and tourism development for effective solution of protection and sustainable development problems.
- It should comprise a core zone (a strictly protected area where little human influence is permitted), buffer zone (an area surrounding the core zone where impacts are prevented or mitigated) and transition area (external support zone where sustainable use of resources by local communities is encouraged).
- It can include protected areas of different categories (reserves, sanctuaries, natural monuments and others) as well as internationally recognized areas (such as World Heritage Sites or Ramsar Sites).
- It should be big enough to ensure conservation and support functions of biosphere reserves.
- It should include typical and representative ecosystems as well as territories being affected by different anthropogenic impacts;
- It should ensure complex approaches for management of territories having different environmental values and under different forms of ownership.

The management plan activities are based on the above mentioned requirements and the following main functions of biosphere reserves:

- conservation function (conservation of landscapes, ecosystems, species and genetic resources);
- development function (facilitation of economic and human development which is socio-culturally and ecologically sustainable);
- logistic function (support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development);
- Promotion of conflict resolution and implementation of joint activities as well as identification of the ways to achieve them.