# FINDINGS AND ANALYSES

PRESSURES AND THREATS

OVERVIEW OF PRESSURES AND THREATS

The variation of pressures and threats between PAs was not due to their geographical location or regional and/or socio-economic factors, which, on the whole, are similar for different regions of the country. Instead, variation was caused by the institutional capacity of an individual PAs administration.

■ **Logging** Logging as a pressure and also as a threat is higher in sanctuaries and in a number of state nature reserves. The definition of "logging" according to the RAPPAM assessment methodology also includes legal loggings, which are allowed in sanctuaries and in some of the zones of the National Parks. Illegal logging is a wide-spread problem throughout the system (Figure 1). PA managers consider this factor the most important gauge of their management effectiveness, making it very case-sensitive. That is why indicators, especially those of zero levels, for some of the PAs (e.g., Lagodekhi SNR, Korugi S, Liakhvi SNR, Saguramo SNR) simply may not be reliable. For example, it is not realistic to expect that there were no loggings in the last five years in Liakhvi SNR which borders one of the conflict zones, is hardly controlled and is very weak in terms of capacity.

Figure 1. Pressures and Threats – Logging including legal and illegal logging
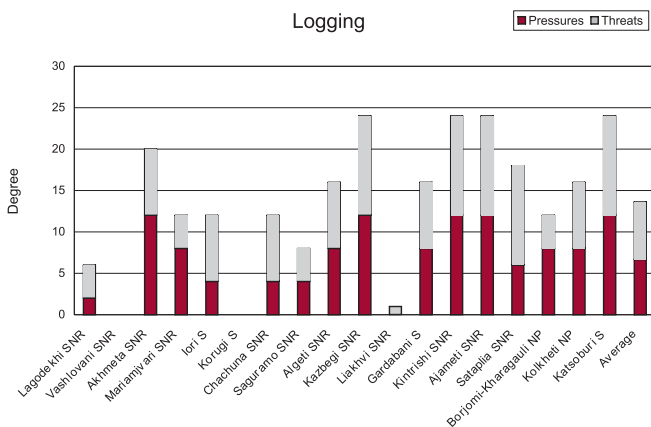
■ **Conversion** of land use including the conversion of protected land to housing, settlements, roads, agriculture, tree plantations, and other non-protected uses did not appear to be a serious problem for the PA system (Figure 2). However, in a few areas this is still a problem mainly due to the local rural population.

Figure 2. Pressures and Threats – Conversion of land use
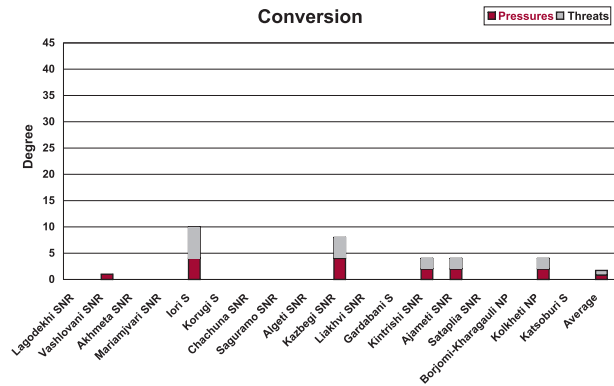
■ **Mining** Mining is only an issue in a few areas (Figure 3). The definition of mining was expanded to include all forms of drilling, mining, and exploration of underground resources, as well as waste produced by such activities and, in addition, extraction of surface and ground waters. Indeed, surface water extraction for drinking water purposes became an issues in Lagodekhi SNR and Borjomi-Kharagauli NP where a number of local communities, due to their location and poor water supply systems, do not have any other access to water other than to extract surface water from the territories of the PAs. As a short term solution, a special water supply rehabilitation program is underway with the support of German Government/KfW in the support zone communities of Borjomi-Kharagauli NP. For Kolkheti NP, the threat of mining is related to various lobbies seeking to extract peat from the NP territory. Mining in Kazbegi SNR is illegal and has involved the extraction of mineral deposits (building materials) and waste produced by these operations. The root cause of this problem is related to a highly-segmented design (more than 120 separated from each other segments of the land) of the above SNR.

Figure 3. Pressures and Threats – Mining
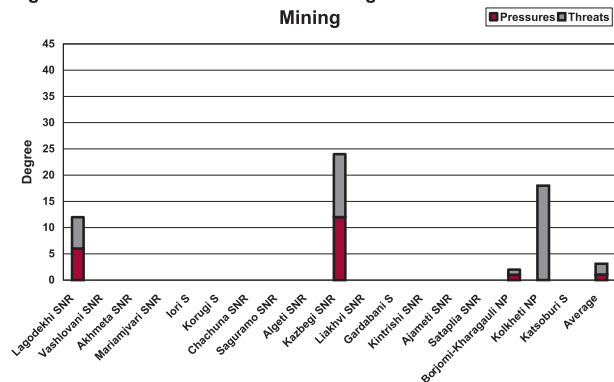
■ **Grazing**-Grazing is prevalent and a significant pressure for the most of the PAs (Figure 4). It should be pointed out again that some very low and zero level indicators are probably not reliable.

Figure 4. Pressures and Threats – Grazing
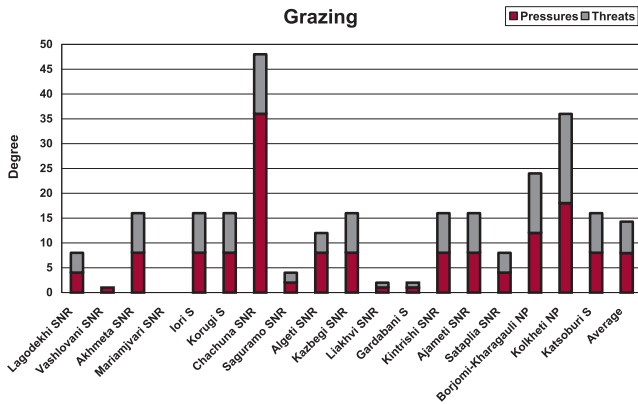
■ **Dam building**-Dam building, including dams for recreation, fishing, drinking water, and hydro-electricity generation, in relatively sensitive areas in terms of pressure and threat was only considered a problem in Kolkheti NP and Lagodekhy SNR (Figure 5). These pressures and threats are sound for Kolkheti NP. The lowland wetland territory of this PA and neighboring areas have been subject to large-scale drying-out operations since the 1920s intended for the conversion of wetlands for agricultural use.

While the analysis shows that dam building has not become a severe issue for Lagodekhi SNR, the situation here is far more complicated. On July 22, 2003, shortly after the RAPPAM National Participatory Workshop, a local lobbying group in Lagodekhi submitted an EIA statement for the construction of three hydroelectric plants on the territory of Lagodekhi SNR to the Ministry of Energy. The Ministry rejected not only this particular EIA, but also the whole idea of constructing hydroelectric plants in the protected areas of IUCN Cat. I-IV (October, 2003). The lobbing group is planning to renew the EIA for resubmission. Considering the Lagodekhi district's shortages in electricity, this threat of new dams is significant.

Figure 5. Pressures and Threats – Dam building
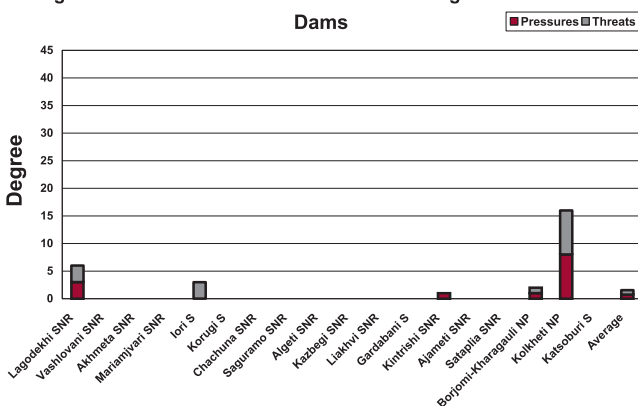
■ **Hunting**-Hunting includes legally sanctioned hunting practices that threaten protected area resources, poaching for illegal trade, and hunting for subsistence purposes. The analysis revealed a very critical situation for Kazbegi SNR (Figure 6). Generally, hunting became apparent as a severe problem for many of the PAs with poor social-economic conditions and a low level of enforcement.

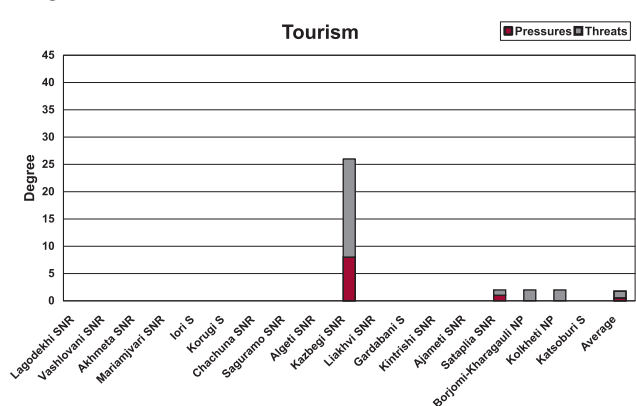Figure 6. Pressures and Threats – Hunting
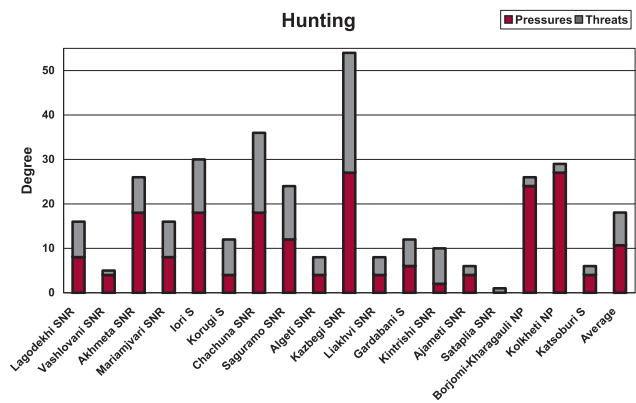
■ **NTFP collection** The most influenced PAs with regard to NTFP collection are Kazbegi SNR and Akhmeta SNR (Figure 7).

Figure 7. Pressures and Threats – NTFP collection
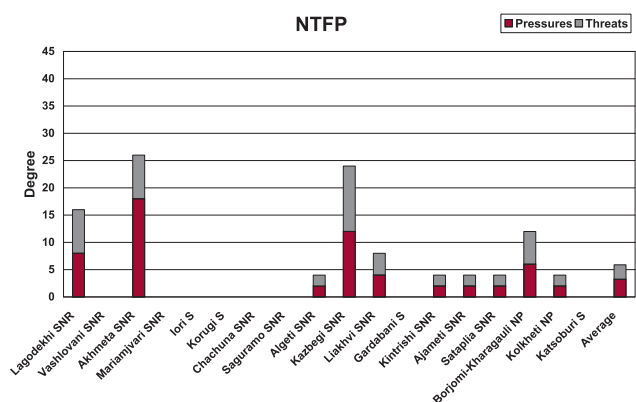
■ **Tourism and recreation** Kazbegi SNR appeared to be the single most threatened PA throughout the whole system (Figure 8) due to its highly fragmented allocation. This also shows that, on the whole, the system has not been designed for tourism and recreation (including environmental education) purposes.

Figure 8. Pressures and Threats – Tourism and recreation

Waste disposal Waste disposal unexpectedly appeared to be a problem for a number of PAs (Figure 9).

Figure 9. Pressures and Threats – Waste disposal
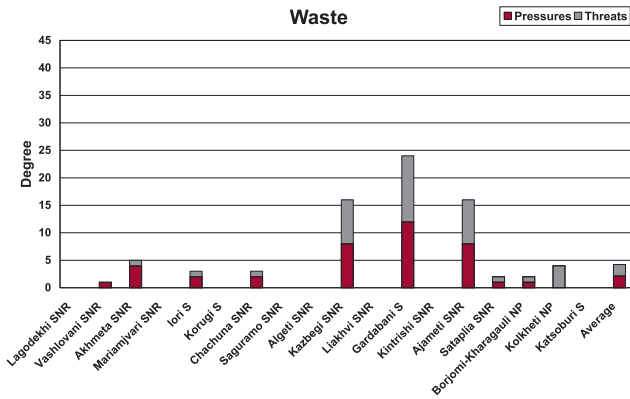
Semi-natural processes The analysis outlined an overwhelming degree for Algeti SNR and significant degrees of threat for other PAs (Figure 10).

Figure 10. Pressures and Threats – Semi-natural processes
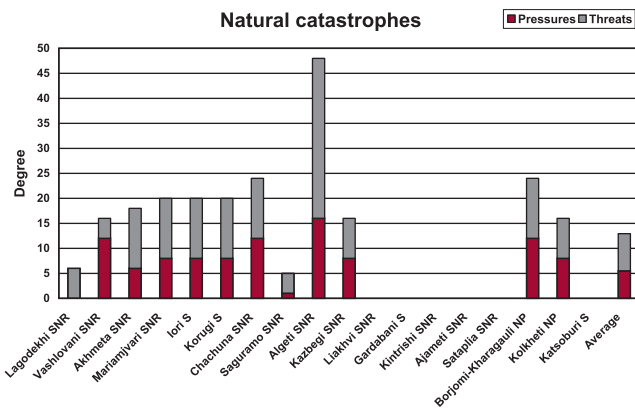
Cross-boundary influences The analysis showed that the pressure and threat from flooding due to surrounding land management practices (Figure 11) are very significant for Chachuna, Korugi, Iori and Gardabani sanctuaries.

Figure 10. Pressures and Threats – Semi-natural processes
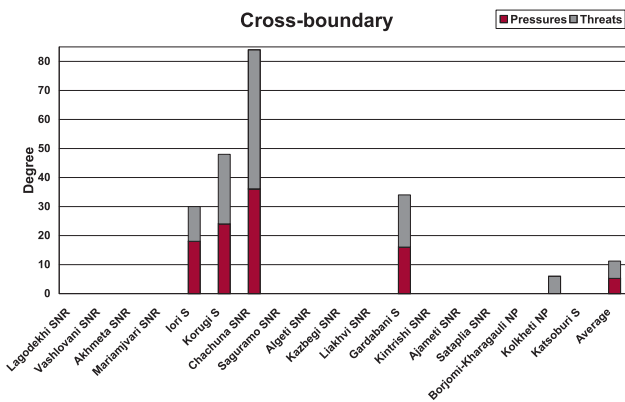
Invasive alien species Pressures and threats caused by invasive plant species were an unexpected issue for a significant number of PAs (Figure 12).

Figure 10. Pressures and Threats – Semi-natural processes
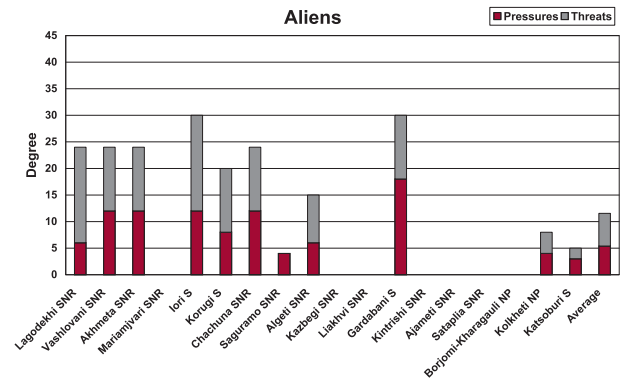
Construction and operation of infrastructure sites The threat (pressure/threat) originated from infrastructure sites is catastrophic for the Chachuna sanctuary (Figure 13) and comes from neighboring non-operated irrigation infrastructures built in last century.

Figure 13. Pressures and Threats – Infrastructure (Construction and operation of infrastructure sites in neighboring to the PA areas)
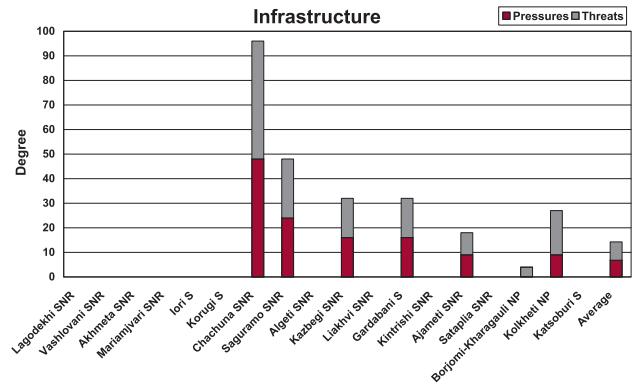
Transportation through PA (servetute right holder transportation) Analysis of "transportation" included transportation (with or without motor vehicles) to and from the settlements, agricultural land plots and any other lands which are located within the boundaries of the PA, but at the same time are not the part of the PA lands (Figure 14). The pressure/threat is very significant for a substantial number of the PAs. This is connected with the fragmented design of the PAs and uncertain servetute right related issues.

Figure 14. Pressures and Threats – Servetute (Transportation /with or without motor vehicles/ to and from the settlements, agricultural land plots or any other lands which are located within the boundaries of the PA, but at the same time are not part of the PA
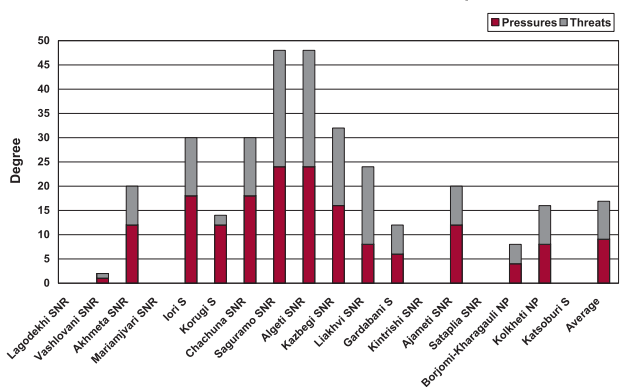
TOTAL DEGREE OF PRESSURE AND THREAT

The analysis was conducted across all protected areas by averaging the degree of pressures and threats system-wide. Comparative analysis identified systemic pressures and threats, and finally helped to formulate relevant recommendations. In the examples below (Figure 15 and Figure 16) the most threatened PAs are Chachuna S, Kazbegi SNR and Kolkheti NP and the least threatened PAs are Vashlovani SNR, Liakhvi SNR, Kintrishi SNR, Sataplia SNR and Katsoburi S. Hunting, grazing, logging and transportation caused by servetute right holders constitute the most serious pressures and threats, while, tourism, conversion of lands, mining, and dam building constitute only minor threats and pressures to the protected area system as a whole.
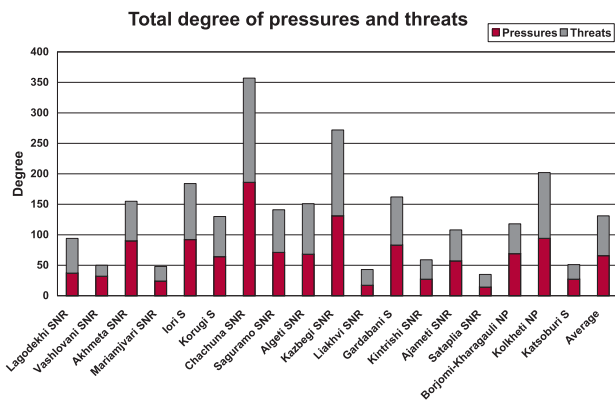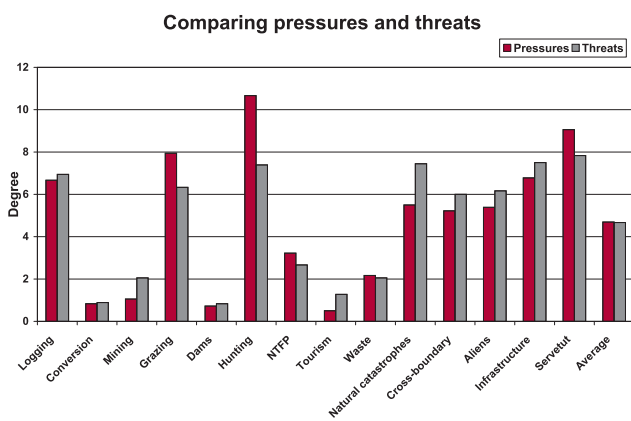
Figure 15. Total degree of Pressures and Threats

Figure 16. Pressures and Threats : Comparing

Development of Infrastructural Projects : Construction of Pipeline / Photo WWF Caucasus

BIOLOGICAL AND SOCIO-ECONOMIC IMPORTANCE

The assessment indicates that the biological importance of Georgia's PAs are substantially higher than their socio-economic importance, this is especially evident in strict nature reserves (Figure 17). Generally, most PA contain high numbers of rare, threatened, or endangered species; have high levels of biodiversity and a high degree of endemism; significantly contribute to the representative nature of the PA system; sustain minimum viable populations of key species; include ecosystems whose historic range has been greatly diminished; and maintain natural processes and disturbance regimes.

Figure 17. Biological and socio-economic importance
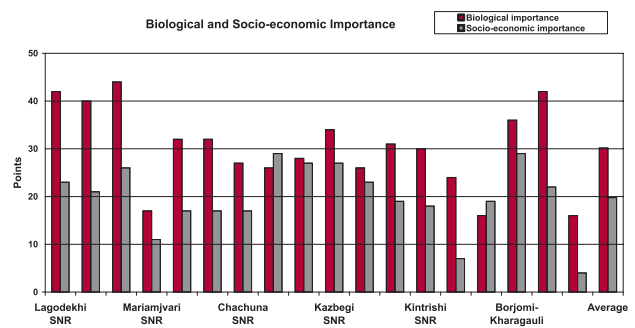
Uncontrolled grazing / Photo WWF Caucasus

Illegal loging / Photo WWF Caucasus

VULNERABILITY

The assessment of vulnerability included: a) illegal activities within the PA that are difficult to monitor; b) law enforcement within the region; c) bribery and corruption throughout the region; d) civil unrest and/or political instability; e) cultural practices, beliefs, and traditional uses in conflict with the PA objectives; f) the market value of the PA resources; g) easy access for illegal activities; h) strong demand for vulnerable PA resources; i) pressure on PA managers; j) recruitment and retention of employees, and k) low level of social-economic development and high level of unemployment and poverty.

According to the assessment (Figure 18 and Figure 19) the average vulnerability is fairly significant and equally distributed across the system.

A low level of social-economic development and high level of unemployment and poverty, along with corruption and low level of enforcement, constitute high vulnerable indicators across the system, while conflict with traditional beliefs constitutes a less important indicator.
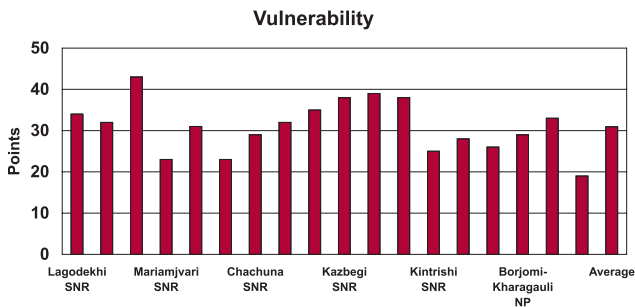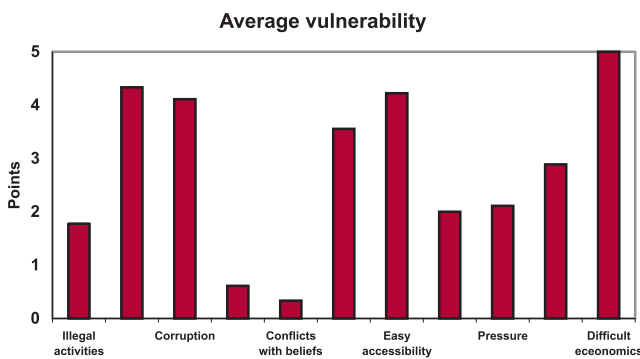
Figure 18. Vulnerability

Figure 19. Average vulnerability

MANAGEMENT EFFECTIVENESS : STRENGTHS AND WEAKNESSES

EFFECTIVENESS OF PLANNING, INPUTS, PROCESSES AND OUTPUTS

The analysis of management effectiveness covers the following areas: planning, inputs, processes, and outputs. "Planning" includes protected area objectives, legal security, and protected area site design. "Inputs" includes staff, communication, infrastru-cture, and finances. "Processes" includes management planning, management practices, and research, monitoring, and evaluation. The analysis was conducted for individual protected areas, as well as for the system as a whole. This analysis showed that outputs are higher for those protected areas which had become subject to foreign technical and financial intervention during the past 3-5 years, as in for example Borjomi-Kharagauli NP and Kolkheti NP (Figure 20).

Management effectiveness was also analyzed within different national categories of protected areas (Figure 21). This analysis revealed that, with regard to planning, inputs, processes and outputs, manage-ment is most effective in national parks and less effective in sanctuaries.
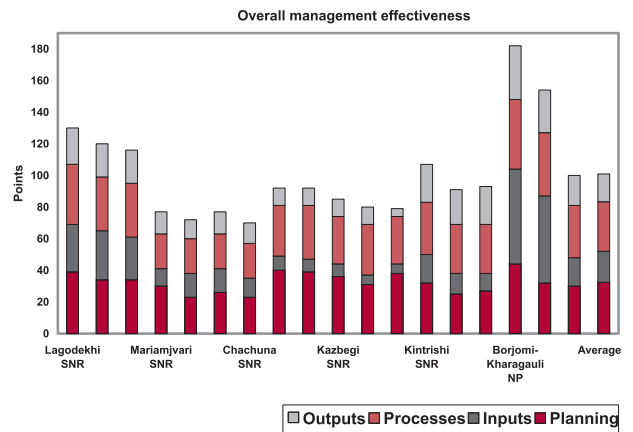
Figure 20. Overall Management effectiveness

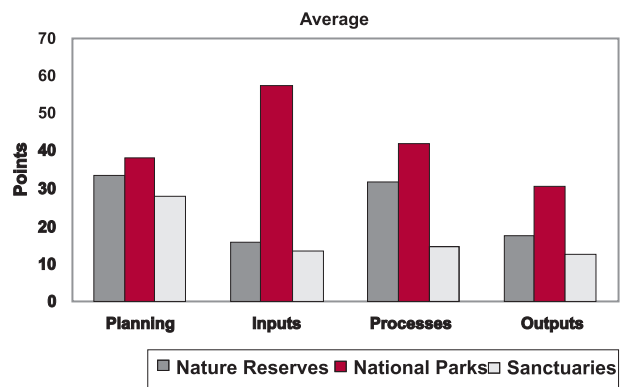
Figure 21. Management effectiveness within PA different categories

PROTECTED AREA SYSTEM-LEVEL MANAGEMENT EFFECTIVENESS

Management effectiveness was analyzed on the whole system level. This analysis indicated system-wide, policy-level strengths and weaknesses (Figure 22, Figure 23 and Figure 24).

According to this analysis the strengths of the PA system are the following:

■ There is a high level of representation of the full diversity of ecosystems.

■ There is a high level of primary exemplary and intact ecosystems.

■ There is systematic protection of high-level biodiversity sites.

■ National PA policies clearly articulate a vision, goals and objectives for the PA system.

■ There is an officially and formally demonstrated commitment at national level to protect a viable and representative PA network.

■ Laws governing protected areas are in place and generally complement PA objectives and promote management effectiveness.

■ Environmental protection goals are incorporated into all aspects of policy development.

■ National policies foster dialogue with civic and environmental NGOs, the general public and the international environmental community.

Weaknesses of the PA system are the following:

■ The layout and configuration of the present PA system does not optimize the conservation of biodiversity.

■ The area that is protected is not adequate to maintain natural processes at the landscape level.

■ There is no comprehensive inventory of biological diversity in Georgia.

■ There are only a few relevant and full-scale restoration targets for under-represented and greatly diminished ecosystems.

■ The PA system is not periodically reviewed for gaps and weaknesses.

■ Only two PAs have effective training and a capacity-building programme for PA staff.

■ PA management, including management effectiveness, is not evaluated on a regular basis.

■ There is no effective law enforcement of PA-related laws.

■ National policies do not promote sustainable land management.

■ There is a low degree of communication between natural resources related agencies.

■ There is no adequate environmental training for governmental employees at all levels.
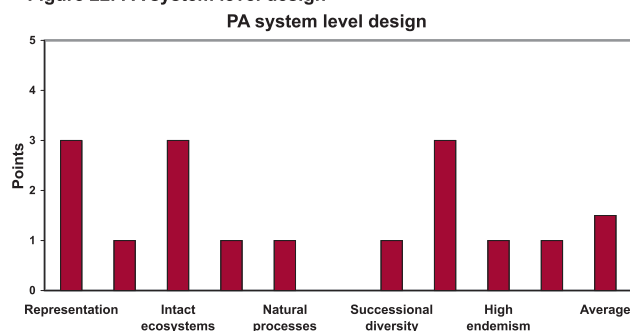
Figure 22. PA system level design

PA system level design

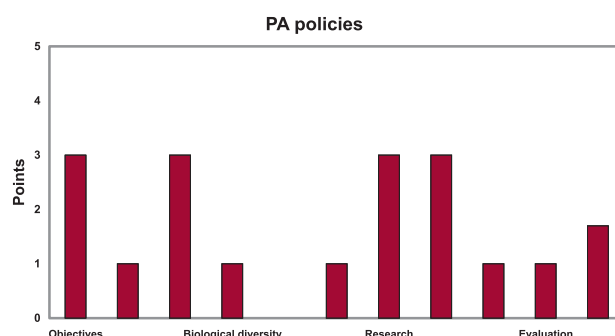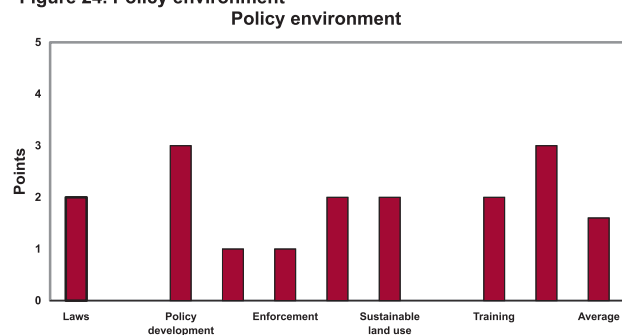Figure 23. PA policies

PA policies

Figure 24. Policy environment

Policy environment

CONSERVATION AND SOCIO-ECONOMIC PRIORITIES

The assessment of conservation and socio-economic elements included biological and socio-economic importance. To determine which areas were most at risk the degree of biological importance was compared to the cumulative degree of the threat for each protected area (Figure 25). Such information helped in prioritizing and scheduling support for individual protected areas. Similarly, socio-economic importance was compared with a cumulative degree of threat (Figure 26).

The analysis revealed that Kolkheti NP,

Lagodekhi SNR and Lori S are most at risk and therefore constitute a conservation priority. Liakhvi SNR was determined the lowest conservation priority throughout system.

Kazbegi SNR, Kolkheti NP, and Algeti SNR came into view as the most significant PAs in terms of socio-economic importance.

The above results compared contextual elements which were used for the formulation of recommendations of the assessment.
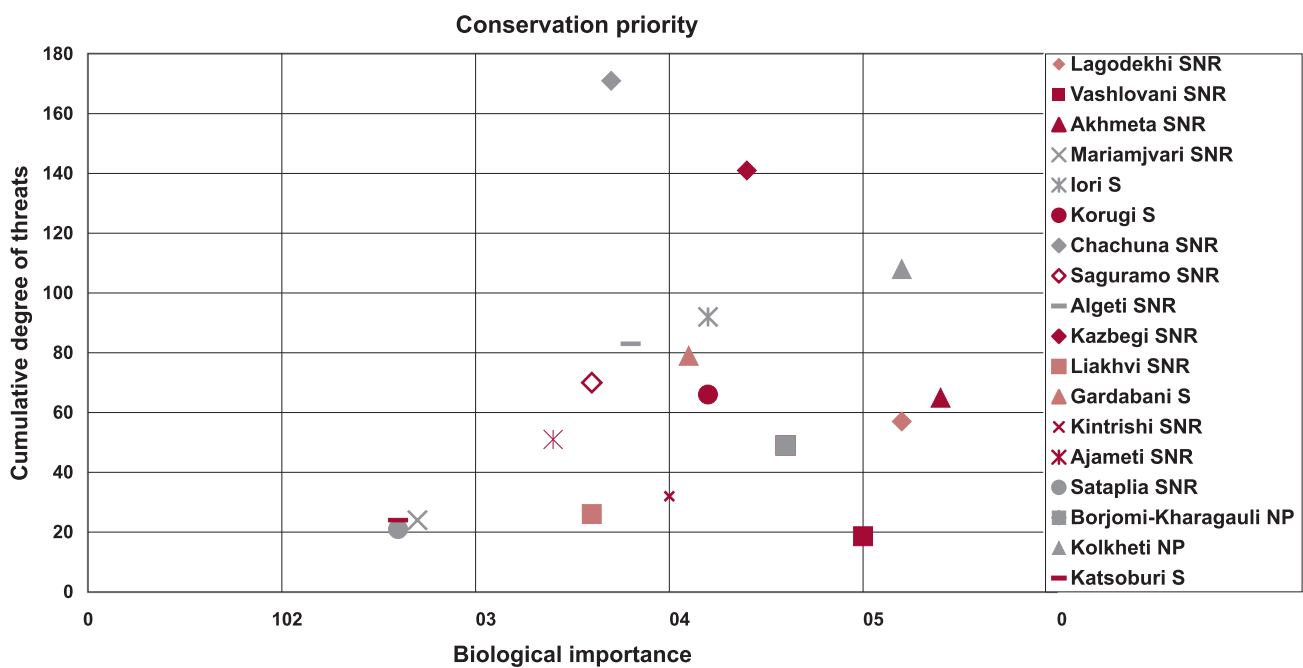
Figure 25 . Conservation priority

Figure 26 . Socio-economic priority