

Cover Note

Project Title: Conservation of Montane Forest and Paramo in the Colombian Massif

Date: 08-01-2001

	Work Program Inclusion	Reference/Note:
1. Country Ownership		
<ul style="list-style-type: none"> Country Eligibility 		Cover page Paragraphs 58 and 59
<ul style="list-style-type: none"> Country Drivenness 	Clear description of project' s fit within: <ul style="list-style-type: none"> National reports/communications to Conventions National or sector development plans Recommendations of appropriate regional intergovernmental meetings or agreements. 	<ul style="list-style-type: none"> Paragraph 58 Paragraph 9 – 14, Annex I
<ul style="list-style-type: none"> Endorsement 	<ul style="list-style-type: none"> Endorsement by national operational focal point. 	Attached to brief
2. Program & Policy Conformity		
<ul style="list-style-type: none"> Program Designation & Conformity 	Describe how project objectives are consistent with Operational Program objectives or operational criteria.	<ul style="list-style-type: none"> Paragraph 59
<ul style="list-style-type: none"> Project Design 	Describe: <ul style="list-style-type: none"> sector issues, root causes, threats, barriers, etc, affecting global environment. Project logical framework, including a consistent strategy, goals, objectives, outputs, inputs/activities, measurable performance indicators, risks and assumptions. Detailed description of goals, objectives, outputs, and related assumptions, risks and performance indicators. Brief description of proposed project activities, including an explanation how the activities would result in project outputs (in no more than 2 pages).¹ Global environmental benefits of project. 	<ul style="list-style-type: none"> See project context and baseline activities (paragraphs 5-32), Annex F Annex B, also paragraphs 71-75 Paragraphs 33-57, 71-75, Annex B Paragraphs 39-54, Annex B (Page B-6) Paragraphs 1-4, 59-57, Annex E

¹ A project/program could undertake detailed design (specification of project outputs) during the first phase of implementation, with clear benchmarks for approval of the subsequent phase. A project could also be an adaptable program loan with several phases, where achievement of the clear benchmarks at the end of each phase is a necessary condition for approval of the next phase. In such projects, describe in detail the project output for the first phase and describe briefly the project activities for that phase.

	Work Program Inclusion	Reference/Note:
	<ul style="list-style-type: none"> • Incremental cost estimation based on the project logical framework • Describe project outputs (and related activities and costs) that result in global environmental benefits • Describe project outputs (and related activities and costs) that result in joint global and national environmental benefits • Describe project outputs (and related activities and costs) that result in national environmental benefits • Describe the process used to jointly estimate incremental cost with in-country project partner • Present the incremental cost estimate. If presented as a range, then brief explanation of challenges and constraints and how these would be addressed by the time of CEO endorsement 	<ul style="list-style-type: none"> ▪ Annex A ▪ Paragraphs 33-38 (narrative of the GEF alternative) and pages A-10 to A-12 (incremental cost matrix) ▪ Paragraphs 33-38 (narrative of the GEF Alternative), 39-35 and pages A-10 to A-12 (incremental cost matrix) ▪ Paragraphs 33-38 (narrative of the GEF Alternative), 39-35 and pages A-10 to A-12 (incremental cost matrix) • See Annex A • Paragraph 69, 70, and pages A-10 – A-12
<ul style="list-style-type: none"> • Sustainability (including financial sustainability) 	Describe proposed approach to address factors influencing sustainability, within and/or outside the project to deal with these factors.	<ul style="list-style-type: none"> • Paragraph 71-75
<ul style="list-style-type: none"> • Replicability 	Describe the proposed approach to replication,(for e.g., dissemination of lessons, training workshops, information exchange, national and regional forum, etc) (could be within project description).	<ul style="list-style-type: none"> • Paragraphs 76-78, and see Outputs 6 and 7 and Annex J
<ul style="list-style-type: none"> • Stakeholder Involvement 	<ul style="list-style-type: none"> • Describe how stakeholders have been involved in project development. • Describe the approach for stakeholder involvement in further project development and implementation. 	<ul style="list-style-type: none"> • Annex H, Paragraph 34 • Table H-3 Paragraph 67, 78; see Output 6
<ul style="list-style-type: none"> • Monitoring & Evaluation 	<ul style="list-style-type: none"> • Describe how the project design has incorporated lessons from similar projects in the past. • Describe approach for project M&E system, based on the project 	<ul style="list-style-type: none"> • Paragraph 60-62

	Work Program Inclusion	Reference/Note:
	logical framework, including the following elements: <ul style="list-style-type: none"> • Specification of indicators for objectives and outputs, including intermediate benchmarks, and means of measurement. • Outline organizational arrangement for implementing M&E. • Indicative total cost of M&E (may be reflected in total project cost). 	<ul style="list-style-type: none"> • Annex B • Paragraphs 76-78 • Paragraph 70, BL 8 (subsumed)
3. Financing		
<ul style="list-style-type: none"> • Financing Plan 	<ul style="list-style-type: none"> • Estimate total project cost • Estimate contribution by financing partners. • Propose type of financing instrument 	Annex A, Cover Page, Paragraph 69 and 70
<ul style="list-style-type: none"> • Implementing Agency Fees 	Propose IA fee	
<ul style="list-style-type: none"> • Cost-effectiveness 	<ul style="list-style-type: none"> • Estimate cost effectiveness, if feasible. • Describe alternate project approaches considered and discarded. 	<ul style="list-style-type: none"> • See paragraphs 72-75 • See paragraphs 33-38, 60-62
4. Institutional Coordination & Support		
<u>IA Coordination and Support</u> <ul style="list-style-type: none"> • Core commitments & Linkages 	Describe how the proposed project is located within the IA' s: <ul style="list-style-type: none"> • Country/regional/global/sector programs. • GEF activities with potential influence on the proposed project (design and implementation). 	<ul style="list-style-type: none"> • Paragraph 63 • Paragraphs 60-62, Annexes I and J
<ul style="list-style-type: none"> • Consultation, Coordination and Collaboration between IAs, and IAs and EAs, if appropriate. 	<ul style="list-style-type: none"> • Describe how the proposed project relates to activities of other IAs (and 4 RDBs) in the country/region. • Describe planned/agreed coordination, collaboration between IAs in project implementation. 	<ul style="list-style-type: none"> • Paragraphs 33-38 • Annexes I and J • Annex I
5. Response to Reviews		
Council	Respond to Council Comments at pipeline entry.	
Convention Secretariat	Respond to comments from Convention Secretariats .	
GEF Secretariat	Respond to comments from GEFSEC on draft project brief.	
Other IAs and 4 RDBs	Respond to comments from other IAs, 4RDBss on draft project brief.	
STAP	Respond to comments by STAP at work program inclusion	
Review by expert from STAP Roster	Respond to review by expert from STAP roster. ²	See Annex C and C-1

² STAP Roster Review, and IA response, is a required annex of the project brief.

PROJECT BRIEF

1. IDENTIFIERS :

PROJECT NUMBER:

NAME OF PROJECT: **Colombia: Conservation of Montane Forest and Paramo in the Colombian Massif, Phase I**

DURATION: Six Years

IMPLEMENTING AGENCY: UNDP

EXECUTING AGENCY: Ministry of The Environment through the National Parks Service

REQUESTING COUNTRY: Colombia

ELIGIBILITY : Colombia ratified the CBD on 24 November 1994 through national law 165

GEF FOCAL AREA: Biodiversity

GEF PROGRAMMES: OP4: Mountain Ecosystems

2. SUMMARY:

The project is a two-phased initiative structured to conserve biodiversity in six globally outstanding ecoregions converging in the heart of the Colombian Massif by designing, and rendering operational, a broad-based *Massif Protected Area System* (MPAS). Three National Parks, comprising the *Andean Biosphere Reserve* and protecting 3,750 km² of the Massif above 2000 m.a.s.l., will be operating with increased efficiency and in close coordination with local communities under the framework of jointly developed management plans for park and buffer zones. To this end, the project will establish the necessary mechanisms and processes to effectively decentralize and broaden stakeholder involvement and responsibility in protected area management. In an area encompassing seven distinct indigenous groups (27% of the country's indigenous population), conservation compatible land-use practices, enriched with traditional knowledge of biodiversity use, will be employed in buffer zones and in the areas forming corridors between the targeted parks. These corridors will comprise an additional 1,500 km² under a mosaic of land uses, including private reserves, conservation areas within peasant farms, and indigenous reserves, all providing critical habitat requirements within the overall greater ecosystem. In addition, a further 5,750 km² will be placed under conservation by way of three new large protected areas of different management categories and regimes including combinations of indigenous, private, municipal, and national authorities. These efforts will raise the area of natural forest and paramos under protection in the Massif to at least 11,000 km², or over 50% of the project area, ensuring considerable benefits to global biodiversity, carbon storage values, as well as significant contributions to protection of important watersheds. The result will be an archipelago of wildland areas of appropriate size and shape, providing sufficient connectivity in the landscape to ensure adaptive potential to change, migration and dispersal, all nested within bioregional, social and community development programmes. The project, to be executed in two phases, provides a framework for regional conservation firmly embedded in a significant sustainable development baseline, thereby ensuring global biodiversity benefits over the long-term.

3. COSTS AND FINANCING (US\$ MILLION) :

PREPARATION

PDF A GEF	0.025
GoC	0.080
GEF Phase 1	4.000

GEF Total Phase I

4.025¹

Co-funding

¹ While the first Phase of this initiative has been costed at US\$4.0 in GEF financing, resources for a second Phase – in the order of US\$ 3 million - will be requested based on the successful conclusion of the first.

UAESPNN	0.782
National Royalties Fund	0.656
WFP	0.199
Holland	0.603
National Reconstruction and Peace Fund	3.400
CRC	0.558
IDB (CVC, CRC-CORPOAMAZONIA, CORPONARIÑO)	1.459
CAM (UAESPNN and France CDM)	1.544
Belgium	0.500
PLANTE	0.200
SENA	0.590

**Total Co-funding for Phase I and II in final stages
of confirmation** **10.834**

Co-funding for Phase I - fully confirmed **6.864**

UAESPNN	0.391
National Royalties Fund, NRF	0.328
WFP	0.199
Holland	0.603
National Reconstruction and Peace Fund, NRPF	1.7
CRC	0.205
CRC / OP	0.353
CVC	0.015
IDB (CARs)	1.454
CAM (CDM)	0.809
CAM (Parks)	0.117
Belgium	0.500
PLANTE	0.200

Estimated co-financing for Phase II	4.423
Co-financing for Phase II identified and in final stage of negotiation	3.627
Co-funding to be raised during project <i>for Phase 2</i> from GTZ, ECOFONDO, PRONATTA, municipalities and others.	0.796

**Total Project Cost for Phase I with preparation
costs** **10.969**

**Estimated Total for Phase II without preparation
costs** **7.423**

Estimated Total Project Cost **15.392**

**Estimated Total Project Cost without preparation
costs** **18.287**

4. ASSOCIATED FINANCING: Baseline financing costed at US\$ 645.045 million

5. OPERATIONAL FOCAL POINT ENDORSEMENT:

Name: Ms. Claudia Martinez Zuleta *Title:* Viceminister
Organisation: Ministry of the Environment *Date:* December 2000

- 6. IA Contact:** Lita Paparoni, Regional Co-ordinator, UNDP/ RBLAC GEF Unit,
Tel (212) 906 5468; Fax (212) 906 6688; e-mail (lita.paparoni@undp.org)

List of Acronyms

ACIN	Organisation of Indigenous Councils in Northern Cauca
ADC	Association for Peasant Development
ADEMCA	Association of Entrepreneurs and Businesses in Cauca
AECI	Spanish Agency for International Co-operation
ASOMAC	Association of Colombian Massif Municipalities
CAM	Upper Magdalena Regional Environmental Authority
CAR	Regional Environmental Authority
CIC MASSIF	Massif Inter-CAR Agreement
CIMA	Committee for the Integration of the Massif
CITMA	Tropical Andean Inter-institutional Corporation for the Environment
CMDR	Municipal Council for Rural Development
CNCh	Nasa Chacha Corporation
CNK	Nasa Kiwe Corporation
CORPOAMAZONIA	Regional Environmental Authority for the Amazon Region
CORPONARIÑO	Nariño Regional Environmental Authority
CORTOLIMA	Tolima Regional Environmental Authority
CRC	Cauca Regional Environmental Authority
CRIC	Cauca Regional Indigenous Council
CRIH	Huila Regional Indigenous Council
CRIT	Tolima Regional Indigenous Council
CVC	Valle de Cauca Regional Environmental Authority
ECOFONDO	Corporation Ecofondo
FEDERACAFE	National Federation of Coffee Growers
FSM	Serrania de Minas Foundation.
GoC	Government of Colombia
GTZ	German Technical Co-operation Agency
IAvH	Alexander Von Humboldt Research Institution
INCORA	Colombian Institute for Agrarian Reform
IDB	Inter- american Development Bank
MSAP	Massif Protected Areas System
MMA	Ministry of the Environment
POT	Municipal Land-zoning Planes
NBSAP	National Biodiversity Strategy
NRPF	National Reconstruction and Peace Fund
OVM	Spokespeople of the Massif Organisation
PLANTE	National Plan for Alternative Development
PRONATTA	National Agricultural & Livestock Research and Technology Transfer Programme
RRSC	Civil Society Reserve Network
RSS	National Social Solidarity Network
SENA	National Learning Service
SINAP	National Protected Areas System
SNNP	National Natural Parks System
UAESPNN	Natural National Parks Administrative Unit
UE	European Union
UMATA	Municipal Agriculture & Livestock Technical Assistance Unit
UNDP	United Nations Development Programme
WFP	World Food Programme
WWF	World Wide Fund for Nature

PROJECT CONTEXT:

1. Environmental Context: The Colombian Massif is located in south-west Colombia at the inception of the Eastern Cordillera of the Andes and slightly to the north of the inception of the Western and Central Cordilleras (Annex E-1, Map 1). Although dominated by the Central Cordillera, the Massif includes areas of the Eastern Cordillera and marks the only continuous high altitude link between these Cordilleras, as well as between them and the Amazon Basin, through the eastern foothills of the Andean range. As such the Colombian Massif is vital in species dispersion and gene flow (IAvH 1988) and is important for housing the Huila Pleistocene refuge that played a critical role in the origin and distribution of the South American biota (Hernandez *et al* 1992). In addition to this, the Colombian Massif has an exceptionally high biological endowment arising from its wide range of topography and climate, and the influence of the three bio-geographic regions that converge in this region (the Pacific, the Andes and the Amazon).

2. Habitat over 3,200m in the Massif is characterised by large intact blocks of paramo vegetation with high levels of endemism, which provide key services in terms of water supply and regulation and as carbon sinks². These paramos form one of the most important representative portions of the globally significant Northern Andean Paramo ecoregion. At lower altitudes, between 3,000 and 1,500m, the Massif is characterised by extensive stands of montane forest. Andean montane forests are particularly rich in species diversity and have high levels of endemism resulting from the different conditions between and within each Cordillera that have led to evolutionary divergence amongst many taxa³. This endemism is exceptionally marked in the northern Andes, and has led experts to delineate seven separate montane forest ecoregions in Colombia and Venezuela (Dinerstein *et al*, 1995). Five of these converge in the Colombian Massif⁴, (Annex E1-Map 2), all of which are globally outstanding in terms of their associated biodiversity and which have been designated as highest priority for conservation (*ibid*).

3. The convergence of these globally outstanding ecoregions in the core of the Massif form a unique mosaic of species composition and habitat diversity unparalleled in a country well known for its megadiversity. Over 10% of Colombian flora species, and 60% of all Andean fauna species are found in the Colombian Massif. It is particularly rich in bird life with 586 registered species, including 15% of all hummingbirds (Trochillidae) registered in the Americas, numerous tanagers such as the blue and black, golden crowned, masked mountain, hooded mountain, and buff breasted tanagers; endangered species such as the condor and Andean Cock of the Rock; and the endemic bi-coloured antpitta, black tinamou, golden plumed parakeet, and red breasted parrot.

4. Mammalian life is also highly diverse with a total of 73 registered species that include the endemic small Andean deer as well as many species with very restricted distribution, such as the Andean dwarf squirrel and Andean rabbit, 28% of all endangered mammals in Colombia (25 species including the spectacled bear and Andean tapir) are also found here. Despite incomplete inventories, other taxa are also known to be well represented and in many cases include endemic species. For example, the Massif contains 43% of the country's amphibian species, including 28% of the endemic amphibian species of the Central Cordillera, the endemic tree lizard *Anolis huilae*, the endemic fish *Astroblephus grixalvi*, and the endemic spider *Heterophrynus nicefori*.⁵

5. Socio-Economic Context: Geo-politically, the Colombia Massif covers 36,780 km² including over 65 municipalities in the departments of Cauca (24), Huila (16), Nariño (15), Putumayo (5), Tolima (2)

² See Annex E-2, paragraphs 1 and 2, for a description of paramo and its water and carbon functions.

³ The Andean range and the Amazon Basin, for example, have similar numbers of bird species (788 and 791 respectively) but the Andes has twice as many endemic bird species (Stolz et al) 1996.

⁴ The North-western Andean, the Cauca Valley, the Magdalena Valley, the Eastern Cordillera Real and the Cordillera Oriental Montane Forest Ecoregions

⁵ See Annex E-2, Table 3, for indicative list of species from the Colombian Massif.

and Caquetá (2). *The core of the Massif*, which is the objective of direct intervention under this project proposal, is generally considered as a smaller area covering 33 municipalities and approximately 20,000 km² of land over 2,000 m.a.s.l. Living conditions in the region are hard, with indices of these and basic needs-fulfilment (CI and NBI) falling below the corresponding national medians⁶. Access to the core of the Massif is particularly difficult, and poverty in these rural communities is even more accentuated. Rural electricity coverage averages 50%, but many of the municipalities near the national parks in the project area have much lower figures, for example, Santa Rosa 0.8%, Almaguer 9.5%, Timbío 14.3%, Belén de los Andaquíes 20.5%, and Puracé 20.8%.

6. Regional economy is based largely on livestock rearing and agriculture. Natural and improved pastures cover 1.1 million hectares in the entire Massif which support 239,126 cattle (1% of national total). Within the project area, small and medium size producers are dominant and are most concentrated in the area between the Natural National Park (NNP) of Hermosas and NNP Nevado del Huila, and between the latter and NPP Purace. In paramo and sub-paramo areas cattle-rearing densities are 1 head/12 hectares rising to 1 to 2 heads/hectare in montane forest areas. Agricultural land makes up 3% of the Massif with approximately 80% dedicated to permanent crops including coffee (principally below 1,800m - 42%), sugar cane (24%), banana (2.5%) and sisal (35%). The remaining 20% is dedicated to annual and transitory crops including maize (12%), potatoes (2%), beans (4.5%), peas (0.8%), and cassava (2.2%). *Agricultural activities within the project area* are mainly subsistence farming in small-holdings of under 2 hectares, where cultivation consists almost exclusively of potatoes, with small areas of maize, traditional beans, and peas in association with onions, garlic and cold climate fruits such as curuba and lulo. Any surpluses are sold in local markets, and peasant farmers increasingly rely on income from day labor at lower levels in coffee plantations.

7. In addition to its biological wealth, the Massif is well known for its cultural heritage. Several even indigenous groups live in the region (the Paeces, Yanaconas, Guambianos, Kocoucos, Totoroes, Inganos and Kamtza) with a total population of 191,000, equivalent to 27% of the country's population in only 1.7% of the country's territory. These indigenous groups are located in autonomous reserves covering approximately 3,750 km² or 18% of the project area. They all have perceptions of the universe that centre on the sacredness of the environment and natural phenomena, and hence represent important partners in the quest for biodiversity conservation in the Massif. The *Kocoucos* and *Guambianos* are closely linked to the paramos areas which provide medicinal plants and serve as sites for spiritual ceremonies. The *Paeces*, also closely linked with the paramos, have recently taken a stand against illicit crop cultivation which they do not permit in their reserves. Despite much assimilation of western cultural patterns and norms, the *Totoroes* also maintain some traditional beliefs that are similar to the *Paeces*, particularly their understanding and keen observation of natural phenomena that they use to guide the timing of sowing and harvesting.

8. The *Inganos*, originally living in altitudes up to 2,200m with the *Serrania de Churumbelos* forming the core of their ancestral land, currently have more scattered settlements that occur along the full altitudinal gradient from the high Andean peaks to the eastern foothills and Amazon Basin. This group - so well known for its knowledge of medicinal plants and the Yage and Yaco trails - plays a vital role in maintaining the biological and cultural continuity between the Amazon and the Andes. The *Yanaconas* are considered to be closely related to the *Inganos* and also maintain an intimate relationship with the higher altitudes of the Andes where they believe the spirits of nature reside which offer medicinal plants and spiritual support. The *Kamtza* too, share some characteristics with the *Inganos*, particularly their outstanding knowledge of and skill in cultivating and managing plants for spiritual and medicinal use⁷.

9. Policy Context: The 1998-2002 National Development Plan (NDP) highlights the country's commitment to sustainable development and the corresponding natural resource management that this

⁶ The NBI index includes education, health, income, and access to public services parameters. The CI life index includes the NBI and population densities, number of family members and access to social services such as retirement benefits.

⁷ More details on indigenous groups and reserves is provided in Annex H

requires. It also outlines the current administration's Environmental Plan (Proyecto Colectivo Ambiental) with three main objectives clustered around the central theme of water conservation. One of these objectives is the conservation of priority areas within strategic ecoregions. As the source of four of Colombia's main rivers, providing 70% of the country's water, and housing rich cultural and biological diversity, the Massif was flagged as a strategic ecoregion. More recently, the MMA identified the priority areas within each strategic ecoregion⁸. In the Massif these are: the Hermosas, Nevado del Huila, Purace and Cueva de Guacharos National Parks and three currently unprotected areas, Serrania de Churumbelos, Doña Juana and Serrania de Minas. All these target areas are included in this project proposal.

10. The National Biodiversity Strategy and Action Plan (NBSAP-1998) also illustrates the national importance of project objectives, identifying the Andes as the top regional priority in terms of biodiversity conservation and sustainable use. This is reflected in the *National Strategy for the Conservation of the Andes* developed in July 1999 by the MMA, which includes four complementary projects under preparation for GEF financing consideration. These projects, described in Annex I under paragraph 57 and including the present proposal, recognise the Massif's strategic importance nationally. As part of its conservation strategy, the NBSAP also proposes consolidating a National System of Protected areas - SINAP - that would include the National Park System, as well as a range of regional, local, private and public reserves under different management categories, thereby broadening stakeholder responsibility in protected area management. In 1999, the National Parks Administrative Unit (UAESPPN) through Decree 1124 of 1999⁹, was charged with leading the creation of the SINAP and co-ordinating it once established. Recent policy papers reflect this commitment to the social dimension of conservation (UAESPPN, 1999).

11. The 1991 Constitution established that Reserves, such as Indigenous Reserves (resguardos) and Peasant Reserves, could be established for communal use; later Law 160 of 1994 and decree 2164 granted communal ownership status to these reserves. [As a result, large areas of Colombia are now legally recognised as Indigenous Reserves under autonomous management processes and structures.](#) The MMA acknowledges the value of these in the conservation of the nation's biological heritage, in addition to their clear cultural value. In effect, decree 622 of 1997, establishing norms for identifying administrative categories and management systems for the SNNP, recognises that legally constituted indigenous reserves and national parks have common goals in conservation and are compatible, thus effectively acknowledging territorial rights to indigenous groups within park areas. As territorial units, indigenous councils of reserves have similar responsibilities as municipalities in reference to environmental management and planning. Law 388 of 1997 establishes that all municipalities develop nine-year zoning plans (POTs) in which current and potential protected areas are identified. Indigenous groups have autonomously adopted planning and development processes denominated *Life Plans* - analogous to the POTs - in which they also include environmental plans and identify specific sacred areas for strict protection for their environmental, spiritual, mystic and religious attributes.

12. Institutional Context: The Ministry of the Environment (MMA) is the maximum authority for the environment in Colombia. Created in 1993, it is charged with defining the country's natural renewable resources and environment policies and norms. It has two vice ministers and a National Parks Administrative Unit -UAESPNN. This Unit is charged with defining the framework for conserving the country's natural and cultural heritage through planning and management of the National Natural Parks System (SPNN) to protect biodiversity, related environmental services and provide opportunities for recreation, research, culture and spiritual development. More recently this mandate has been expanded to include leadership and co-ordination of the SINAP (see paragraph 10).

13. The Parks Unit operates at three levels: national, regional and local. The national or central level in Bogota, is responsible for: overall performance, defining the SPNN Master Plan, and for providing

⁸ Strategic Regional Ecosystem Programme, headed by the MMA Directorate for Information, Planning and Co-ordination of the National Environment System. Sub region 6 - Region South west Andean Region Map 2000

⁹ Article 24 items 1 and 2; Article 27 item 1; Article 28 items 1 and 4

planning, technical and operational support to the regional level. The regional level operates through five territorial divisions that are responsible for: planning and operations of protected areas in their region and for authorising their expenses and payments. At the local level, each park has a Park Manager, responsible for running the park within overall national policies, fine-tuned to local conditions. The project area falls under the Southern Andean Division with headquarters in Popayan, currently employing 48 permanent professional, technical and manual labour staff, including those located in the parks. This Division has been responsible for leading consultations at the regional and local levels during project development and will be largely responsible for project implementation in co-ordination with key regional stakeholders (see paragraphs 34, 63, 64 and 70).

14. Under Colombia's 1991 Constitution the responsibility for environmental management was passed to the 33 Autonomous Regional Environmental Authorities - CARs - mandated under Law 99/93 to protect and control natural resource exploitation in areas under their jurisdiction. Six Regional Environment Authorities have jurisdiction in the project area¹⁰. These have all been consulted during project formulation and have committed resources to this initiative, in addition to their already extensive baseline investments in natural resource management (see Annex A). In addition to these institutions, the Instituto Alexander Von Humboldt (IAvH) - a research institute affiliated to the MMA mandated to promote, co-ordinate and undertake research that contributes to biodiversity conservation - is undertaking a range of activities in the area, including the biological evaluation of the proposed *Ingano* Indigenous Reserva-La Fragua and will provide technical advice to project implementation in relevant monitoring and biological assessment activities. A range of Indigenous *cabildos* and community councils also have important roles in environmental management in the Massif, as well as numerous environmental non-governmental organisations including larger nationally-based ones, such as Ecofondo, and locally based ones such as Fundacion Serrania de Churumbelos (Annex H provides more details on stakeholders).

BASELINE COURSE OF ACTION

15. Threats: Environmental degradation in the Andes is high, particularly in montane forest ecosystems. Some estimates indicate that only 15% of montane and pre-montane forest remain in Colombia (Hamilton 1997, Orejuela 1985). The Colombian Massif, however, has considerably lower levels of deforestation and habitat degradation than national averages, with some municipalities maintaining 85% of original montane forest cover, and others housing some of the largest and most inter-connected paramos of the country. This is due, in part, to the remoteness of the region, but also to the decisive action of the GoC which established some of the country's first protected areas there, including three National Parks recognised internationally through the UNESCO Man and the Biosphere programme as the *Andean Belt Biosphere Reserve*.

16. While the parks represent the core zones of the Biosphere Reserve, its buffer and transitions zones, with corresponding land-use regulations, have not been defined. Local communities are not fully aware of the Reserve, and the economic and social crisis of the country, coupled with poverty conditions in the region, are leading to increasingly aggressive land-use practices, accelerating habitat loss and fragmentation. These main threats to biodiversity, together with their root causes, are described in detail in Annex F, along with actions required to mitigate them. Below, they are summarised in two groups to facilitate clarity. The first relates to the sub-optimal role of core zones in biodiversity conservation and the second to land-use practises outside these core zones.

(i) Sub-optimal role of core zones in biodiversity conservation

17. The Biosphere Reserve core zones are constituted by three national parks (Cueva de los Guacharos, Purace and Nevado del Huila). A fourth park, Las Hermosas, to the north of the present

¹⁰ CAM- department of Huila ;CRC- department of Cauca; CORTOLIMA-department of Tolima; CORPONARINO - department of Narino; and to a smaller extent CORPOAMAZONIA departments of Caqueta, Amazonas, Putumayo and CVC covering the few municipalities from Valle de Cauca included in the project area.

Reserve's boundary, is also a vital core zone for conservation of the Massif's natural assets and biodiversity. Together, these parks cover 3.750km². In addition, a further 3.750km² fall within indigenous reserves all of which have designated a portion of their territories as sacred lands where natural habitat cover is strictly protected. A further array of private and municipal reserves are found within the Biosphere Reserve. All of these have the potential to act as core areas to protect large extensions of well-conserved montane forest and paramo habitat, as well as to provide the vital connectivity between them, essential to gene flow across the full altitudinal gradients in the region. However, these parks and reserves are currently not operating at the level required to ensure long-term survival of endemic species, particularly large mammals, nor prevent habitat fragmentation and the gradual erosion of genetic diversity.

18. *The role of these parks in conservation* is undermined by a series of factors including: inadequate shapes, sizes and location, causing border effects and excluding some of the most pristine and diverse habitat blocks; staff and equipment shortages, debilitating operational capacities, particularly control and inspection which increases the risk of encroachment; and incomplete management plans developed from sparse biodiversity data and with little local stakeholder participation, resulting in low awareness and commitment to park conservation goals. These deficiencies are exacerbated by the overlapping of: institutional jurisdictions in buffer zones¹¹, indigenous territories within park land¹², and of municipal planning processes with park planning processes¹³, reducing still further the contribution of parks as core areas for conservation in the Biosphere Reserve.

19. *Other protected areas* also play a sub-optimal role in conservation for a variety of reasons including: poor location, reducing their role as areas connecting the main core zones; and low levels of stakeholder's awareness regarding the benefits and opportunities of creating private reserves and the correct procedures to register and manage them. Local stakeholder's role in conservation is further impaired by the absence of "local reserve networks" in which individual reserve owners could operate to increase synergy and exchange of relevant management experiences. In addition, the different management systems adopted by these protected areas (national parks, municipal, private and indigenous areas) have inadvertently weakened co-ordinated conservation practices and impeded their role as core zones for biodiversity conservation.

(ii) Land-use practices outside core zones

20. *Agricultural practices and livestock rearing.* Despite the rich indigenous heritage in the region, traditional knowledge of biodiversity use and benign cultivation techniques is poorly disseminated. The region's farmers adopt standardised agricultural models with land-clearing techniques and production systems transferred through agricultural extensionists with little training in biodiversity conservation and management. Currently 70% of farm economy comes from introduced species grown in mono-cultures - with heavy reliance on chemicals using methods unsuitable for the fragile mountain soils - resulting in land degradation, soil erosion, water contamination, biodiversity loss and productivity failures. Livestock rearing, using high densities of cattle on steep slopes, is causing overgrazing, leading to soil compacting, drying and loss of organic matter. The seasonal use of paramo and sub-paramo for grazing, and the burning of this to stimulate the production of new growth, is increasing habitat loss in this fragile ecosystem. A heavy reliance on intermediaries - due to lack of familiarity with processing technologies and commercialisation systems, or lack of storage facilities, transport and distribution systems - reduces profits margins still further, and bolsters the need for aggressive practices to increase production.

¹¹ Parks and their buffer zones fall under the mandate of the UAESPNN, but areas around them fall under the CARs. As buffer zones are not clearly delimited, jurisdictional overlap occurs and can cause inconsistencies and conflicting conservation actions.

¹² A number of autonomous indigenous reserves overlap with the four parks in the Massif (see Annex E2, Table 2) and conservation actions within the park are not always applicable in all the area.

¹³ Many parks cover more than one municipality. Purace for example covers 11 different municipalities and each has its own zoning plan which needs to include conservation areas and actions that correspond to park land and conservation goals.

21. *Natural resource exploitation* in the Massif is also causing habitat fragmentation, transformation and loss. Wood-collection for domestic purposes, such as cooking and fencing, occurs throughout the region. Electricity coverage in the region is very low, and alternative forms of energy, such as gas, are too expensive for low incomes inhabitants, or culturally unacceptable for indigenous groups that use open fires as the centre of cultural and religious beliefs. Community reforestation schemes are scarce and communities lack the knowledge and skill to access limited funds available for these types of programmes. Commercial logging also occurs, and the lack of experience with sustainable forestry techniques, together with poorly developed forestry permit processes, are causing over-exploitation in some areas. This is exacerbated by the growing scarcity of suitable forest in other regions of the country, leading to increased logging in the Massif. The lack of awareness of park boundaries, the role of different species in ecosystem dynamics and conservation of natural resources, together with increasing food security problems and animals straying from small or badly shaped parks, is leading to illegal hunting, plant and egg collection. Although very limited, this is putting pressure on some species including mosses, orchids and bromeliads. Isolated cases of arson to settle land-disputes and personal vendettas has led to some habitat loss, and sulphur mining, in very restricted locations, is causing minor impacts in river beds.

22. *Illicit crop cultivation*, particularly poppy growing, is starting to occur in limited areas within the Massif, causing habitat loss in high montane forest and sub- paramo areas. Unsustainable agricultural practices lead to crop failure and soil degradation, and when coupled with few alternative livelihoods, lead to high levels of poverty and illicit crop production in areas adjacent to the Massif. However, the isolation of the region, the strong indigenous presence in the area with its firm stand against illicit crop production, and the region's still good public order has limited this to remote pockets.

23. Realistic Baseline : In the past, the GoC has relied on establishing National Natural Parks in the Massif as a means of conserving the region's rich biological endowment and protecting the country's principal supply and regulator of water. With recent economic crises and increasingly aggressive land-use practices undermining park operations, Colombia is broadening the region's conservation strategy to include a wider range of actors and management approaches in conservation areas, and to address the root causes of biodiversity loss outside them. The programmatic baseline for this new strategy is described below, focusing on the types of interventions required to broaden the effectiveness of biodiversity conservation, reduce the use of aggressive land-use practices in critical areas of the Massif and raise development to a more sustainable level. The incremental cost annex provides information on planned baseline expenditures, estimated over a six-year horizon.

24. *National Parks Operations*. The GoC has invested considerable amounts of resources over the past six years in equipping and operating the four national parks in the project area. These have maintained 3,750 km² of parkland, with large areas of montane and paramo vegetation, in a highly conserved state. However, growing pressure from land-use practices in adjacent areas is increasingly threatening these parks, and up-dated and more effective operations are required if these considerable global assets are to be conserved over the long-term. This increasing pressure comes at a time of severe economic crisis in the country and resultant cuts in the National Parks Unit budget. The present level of funding will barely cover minimum core staff and will not permit the updating of management plans, maintenance and expansion of control systems, outreach programmes to local stakeholders or revision of limits to park boundaries - all basic requirements for raising the effectiveness of operations to face growing threats to park integrity. Without additional resources to effect these improvements, to define sustainable funding sources as a hedge against national budgetary fluctuations, and to incorporate local stakeholders in park management, encroachment of parklands will increase, causing habitat degradation, fragmentation and ensuing species loss.

25. *New protected areas to conserve large tracts of habitat and include full range of biodiversity*. The Massif houses some of the largest remnants of the country's montane and paramo ecosystems, much of which is under protection through four national parks. However, these do not cover the full range of regional biodiversity assets, nor do they include some of the largest and most conserved

habitat blocks¹⁴. Until recently, access to these large unprotected habitat blocks has been impeded by poor roads and considerable distances from the nearest colonists. However, they are coming increasingly under pressure, and local governments and communities are seeking to protect them by establishing protected areas under alternative management categories, as a complement to existing national parks, at a time when habitat stands are highly conserved and before protection measures become so costly they are harder to justify given the social needs of the region. A series of biological studies have identified three priority areas for conservation covering land within 11 municipalities. These municipalities have included the corresponding land as protected areas within recently formulated Municipal Development Plans and have started preliminary stakeholder consultation. Indigenous groups and local communities show strong support of this process. The municipalities plan to continue this process, although they lack the skills and resources required to effectively establish protected areas. Without an injection of resources and skills to ensure full stakeholder participation and to definition of the best mix of management authorities, categories and control systems, long delays will be incurred before these areas can be formally established, and large areas of habitat will be increasingly degraded.

26. *Networks of private reserves, indigenous and peasant conservation areas.* Small, strategically placed private reserves, can play a major role in conservation by facilitating gene flow between larger protected areas and including a wider range of stakeholders in natural resource conservation. This is particularly true in the Massif as there are a large number of smaller, but highly conserved blocks of montane forest and paramo vegetation in land lying between the four national parks. Furthermore, there is a growing interest amongst the local land-owners in these “corridor areas” to bring their land under some form of protection. This is particularly discernible in the indigenous reserves where areas that largely coincide with the most conserved habitat block are being designated as sacred lands for strict protection. Indigenous leaders are seeking the National Park Unit’s (UAESPNN) advice on formulating management plans within the context of their autonomous Life Plans. An increasingly large number of individuals and businesses are also approaching the National Park Unit for leadership, assistance, and advice for creating private reserves. Equally so, peasant framers are becoming more aware that leaving stands of forest and paramo can assist in conserving water and soil resources within their farms. Baseline investments will provide assistance to establish these conservation areas throughout the project areas. However, these are scattered initiatives, focusing principally on watershed protection and will not be implemented within a regional perspective. The result will be that despite the formation of some new reserves, these will not necessarily be in the most strategic locations to provide the required connectivity between parks nor will they adopt common management approaches to conservation and natural resource use, still further weakening the role they could otherwise fulfil in biodiversity conservation.

27. *Agricultural and livestock practices.* With the growing awareness of the link between current agricultural and livestock practices, resource degradation, crop failure and increasing food security and poverty problems, a range of institutions are planning baseline actions to improve production and reduce environmental impacts in the Massif. These include improving production of subsistence crops, such as beans, maize and cold climate fruits, supporting a sustainable agriculture programme in the area between NPP Nevado del Huila and Purace, improving commercialisation of agricultural products, promoting small agricultural businesses, developing a rural production fund, and the continuation of a broad programme of municipal agricultural extension services (UMATAs). Whilst important, these do not include actions to alleviate the most damaging practices to fragile sub-paramo areas, determine sustainable management of montane forest or develop alternatives with local stakeholders that draw on the existing but scattered, traditional peasant and indigenous practices. Furthermore, unless the extension services are well trained in practices that are less aggressive for biodiversity, replication of baseline initiatives throughout the region will be slow and the existing models and practices, which rely heavily on chemicals and aggressive techniques, will prevail.

¹⁴ Several ecosystems and ecoregions are under-represented or excluded from coverage in the SNNP See Annex E2

28. *Adaptive management of a regional system of protected areas.* Colombia has committed to developing a more extensive system of protected areas (SINAP), and efforts to define this framework will continue at the national level¹⁵. At the regional and local level, the seeds of such a system will continue to grow slowly, with individuals creating reserves in isolation or with small groups of stakeholders spontaneously joining to form micro-systems to enhance impacts at the local level. The CARs in the Massif plan to identify potential protected areas within their jurisdictions, and municipalities will start implementing their nine-year POTs through two-year operation plans. Nevertheless, these will undoubtedly focus on social demands, delaying action to establish identified potential protected areas. Indigenous groups will continue defining conservation areas within their reserves, although this will be undertaken within the context of each *ethnia* with little inter-cultural exchange or regional vision. Indeed, all these initiatives, whilst extremely important as they are based on local action and spontaneous processes, are structured around political divisions and do not include regional ecological perspectives or count with expert advice on management categories and the tools needed for their implementation. The South Andean parks unit will continue to support all these efforts, but staff shortages and the considerable challenges they face to maintain their own park management at adequate levels, will inevitably mean that this is insufficient and many opportunities to create new reserves, or adopt common approaches will be lost. In this baseline scenario there is a high risk that areas vital to ecosystem integrity may be excluded simply because they occur in different political jurisdictions; that scarce resources will be depleted through duplication of efforts; and that weak management tools and poorly co-ordinated actions will undermine these local initiatives and fail to effectively cover the Massif's complex biodiversity mosaic.

29. *Increasing public awareness and commitment to biodiversity conservation.* In parallel to initiatives aimed at broadening the base of the country's protected areas system, Colombia is seeking to increase stakeholder participation in protected area management and the implementation of conservation actions outside these areas. Within the Massif, baseline action to increase participation in conservation will focus mainly on the region's important role in water regulation and control, human resource training in general ecology, and strengthening regional identity through promotion of cultural events based on its diverse heritage. While these actions provide a strong basis for increasing general awareness on environmental concerns, they do not specifically address biodiversity conservation, nor provide for the dissemination of specific actions and opportunities for community participation in this. In the above mentioned scenario public awareness and participation in conservation and restoration of watersheds will increase but will not necessarily translate into direct benefits to biodiversity conservation nor increase awareness regarding the complexity of ecosystems and their role in maintaining regional assets.

30. *Biodiversity conservation in regional and local planning.* The GoC has promoted the alliance of the Massif's CARs through The Massif Inter-corporative Agreement (CIC-Massif) as a mechanism to lead land-use planning in this strategic region and develop a Sustainable Human Development plan. Resources for this come from the annual return of a percentage of the national petroleum royalties to the CIC-Massif. In addition to this, departmental, municipal, community and indigenous planning processes will also continue in the baseline. All these different levels of planning will include some form of action to conserve natural resources. However, they focus largely on watershed conservation and do not adequately address biodiversity conservation or work towards a regional goal that will fully conserve this complex endowment. A large number of baseline projects will be implemented to alleviate poverty, improve living conditions and halt illicit crop growing at a time when these are sufficiently incipient to be effectively extirpated, however specific mechanisms to ensure co-ordinated action between these and conservation efforts are missing. Furthermore, although the Massif is widely recognised as a national priority, and hence the focus for investment, poor resource acquisition skills at the regional and local levels undermine the chances for mobilising additional resources for the region, or result in over-reliance on projects developed at the national level which do not necessarily include local stakeholder participation in defining goals and processes. Decisive action is therefore needed to

¹⁵ Some GEF resources for this have been allocated through the World Bank Los Andes Project – see paragraph 57 and Annex I

insert biodiversity conservation issues in the development of this region and maximise these present opportunities at a crucial moment when the course of the region's development can still be shaped.

31. *Natural resource exploitation and watershed protection.* Colombia has decentralised much of the responsibility for natural resource management and control to regional CARs. In the baseline scenario considerable resources will be spent by the six CARs with jurisdiction in the project area to control natural resource exploitation. In the cases of CVC and CRC, these investments will be particularly high as, in addition to national budgetary resources, they receive annual allotments from royalties of hydroelectric reserves within their jurisdiction together with a substantial lump-sum derived from their recent privatisation. Resources for reforestation to increase watershed protection and increase sustainability of timber exploitation will also be made available through the national *Plan Verde* programme. Some resources from this programme have been specifically allocated to the Massif through an agreement with a regional organisation, *Voceros del Macizo* (OVM), that recently negotiated a large financial package from the GoC to bring development to a more sustainable level (see Annex A). However, the specific amount that will be allocated at local levels throughout the country depends on the skills of local stakeholders to formulate and negotiate specific projects – a skill that is still under-developed in the region.

32. *Poverty alleviation, improved living conditions and illicit crop control.* Poverty and poor living conditions are important root causes of many proximate threats to biodiversity including unsustainable land-uses. This is particularly the case in the Massif where living condition indicators are well below national averages. The GoC is undertaking an ambitious range of programmes to alleviate these root causes, and thus reduce the spread of unsustainable land-uses practices, particularly as regards illicit crop production in the area. These include programmes through the *Voceros del Macizo* agreement which will improve rural electrification, housing, communication and transportation systems, basic sanitation, and rural employment through support to small business. Through its *National Fund for Reconstruction and Peace (NFRP)*, the GoC will also include extensive action to eradicate illicit crops in the region and provide programmes to alleviate poverty thereby reducing the attraction of quick economic returns from these crops. In addition, the continually growing resistance of the region's indigenous groups to illicit crop production is expected to maintain these areas free of this type of activity in the baseline scenario.

ALTERNATIVE COURSE OF ACTION

33. In the long-term, the proposed alternative course of action seeks to conserve the remarkable global biodiversity value of the Colombian Massif and protect its role in water regulation. The specific goal is to design, and render operational, a broad-based *Massif Protected Area System* (MPAS) as a regional framework for conservation, facilitating the creation of new reserves under different management categories and ownership. This broad-based system would ensure adequate linking of protected areas and reserves to avoid more fragmentation of endangered habitats and offer comprehensive protection to attributes of significant global value. The project will also work closely with indigenous and peasant communities in strategic locations outside protected areas to abate the impacts of current agricultural and livestock practices to fragile paramo and montane forest vegetation, while reducing encroachment of protected areas. Activities will be entirely complementary to baseline programming which seeks to promote sustainable development of the Colombian Massif. These baseline actions include controlling natural resource exploitation, improving watershed management, alleviating poverty, and raising living conditions, actions that will clearly contribute substantially towards protecting the unquestionable global values of the region by addressing critical root causes of biodiversity loss.

34. Stakeholder participation and strategic choices. Colombia selected the Massif project as a top priority from thirty biodiversity concept papers submitted to UNDP for GEF financing consideration in 1997¹⁶. Initial project development was undertaken in a multi-stakeholder workshop in Bogota in 1998

¹⁶ At a GEF Project Development Workshop, November 1997, attended by 60 representatives of national, regional and local

with representatives of the regional and local levels. The resulting PDF A request was endorsed by the Government GEF Focal Point on March 10, 1998 and reconfirmed by the subsequent GEF Focal Point appointed in mid-1998 after a change in government. To ensure that this initiative reflected regional and local realities, project formulation was undertaken through a process firmly embedded in new park policy which focuses on social participation and evaluation of local initiatives before new actions are developed. Funded largely with national resources, the evaluation and consultation process was headed by the Southern Andean Division of UAESPNN, over a full year of visitations to locations throughout the Massif and the realisation of 40 community meetings, two regional and one national inter-institutional consultation. [Indigenous representatives](#)¹⁷ took active part in these formal consultations and additional informal meetings were held with leaders of individual reserves. This process sought to identify on-going complementary actions, determine potential partners in implementation, consult on project design, gain local support and invite participation . (Stakeholder Annex I). It is important to note that this initial consultative process has already produced positive impacts in terms of higher awareness regarding biodiversity conservation. This is best evidenced by the formation of group networks working in common directions and leveraging a substantial amount of co-funding through regional and local institutions that have mobilised international funds to support project objectives. Furthermore, the high degree of consultation and participation in the development phase has laid a strong foundation that will ensure continued involvement and participation once the project enters implementation.

35. The above project development process also helped define strategic decisions regarding project design and sequencing. These include the decision to incorporate in the project a mix of components that, on the one hand, would deliver short-term and direct protection to endangered and highly significant biodiversity, and on the other, process-oriented actions, that would create an enabling environment to provide sustainability to these short-term benefits and progressively expand them to a wider area following project completion. Thus, direct interventions of the project (Outputs 1, 2, 3 and 4) will be limited to the nucleus of the Massif, rather than the entire geo-political area, in recognition of its high biodiversity and water regulation functions. Within this nucleus, the *Andean Biosphere Reserve* will take priority. However by extending this area slightly beyond its northern and eastern limits significant global benefits can be captured at minimal additional costs. This includes conserving at least an additional 100,000 hectares of highly conserved paramo, and 60,000 hectares of montane forest in the land from the *NNP of Hermosas* to the northern limit of the Biosphere Reserve. It also includes an additional 200,000 hectares of Eastern Cordillera Real and Cordillera Occidental montane forest in the land linking the *NNP Cueva de Guacharos* and the Andean foothills. This will ensure the biological and cultural continuity of the Massif nucleus with the Amazon Basin and hence conserve vital gene flow through this high altitudinal gradient.

36. Crosscutting interventions, such as determining protected areas frameworks, public awareness campaigns and strengthening conservation planning (Outputs 5, 6, and 7) will have a broader scope to facilitate future replication of project interventions. Replication will be enhanced by including activities that raise resource acquisition skills amongst local stakeholders. These skills will help capitalize on the region's national and international priority status, and mobilise significant resources to the region in the future.

37. With regards to implementation time-frame, a sequencing approach has also been proposed for the project in light of the following considerations:

government, non-government organisation and research institutions.

¹⁷ The following indigenous representations were formally consulted:- ACIN- Organisation of Indigenous Leaders of Northern Cauca; ACITI- Association of Ingano Tandachiridu Inganokuna Leaders; CRIC - Cauca Indigenous Regional Council; CRIH- Huila Indigenous Regional Council; CRIT-Tolima Indigenous Regional Council; UMIYAC - Union of Indigenous Doctors in the Colombian Amazon; ZBBC- Ingano Indigenous Leaders of the Bota Caucana Zone.

- *To abate concerns over recurrent cost financing* of additional protected areas. The first phase would therefore focus on: raising the skills of park staff for participatory management and the development of management plans with buffer zone communities; filling gaps in the biological, social and economic data in parks, buffer zones and proposed new areas; finalising broad consultation processes regarding the establishment and operationalization of these new reserves; and establishing a minimum number of private reserves and conservation areas in critical locations. In parallel, the first phase would also focus on developing proposals for the long-term funding of these protected areas. The project's subsequent phase would depend on the successful evaluation of these consultation processes, joint management structures with local communities, and of the identification of clear long-term funding mechanisms for recurrent costs. The second phase would then concentrate on setting-up operations of new areas, increase the number of smaller reserves and further raise operational levels of parks or extend their boundaries.
- *To maximise leverage of funds to conservation goals* through substitution of baseline resources. The scope of project objectives and their respective costs have been determined by evaluations of current conditions and clearly identified and negotiated sources of co-funding. At a 1:3 ratio of GEF to other resources, this leverage is already significant. However, there is potential for raising this considerably once project implementation is underway. The GoC is embarking on a significant baseline programme to place the region firmly on the path to sustainable development over the next three years by addressing poverty, eradicating illicit crops, strengthening local and regional governmental structures and improving natural resource management. By incorporating biodiversity considerations into this programmatic baseline, project activities are expected to re-orient significant portions of planned baseline expenditure to improve biodiversity conservation and increase local and global benefits. By adopting a phased approach to project implementation this potential can be capitalised more effectively. The fine-tuning of the second phase of the project would follow an evaluation of baseline programmes, advances in incorporating biodiversity into development planning, and the leveraging of additional resources that may be used to further expand project goals. A phased approach would also permit *design adjustments* that may be required as a result of unexpected changes in conditions within the project area.
- *To maximise the input of the region's rich cultural heritage* to conservation goals and developing alternative land-use practices. With indigenous reserves being managed under totally autonomous processes, the proposed joint ventures with government institutions are only recent occurrences which still remain to be tried and tested. The fact that indigenous groups have been widely consulted throughout project design and are supportive of project objectives and proposed management options bodes well for future implementation. In addition, the increasing link between local government and indigenous groups in the Massif - illustrated in the recent local elections - will be further strengthened through baseline initiatives. As such, indigenous participation in the region's development is expected to increase considerably over the next three years. These new developments, together with the direct participation of indigenous groups in project implementation, will require fine-tuning of related activities during implementation. A first phase of the project would therefore focus on a restricted number of indigenous reserves and the identification and recovery of traditional uses of biodiversity that could enrich alternative land-use practices to be developed through Output 4. A second phase would extend this support to other indigenous reserves and project components, based on: (a) a joint evaluation of these processes and relevant baseline actions, (b) information derived from the inter-ethnic exchanges to be supported by the project, and (c) the development of clear guidelines and commitments to protect benefit sharing arising from these actions¹⁸.

¹⁸ In accordance with the CBD and Decision 391 of the Andean Pact that establishes minimum standards and guidelines for access to genetic resources, including the use of traditional knowledge or land where these resources are found, and the negotiation of mutually agreed benefits between users and different levels of stakeholders including land-owners and indigenous peoples.

38. Finally, extensive consultations between GEF Implementing Agencies and the GoC throughout project development and design have resulted in a coordinated strategy and programmatic approach for GEF support to conservation in the Andes through a carefully planned mix of national, regional and local approaches (further described in paragraph #60 and Annex I and J). This coordinated strategy has further endorsed the sub-regional focus of this proposal towards the development of a specific *protected area management model* that could be later adopted and replicated at the national level. Coordinated programming has also meant excluding components currently covered under the World Bank's Los Andes national project addressing: strengthening sectoral approaches to conservation, monitoring environmental impacts of large projects, developing national monitoring frameworks, and extending biodiversity knowledge bases.

39. The proposed project will have seven outputs with total costs of US\$ million, which are summarised below with indications of GEF and co-funding contributions. Details of financial phasing per output are clearly presented in the budget section in paragraph #70 under financing arrangements. Specific *impact* benchmarks for phase one will be detailed in the UNDP Project Document as part of the project's Implementation Plan. General indications of these are presented below where possible, and *performance* indicators for each phase are included in the logframe matrix..

Output 1: Four National Parks and their buffer zones consolidated and operational with joint management processes under way with local communities.

[Total. 5.077; GEF 1.556; others 3.521]

40. Actions would focus on the National Natural Parks (NNP) of *Nevado del Huila, Purace, Cueva de los Guacharos and Las Hermosas* each of which houses large areas of well-conserved paramo and montane forest (see Annex E1, Maps 1 and 2, and Annex E2 for park descriptions). Phase 1 would include the development of consolidated databases containing comprehensive biological, physical and socio-economic information for each park and buffer-zone to (a) improve management, and (b) form the basis for broad consultations to evaluate and redefine park limits, and define conservation zoning in the buffer-zone areas with local stakeholders (including strict conservation, multiple-use, restoration and sustainable production areas). Following these joint evaluations and zoning exercises, proposals for new boundaries to include adjacent intact habitat blocks would be developed. Phase 2 would delimitate these new boundaries in the field with local stakeholders and prepare legal documents for their formal adoption. During Phase 1 the operational capacity of parks would be strengthened through limited infrastructure and equipment acquisition as basic requirements for developing and implementing participatory park management plans. Following this, and using information from joint conservation zoning exercises, up-dated management plans for the parks and buffer zones would be developed through highly participatory processes. Support for implementing priority actions within these up-dated plans would be provided through Phase II including additional equipment and infrastructure acquisition as required and activities related to any new expansion.

Output 2: Three new protected areas of highly diverse and well-conserved habitat complexes are established and operational under different protection categories and management authorities (including combinations of national, regional, local and indigenous management).

[Total. 1.438; GEF 0.255; others 1.183]

41. National and regional surveys have identified three particularly well-conserved, highly diverse, yet unprotected areas in the Massif that could be brought under protection at low cost. These areas would provide conservation to key ecoregions currently under represented in the national system of parks while safeguarding environmental services vital to the regional and national economy, notably the supply and regulation of water. These three areas are: the *Serrania de Minas* with large areas of well conserved Magdalena Valley montane forest, and adjacent to the *NNP Purace*; the *Serrania de*

Churumbelos, with extensive stands of pristine montane forest from both the Cordillera Oriental montane forest and Eastern Cordillera Real forest ecoregions, adjacent to the *NNP of Cueva de Guacharos* and the foothills of the Andes; the *Doña Juana complex*, to the south of *NNP Purace* with tracts of Eastern Cordillera Real and North-western montane forests and paramo currently under increasing pressure from expanding agriculture and new road systems.

42. Phase I activities would build on past and planned baseline initiatives to create these new protected areas. They would further review municipal land zoning plans, the Life Plans of respective indigenous groups and the Action Plans of the CARs and consult stakeholders to draft specific proposals for each area with possible management categories and boundaries. Care would be taken to identify the most appropriate joint management structures and conservation strategies for ensuring the long-term continuity of each protected area and safeguarding against unfavourable institutional changes in the entities under whose jurisdiction they fall. These would include municipal, national, community and indigenous figures, or combinations of these. Draft proposals would then be detailed using information gathered through participatory rapid-ecological and rural evaluations and more detailed stakeholder analysis. These proposals would then be consolidated in user-friendly formats for broader-scale consultations to further discuss and formalise support to the protected area proposals. Following consensus on these proposals, Phase II would focus on implementing the areas, demarcating boundaries with the participation of local stakeholders; preparing legal documents for their formal declaration, acquiring basic infrastructure, equipment and personnel for starting-up operations and advancing processes to develop participatory management plans for the new areas and their buffer zones.

Output 3: Co-ordinated and operational networks of private reserves, and peasant and indigenous conservation areas are established to increase links between existing parks and major ecoregions that converge in the Massif.

[Total. 3.189; GEF 0.987; others 2.202]

43. Activities would concentrate in four zones that correspond to the high altitude land between the four national parks. From north to south, these are the areas between *NNP Las Hermosas* and *NNP Nevado del Huila*, with some of the largest and most inter-connected paramos in the country currently under no form of protection; between *NNP Nevado del Huila* and *NNP Purace* with large habitat stands of paramo and montane forest from the Cauca and Magdalena Valley montane forest ecoregions; between *NNP Purace* and *NNP Cueva de Guacharos* with highly conserved Magdalena montane forest; and between *NNP Cueva de Guacharos* and the proposed new protected area of *Serrania de Churumbelos* with almost untouched areas of Eastern Cordillera Real Montane Forest and Cordillera Occidental Montane forest.

44. Existing private reserves would be surveyed to collect biological and socio-economic data required to register them as official protected areas within the Massif. This is particularly important, as once registered, their owners must be invited to public hearings of development projects and their opinions taken into account in their approval process. Management capacities of managers of both private and business reserves would be strengthened and common approaches would be encouraged through an information exchange programme and hands-on training. Training will include visitation of nearby private reserves that could serve as positive models. Information from surveys of park buffer zones undertaken through Output 1 would provide information to identify areas that could form new private reserves in these strategic locations. Owners of these potential reserves, and others seeking advice from the Natural National Park's Administrative Unit (UAESPNN) in forming private reserves, would also be invited to participate in these capacity building programmes. An outreach and advice programme would also be set-up to encourage and orient the creation of an increasing number of private reserves. This programme would include modules geared to the different conservation motivations of various private reserve owners, including those that seek to establish reserves for economic reasons, and those that have more conservation-centred motivation.

45. Specific action will be taken to stimulate the creation of conservation areas within **peasant reserves** in these strategic locations. Whilst small, these areas could collectively contribute to global conservation values and provide benefits to peasant farmers by improving conservation of soil and water resources. These activities would include providing technical assistance to farmers to identify areas for conservation and more effectively plan and manage their farms using production practices that are less harmful to biodiversity. Peasant farmers willing to declare conservation areas in their farms would be invited to take part in the validation and fine-tuning of alternative agricultural, livestock and forestry techniques and systems to be developed through the pilot projects in Output 4. Proposals for a *new category* of protected areas to form part of the *Massif Protected Area System specifically for conservation areas within peasant farms* would be developed to better accommodate this type of reserve. Peasant reserves currently fall under private reserves but constitute a very different type of area both in terms of size, conservation motivation of owner, and role in biodiversity conservation.

46. A third level of action would address conservation areas in **indigenous reserves** in these strategic locations. Technical assistance and support would be provided to indigenous groups to establish, delimit and manage their conservation areas through their autonomous land-zoning processes. A particularly important activity for this group would be support provided to the *Ingano* ethnic group to establish a large conservation area in land over 1,800 metres in the Cordillera Occidental. This action will accrue direct global benefits independently, but will also provide synergy with actions undertaken to expand the *NNP Cueva de Guacharos* in Output 1, and those to form the proposed *Serrania de Churumbelos* in Output 2. The proposed indigenous reserve would fall directly between these two areas, thus completing a continual corridor of protected area under three distinct management categories and authorities thereby providing a valuable demonstration model for mixed management regimes. A final activity in this Output would support inter-ethnic meetings to exchange views and experiences on management and control systems for the conservation areas falling within the different indigenous group's reserves.

Output 4: Alternative land-use practices for three productive systems that threaten biodiversity in the Massif tested in participatory pilot projects, and validated through replications within peasant land holdings that form part of the Massif Protected Areas System (MPAS).

[Total. 2.018; GEF 0.827; others 1.191]

47. A series of pilot projects would be implemented in three zones of the project area to undertake participatory field testing and adaptive research to develop culturally acceptable alternatives to three of the production systems currently threatening biodiversity in the Massif nucleus. These systems and selected areas¹⁹ are as follows: (i) *Silvia* municipality, Cauca - designing alternatives to mitigate the impact of mono-cultures of potatoes in montane forest areas, developing new production systems including different land-preparation and soil management models, the use of wind breaks and associations of crops; (ii) *San Sebastian* municipality, Cauca - mitigating the effect of livestock rearing in paramo and sub-paramo areas by developing new techniques to avoid seasonal burning and subsequent use of paramo for grazing, including amongst others, techniques for improved pastures and use of paramo seeds at lower altitudes, storage of fodder for winter months, and the pruning of shrubs and trees for fodder; (iii) *Santa Rosa* (Cauca), *San Agustin*, and *Iquira* (Huila) municipalities - developing sustainable management practices for montane forest including the harvesting of non-timber products, determining sustainable extraction rates and developing community forestry management plans.

¹⁹ These sites were selected using a series of criteria that include, closeness to existing protected areas, existing processes that could be built on and community support to the development of alternatives

48. Specific locations for these pilot projects within selected zones would be determined in conjunction with local communities following the joint assessment of productive associations, including the environmental and operational characteristics in each zone. Whilst focusing on developing new alternative productive systems and techniques, these pilot projects would also have a strong capacity-building role, not only for those communities participating directly in the project, but also for farmers throughout the region invited to visit these demonstrations. Demonstrations would also be used as part of a hands-on training programme for public and private, local and regional, agricultural entities to ensure that the new alternatives are incorporated into respective portfolios and extension services throughout the Massif. Following at least three years of these pilot projects, successful experiences would be validated, fine-tuned and disseminated through replications in peasant farms that form part of the *Massif Protected Area System*. These extrapolations would be enriched using peasant and indigenous practices that would be previously identified and documented through a series of parallel activities, including support to indigenous groups in the region to recover, internalise and re-value their cultural uses of biodiversity including those of the *Ingano* ethnica in the different altitudinal levels of the Eastern Cordillera.

Output 5: A set of adaptive management tools developed and in place to facilitate the creation, operation, monitoring, funding and future expansion of a Massif Protected Areas System (MPAS)
[Total 1.993; GEF 0.690; others 1.303]

49. Activities would include setting up capacity-building programmes for: (i) the formulation, implementation, and up-dating of management plans for park staff using participatory methodologies and common approaches; (ii) the preparation, at the technical level, of new human resources in protected area management; and for (iii) developing and disseminating a *farm planning model* that incorporates the newly defined land-zoning and conservation needs for each ecosystem in the Massif. Action would also be taken to develop an array of tools, norms and procedural guidelines that would permit the dynamic management and monitoring of the MPAS to respond to changing priorities and conditions whilst meeting regional and global conservation objectives. This would include: (i) developing operational guidelines and organisational structures for clusters of protected areas, grouped according to management categories, locations and political divisions; (ii) the definition of regulatory systems for parks, indigenous and peasant reserves within the MPAS; and (iii) the formal constitution of the MPAS within the framework of decree 1124 of the National SINAP and dissemination of its role, structure and regulatory systems.

50. A targeted biodiversity conservation monitoring system for the Massif would also be developed to facilitate the broad planning, monitoring and evaluation of the MPAS. This would include a Geographic Information System, compatible with those existing in the region and incorporating the data collected through Outputs 1, 2 and 3 in biological, physical and socio-economic surveys of protected areas. Specific monitoring of selected species would also be undertaken to provide information for project evaluation. This would be designed using input from the Von Humboldt Institute that is responsible for biodiversity monitoring at the national level, but also drawing on resources from the region's universities to reduce costs and increase their participation in biodiversity monitoring at the regional level. This output would also design a strategy for the long-term funding of the MPAS, drawing on international experiences in protected area funding, and including the costing of, and charging for, environmental goods and services provided by the Massif.

Output 6: Multi-format information, education programmes and campaigns implemented to raise the awareness of local communities on the importance of biodiversity conservation in the Massif and to increase their commitment to participatory conservation management.

[Total. 1.975; GEF 0.975; others 1.000]

51. Building on the rich cultural heritage of the Massif and their traditional practices of community and ethnic work forces (or *mingas*), an array of cultural events and programmes will be implemented focusing on biodiversity conservation and the role of the MPAS in protecting regional resources. These will include: defining a commemorative date and giving rewards to actions in favour of biodiversity conservation; the collective restoration of pre-Columbian paths, particularly in corridors between national parks, with community marches along these and pamphlets to disseminate their presence and provide an input to eco-tourism ventures.

52. A second group of activities would focus on collating the results of the pilot projects and protected areas experiences in formats appropriate for the cultural diversity of the region (film, photographic, and in Spanish and other local languages) and disseminating these using local radio stations, newspapers, written material, television, and other available media. A third level would provide a system of consultations, meetings and fora to facilitate resolving any conflicts that may arise in the definition of conservation zones, the creation of new protected area or a broader range of conservation issues.

Output 7: A system established to incorporate biodiversity conservation principles in the institutional and social planning processes in the Massif and to co-ordinate the action of major regional conservation programmes and stakeholders.

[Total. 1.046; GEF 0.399; others 0.647]

53. Activities in this output would develop methodological guidelines and procedures to incorporate biodiversity conservation principles into municipal and departmental development plans and the Life Plan of indigenous groups and their respective operational plans. This would also ensure that new protected areas and procedures of the MPAS are taken into consideration as development plans are finalised and implemented, and assist in co-ordinating the different planning process in a more unified framework for regional conservation. Co-ordinated biodiversity action would be further enhanced by holding joint planning sessions with the regional programmes and CARs to maximise synergy and complementarity between different initiatives. Efforts would also focus on setting up permanent co-ordination of these actions once project actions have been completed.

54. To increase the flow of resources to biodiversity conservation in the Massif, and to fully explore the opportunities resulting from the priority status imparted to the region, a resource- mobilization capacity building programme would be developed for a wide range of stakeholders involved in conservation (Indian councils, private reserves owners, communities). This would train representatives selected by each stakeholder group as future trainers to disseminate acquired knowledge and skills throughout their communities. It would include units on project selection, formulation, negotiation, monitoring and evaluation and develop real projects during the teaching experience. This training would be delivered in mixed stakeholder groups to increase horizontal transfer of knowledge and increase awareness of different stakeholder groups. It would be annually up-dated following evaluations of projects successful in obtaining funding. Experiences and case studies would be well documented to provide a permanent database for future programmes and act as an informal project bank in the event of new or unallocated resources in the region. A further set of capacity building activities would seek to increase the contribution of current natural resource exploitation licensing systems to biodiversity conservation, by developing guidelines and training CAR staff in biodiversity conservation issues and protected areas, conservation zoning and related land-use restrictions within the MPAS.

55. **Expected Phase I deliverables:** Phase I benchmarks have been determined for each of the seven project outputs (see Logframe matrix). Quantitative values for the *impact* indicators for the project's purpose in the Logframe will be included for Phase I in the UNDP Project document.

At the end of Phase I, the project will have: (1) Provided four national parks with the vehicles, communication systems and infrastructure required for up-grading operations and formulating participatory management plans; trained parks staff in participatory planning processes and formulated management plans, including zoning and priority actions, for the park and their buffer zones; (2) Completed the biological and socio-economic surveys required for declaring three new protected areas, including details on the most appropriate management structures and the full evaluation of community support and participation in their management; (3) Facilitated the creation of private reserves and conservation areas in peasant farms and indigenous reserves in buffer zones and corridors increasing current numbers by 30%; (4) Identified and tested alternative livestock practices, and new techniques and production systems for high altitude potato cultivation, developed one sustainable management plan for montane forest and defined the details for their replication and validation through Phase II; (5) Prepared a detailed proposal for the MSAP that includes management categories and guidelines for the management and operation of each type, a detailed proposal for the long-term funding of the system and inter-cultural regulatory norms defined by consensus for indigenous and peasant reserves; (6) Designed community biodiversity information and dissemination programmes and implemented their first phases, started community map-making ventures and restoration of pre-Columbian paths and published a first information pamphlet on these; (7) Defined methodologies for incorporating biodiversity into municipal and departmental development plans and the Life Plan of indigenous groups and implemented a first phase of a resource-acquisition training-of-trainers programme; (8) Prepared the fine-tuned proposal for Phase II GEF funding based on the evaluation of Phase I and adjustments deemed necessary through lessons learnt during implementation of the first phase, new additions to baselines projects and new opportunities for co-funding.

56. **End of Project Situation and Expected Benefits:** At project completion (Phases I and II), the Colombian Massif will have an operational regional system of protected areas, under different management categories and ownership, providing enhanced protection to significant percentages of six globally outstanding ecoregions and their convergence in the heart of the Massif. Based on areas of national remnants, these are approximately 20% of each of the Cauca, Magdalena and Eastern Cordillera Real montane forest ecoregions, 2% of each of North-western Andean and Oriental Cordillera montane forest ecoregions and 26% of North Andean Paramo ecoregion (Table E2-1). At project completion, protection will have been afforded to 70% of the country's remaining humid low dense forest in the Cauca and Magdalena Valley montane forests and 30% of the same ecotype in the Eastern Cordillera Real montane forest - a particularly important fact considering that currently none of this latter category is covered by the national parks system.

57. Four National Parks, protecting 3,750 km² of the Massif, will be operating with increased efficiency and in close coordination with local communities under the framework of jointly developed management plans for park lands and buffer zones. Conservation compatible land-use practices, enriched with traditional knowledge of biodiversity use, will be employed in these buffer zones and in the land forming corridors between the four parks. In these corridors, at least an additional 1,500 km² will be under a range of smaller private reserves, conservation areas within peasant farms, and in indigenous reserves, operating as networks within the *Massif Protected Areas System* adopting improved and co-ordinated approaches to conservation management. A further 5,750 km² will be under conservation in three new large protected areas of different management categories and regimes including combinations of indigenous, private, municipal, and national authorities. This will have raised the area of natural forest and paramos under protection in the Massif to at least 11,000 km², or over 50% of the project area, ensuring great benefits to global biodiversity and carbon storage values as well as significant contributions to protection of important watersheds²⁰.

²⁰ Specific impact benchmarks for Phase I will be detailed in the UNDP project document. Performance indicators for this phase are included in the logframe matrix.

58. These increases in protected area will also have substantially changed the composition of stakeholder responsibility in conservation from the current predominant role by the National Parks' Administrative Unit bearing approximately 90% of this task in terms of hectares under protection, to approximately equal divisions with municipal protected areas, indigenous conservation areas, and private reserves (including peasant areas). This change and decentralization in stakeholder responsibility for conservation will provide valuable lessons for protected area management at the national level. Stakeholder participation in conservation throughout the whole geo-political area of the Massif will also have increased substantially as a result of awareness and information campaigns, and efforts to incorporate biodiversity concerns into regional, local and community planning processes throughout the Massif. Conservation in general will be increased by enhanced regional identity and increased communication and co-ordination between major stakeholders groups including seven indigenous ethnias, regional and local governments, communities and other actors in environmental management.

Eligibility under CBD: The project is fully consistent with the CBD and will contribute directly to Article 8 on *in situ* conservation, particularly items (a) and (b), by establishing a regional system of protected areas under different ownership and management categories, as a framework for incorporating conservation in the regional planning processes in an area with outstanding biological and cultural biodiversity. It will adopt an ecosystem approach aiming to conserve the continuity of large habitat blocks and the connectivity of these within and between six ecoregions that converge in the region, thus addressing item (8d). It will also enhance sustainable land use in areas adjacent to four national parks, particularly in their buffer zones and the land connecting these, building on the participatory testing and adaptation of new alternative techniques and enriching these through the recovery of traditional forms of biodiversity use by indigenous groups in the project area, thus addressing Article 8 items (i) and (j) and Article 10 items (b) and (c). It will include significant components for raising public awareness on biodiversity conservation as well as training institutions and technical staff for this, thus complying with Articles 13 (a) and 12 (a) respectively. The project has been developed through extensive local consultation and will be implemented with a high degree of participation from a wide group of stakeholders.

59. Eligibility for GEF Financing: The project will conserve a region of unique biological diversity formed by the convergence of six ecoregions, all acknowledged to have globally outstanding biodiversity. It will cover the incremental costs of conservation and sustainable use measures, building on the substantial baseline efforts of the GoC to promote the sustainable development of a region flagged as a national priority. As the project will focus on biodiversity conservation and sustainable use of land above 2,000 m in the Central and Eastern Cordilleras of the Andes mountain range, this project falls under OP 4 (*Mountain Ecosystems*). However, as five of the target ecoregions are montane forest it will also have clear links to OP 3 (*Forests*). By strengthening conservation of large areas of montane forest it will also have benefits in terms of carbon storage, by protecting forest that may have been converted to pastures in the absence of the GEF alternative. Equally, by increasing protection to paramo vegetation and ensuring their inter-connectivity, further increases in carbon storage benefits will be accrued (see Annex E2), as well as substantial protection to important watersheds in an area known as the hydrographic star of Colombia. As such, the project will also address three of the four focal environmental concerns targeted in the GEF's recently approved OP 12 (*Integrated Ecosystem Management*)²¹. In view of the fragility and severe land degradation of mountain areas, it will also address the *crosscutting issue of land degradation*.

60. Linkages with other GEF Initiatives: The GoC has developed a *National Strategy for the Andes* which includes four projects, in different stages of development, to be submitted to GEF for funding consideration. All were designed with utmost care to ensure complementarity and synergy and to provide a programmatic approach to conserving megadiversity within Colombia's three Andean

²¹ The project was not submitted under OP12 as the formulation process took place before this OP was developed and approved and the focus on biodiversity had been widely discussed and supported by the full range of local stakeholders, including indigenous groups, communities, local and regional governments.

cordilleras. These projects consist of one nation-wide GEF/WB umbrella project designed to: (i) establish national criteria for biodiversity conservation and gap analysis, (ii) set up uniform monitoring standards and (iii) support the process of identifying and setting protected areas in different regions of the Andes (excluding those proposed as part of the Massif Protected Area System), and three site specific sub-regional projects. These sub-regional projects focus on strengthening, expanding and testing distinct management categories of existing protected areas in highly different sub-regions both in terms of biological diversity, socio-economic complexity and geographical locations (the *Colombian Massif* in the South (UNDP), the Andean outbreaks of the *Sierra Nevada de Santa Marta* in the north (GEF/WB), and the *Macarena* in the east bordering the Andes but located mainly in the Amazon and Orinoco River Basins (UNDP). Specific project co-ordination procedures have been designed since the early stages of project formulation and are detailed in Annex I.

61. In addition to these projects, two medium size initiatives under preparation through the GEF/WB will also provide inputs to the project, although these address biodiversity conservation in very different ecoregions facing distinct threats. The first is an initiative to conserve the *Mataven Forest* in the Amazon Basin working with indigenous reserves of six different ethno-linguistic groups. Representatives of these ethnia will be invited to participate in relevant events in the Massif focussing on conservation areas within indigenous reserves, thereby providing opportunities for mutual enrichment and information-exchange. The second medium sized project will conserve tropical rainforest in the southern Pacific *Choco* bioregion, working with afro-colombian groups and other local stakeholders to protect specific areas in the *Naya Region*. Care will be taken to ensure there is relevant information exchange between project teams.

62. Finally, a more recent regional initiative, submitted as a Concept Paper to GEF through the GEF/WB, will focus on removing barriers to sustainable livestock and agricultural practices in Latin America and evaluating their potential in providing global environmental services and local benefits. This will propose pilot areas in three countries, including Colombia. In Colombia, the proposed project will address agriculture concerns at altitudes lower than the Colombian Massif, and operate in areas under different threats and requiring different solutions. However, when this regional initiative comes under implementation, elements from the different regional pilots will be sought to enrich work in the Massif, particularly key scientific information on the potential of intensified silvo-pastoral systems in providing global ecological services, as well as relevant work relating to incentive systems for carbon sequestration and biodiversity conservation. [Initiatives with potential project components in Colombia such as the CI/WB Critical Ecosystem Partnership Fund will be coordinated at the country level through Colombia's Permanent GEF Coordination Committee.](#)

63. UNDP CCF: The Colombia Country Cooperation Framework (CCF) supports inter-sectoral environmental management as one of its three thematic areas. This includes support to the National Environmental System (SINA) to implement *coordinated environmental management*, training officials and representatives of civil society in a range of sustainable development and environmental management issues; *preparing environmental plans, programmes and projects* in accordance with the policies and strategies set out in Agenda 21; and *environmental research and information systems including natural resource accounting*. Support will also be provided in the CCF to the MMA for projects for *research and promotion of sustainable energy sources* to improve energy efficiency and energy supply to the most vulnerable communities, and to departments, districts and municipalities to effectively plan *efficient use of water and energy*, and monitoring and control of *urban environmental pollution*. In addition to the UNDP CCF, the UN system in Colombia, based on priorities established by the GoC, has defined four focus areas and three priority regions, for which it actively plans to mobilise substantial national and international co-operation. These thematic areas are (a) human rights protection; (b) displaced people as a result of violence; (c) alternative development in regions affected by illicit crop cultivation; and (d) community conciliation and development. One of the three priority regions is the Colombian Massif in recognition of its strategic importance for Colombia and the opportunity it represents to take preventive action at a time when intervention costs and risks are still low but derived benefits extremely high.

PROJECT IMPLEMENTATION

64. Implementation and Execution Arrangements The project will be implemented through UNDP under the national execution modality and will build on existing institutional structures. *At the general level*, the Ministry of the Environment (MMA) will be responsible for the project through the National Parks Service (UAESPNN) headquarters in Bogota. The National Project Director (NPD) will be the Director General of the UAESPNN, and will be responsible for ensuring the project is executed in conformity with national environmental and park policies, and will chair the project Steering Committee. *At the operational level* the Southern Andean Territorial Division of the Parks Service will be the focal point for project execution through its headquarters in Popayan that is equidistant from the four sub-regions of the project area. The Division staff will play a critical role in project implementation, working alongside a specific financial coordinator and an assistant to be hired through the project, to facilitate operational procedures and project accounting.

65. The *Regional Project Director* (RPD) will be the Director of this Territorial Division and will be responsible for overseeing the implementation of the project, supervising the project's Technical Coordinator (TC) and financial assistant, facilitating operational procedures with UNDP, coordinating with other funding sources at the regional level, ensuring that project implementation is complemented by the Division's existing conservation actions, monitoring project progress and periodically reporting on this to the NPD. To facilitate the flow of resources between the national and regional levels of the National Parks Administrative Unit, both the NPD and the RPD will have signatures registered with the UNDP along with details on specific disbursement levels to be authorised by each level.

66. A *Technical Coordinator*, to be hired through the project, will be responsible for setting-up, supervising and coordinating daily implementation of project activities, including the development of annual operational plans and progress reports and for ensuring that recommendations of the Project Directors and Steering Committee are incorporated into project implementation. To facilitate coordinated project implementation within this large project area, and to reduce travel costs and associated security risks, four sub-regional assistants will be hired to act as project facilitators and monitors in different areas of the Massif (north, south, east and west). These assistants will be under the supervision of the Technical Coordinator and will work from National Parks Administrative Unit installations within their sub-regions to expedite project activities that will be undertaken by existing park service staff and a range of organisations, associations, local institutions and private individuals hired for specific tasks.

67. A *Steering Committee* (SC) will be formed to provide guidance and general oversight for project implementation, provide strategic advice and select the Technical Coordinator who will act as the committee's Technical Secretary. This nine-member committee will meet at least once a year and include the National and Regional Project Directors, the Technical Director of Ecosystems of the MMA, the General Director of the Von Humboldt Institute, the Manager of the Massif Inter-corporative Agreement (representing the CARs in the Massif), the President of the Association of Massif Municipalities, elected representatives of indigenous groups and peasant communities in the Massif, and a representative of UNDP. Under specific circumstances, representatives of entities and organisations implementing large projects in the region may be invited to participate in certain meetings including representatives of PLANTE, Plan Verde and the Reconstruction and Peace Fund.

68. To ensure that project activities are undertaken in a coordinated and complementary manner with other park service actions, periodic meetings, to be chaired by the RPD, will be held between the technical area of the Division, park managers and the project's technical team. Similarly, at least every two months, administrative and financial staff the Territorial Division will meet with the project's financial assistant to evaluate and coordinate administrative processes required to ensure rapid implementation of project activities and streamline ordinary budgetary provisions of the Divisions to support this.

FINANCIAL ARRANGEMENTS

69. Incremental Costs: The GEF alternative, excluding all preparation costs, has been costed at US\$ 663.332 million over 6 years with a baseline expenditure of US\$ 645.045 million. The incremental cost of this, detailed in Annex A, is US\$ 18.287 million or 2.76% of the GEF alternative. Of this amount, 62%, or US\$ 11.287 million, would be provided by non-GEF sources. GEF would provide 38% of the incremental cost (US\$ 7.0 million) equivalent to 1% of the total GEF Alternative. Project costs data are presented below, differentiated by source of funding, and by each project phase.

70. Project Budget : In US\$ million. GEF resources for Phase II are indicative and will be fine-tuned based on evaluation results.

OUTPUT	PHASE 1			PHASE 2			PROJECT TOTAL		
	Phase Total	GEF	Co-financing	Phase Total	GEF	Co-financing	Phase Total	GEF	Co-financing
1. Strengthened Park Operations	3.641	1.208	Holland 0.443 CRC 0.048 CRC O/P 0.353 IDB CVC 0.210 UAESPNN 0.271 WFP 0.125 NRF 0.184 CAM/CDM 0.499 NRPF 0.300	1.436	0.348	UAESPNN 0.271 NRF 0.184 CAM CDM 0.333 NRPF 0.300	1.556	3.521	5.077
2. New Protected Areas	0.796	0.152	IDB/CRC/AM 0.055 IDB/CRÑ/AM 0.050 NRPF 0.539	0.642	0.103	NRPF 0.539	0.255	1.183	1.438
3. Private, peasant and indigenous reserves	2.121	0.631	NRF 0.018 IDB/CVC 0.252 CAM/CDM 0.310 CRC 0.051 IDB/CRC/ Amz 0.034 Belgium 0.500 NRPF 0.325	1.068	0.356	NRF 0.018 CAM/CDM 0.207 NRPF 0.325 Others 0.162	0.987	2.202	3.189
4. Alternative land-use practices	1.269	0.496	CRC 0.038 IDB/CVC 0.319 WFP 0.074 PLANTE 0.200 NRF 0.044 NRPF 0.098	0.749	0.331	NFP 0.044 NRPF 0.098 Others 0.276	0.827	1.191	2.018
5. Adaptive management of protected areas system	0.746	0.221	IDB/CVC 0.057 NRF 0.052 IDB/CRC/AZ 0.035 IDB/CRNO/A 0.010 CAM /parks 0.117 CRC 0.044 NRPF 0.050 Holland 0.160	1.247	0.469	NRF 0.052 CAM/parks 0.078 NRPF 0.050 SENA 0.590 Others 0.008	0.690	1.303	1.993
6. Awareness building and participation	0.987	0.437	IDB CRC/Am 0.011 CVC 0.015 NRPF 0.100 CRC 0.024 IDB/CVC 0.400	0.988	0.538	NRPF 0.100 Others 0.350	0.975	1.000	1.975
7. Biodiversity conservation in planning	0.529	0.200	NRF 0.030 NRPF 0.288 IDB/CRC/AM 0.011	0.517	0.199	NRF 0.030 NRPF 0.288	0.399	0.647	1.046
8. Project Management	0.775	0.655	UAESPNN 0.120	0.776	0.656	UAESPNN 0.120	1.311	0.240	1.551
Grand Totals	10.864	4.000	6.864	7.423	3.000	4.423	7.000	11.287	18.287

SUSTAINABILITY OF PROJECT RESULTS:

71. **Project Risks :** Colombia has suffered considerable civil disturbances in recent years, however, the Massif is still considered to be an area where successful interventions can be undertaken and from which highly significant global benefits can be derived. The logical framework matrix in Annex B illustrates assumptions underlying project success and the following table describes a number of abatement measures that have been incorporated into project design to effectively manage risks. Furthermore, the project's phasing (rationale detailed in paragraph 37) will further ensure that a progressive and adaptive approach to implementation is adopted, supported by a mid-phase evaluation and systematic monitoring of project performance. The proposed mid-term evaluation will assess the level of risks identified for each proposed output and determine whether the proposed abatement measures are still effective or require revision.

<i>Risk and level</i>		<i>Abatement Measure</i>
1. New protected areas (Output 3) are not officially created due to lack of political support.	N	The selection of the three proposed protected areas was made based not only on their high biological value but also on the interest and support shown by local governments and communities. In addition, these areas have already been identified in municipal land-zoning plans as areas destined for conservation. Furthermore they have been recognised by the MMA as priority areas within the strategic region –Massif.
2. Alternative production models (Output 4), do not have the positive impact expected as they are not well accepted or may attract farmers to land near protected areas where pilot projects are to be implemented.	L	The pilot projects will be designed jointly with local communities and techniques will be tested and developed <i>collectively</i> . They will also draw on existing, but scattered practices in the Massif and bring long-term benefits – all of which will reduce the risk of low acceptance. Pilots will only be undertaken at demonstration levels near park. Fine-tuning and replication to a larger number of farmers will be contingent on a commitment by these to set aside some area for conservation in their farms as part of the MSAP. Through output 1, park and buffer zone management plans with conservation zoning and land-use regulations will be developed jointly with inhabitants, and will increase awareness on role of parks- thus reducing risk of increasing cultivated areas near and within parks. Baseline activities will focus on improving living conditions in rural areas reducing migratory movements within the Massif.
3. Communities lose interest in conservation actions.	L	Consultations over a period of 2 years have shown strong and growing interest and commitment in conservation in local communities; information and outreach strategies in output 6 will keep communities informed on project results and importance of biodiversity and benefits derived from it.
4. The UAESPNN suffers institutional and /or financial changes that effect project implementation.	L	Colombia has recently adopted a broad conservation strategy that seeks to increase include more stakeholders in protected area management and ownership. The UAESPNN is leading this process and the project seeks to strengthening this still further focusing not only on national parks and their long-term funding mechanisms, but also increasing the percentage of protected land under different ownership by 60%, particularly indigenous groups, private individuals and municipalities, - thus ensuring that conservation does not rest on the stability of one institution, nor entirely on State resources but rather form an intricate part of the region's social and economic planning processes.
5. Illicit crop cultivation expands in project area	L/ M	One of the criteria used to identify specific localities for investments project within the project area was those with no illicit crops. The illicit crops cover under 0.5% of the project area. Small and scattered plots of poppies occur but there is virtually no coca production (normally between 1-2000m) in the project area with the exception of Tolima where some cultivation occurs in the buffer zone of NNP Hermosas. This area and poppy cultivation, are currently the focus of national baseline programmes to completely eradicate them whilst they are still incipient in the Massif. National eradication policy defines the use of methods other than fumigation in areas within the National Park System, and

<i>Risk and level</i>	<i>Abatement Measure</i>
6. Violence impedes project execution	<p>new leaders of local government and indigenous groups, particularly the <i>Paeces</i> are committing to, and undertaking, manual eradication and substitution of poppies with other crops. Other baseline investment will improve living conditions and employment in the Massif reducing the temptation of illicit crops for quick economic benefits. The project strategy includes an awareness campaign on the importance of biodiversity and the need to maintain natural habitats to conserve environmental services and attain their long-term benefits.</p> <p>M One of the criteria used to identify the Massif for a GEF proposal 3 years ago was the absence of violence. Conditions in the region are still favourable for successful project implementation and investments will be in locations of high biodiversity and low conflict. In addition, the GoC baseline will include improving the social conditions in the Massif and developing a culture for peace at a time when conflicts are low and action will be preventive rather than corrective. The project formulation has built heavily on strengthening initiatives that are already underway, have support from the full range of local stakeholders and correspond to real needs of the region – thus, even under the unlikely scenario of increased violence, project implementation would not be effected. Furthermore, the implementation structure includes 4 sub-regional centres, reducing the need to travel long distances in the large project area, providing further guarantees for implementation safety. The permanent co-ordination of project implementation with park staff that have in-depth knowledge of the region, will permit the close monitoring of any unexpected security risks and the subsequent actions required.</p>

Estimated levels of risk: N= negligible; L = low; M= Medium

72. Sustainability of project results is a fundamental element of project design, best reflected in the processes of consultations and stakeholder participation that characterized PDF A implementation. At the ecological level, the underlying principal of connectivity and continuity of habitat blocks to provide long-term survival and avoid genetic erosion has been adopted as the focus of the project's conservation strategy. The design of a funding mechanism for protected areas in the Massif, based on the environmental services these provide, will further provide sustainability to the MSAP over the long-term. This will include the costing of and charging for the environmental services provided by these areas. Although some work is still need to better quantify the role of forest ecosystems in water regulation - and hence develop a fee systems - the relationship between paramos and water regulation is much clearer and will be the first focus of any such service related system. In addition, work at the national level on funding mechanisms for the National SIRAP through the GEF/WB funded Los Andes project, will be used to explore other funding mechanisms including fiscal incentives.

73. Broadening stakeholder responsibility for protected area conservation will help guard against economic crisis in the future and provide greater financial sustainability for protected area management, as well as increasing social participation and commitment to conservation goals. The project will not seek to increase the number of national parks in the MPAS but rather the efficiency of existing ones. It will, however, bring three nearby areas of well-conserved habitat under the protection of authorities other than national government, for example, local and regional (including departmental and CARs), thus distributing additional conservation costs over a broader range of institutions that have separate, and often, greater financial resources than the national level. The newly created, smaller protected areas will similarly contribute to distributing the recurrent costs as they will fall under the responsibility of private individuals or businesses, and indigenous groups that all have strong, though different motivations for conservation. Once the project has raised current levels of reserve management skills in these groups, and developed support networks, long-term maintenance is guaranteed particularly amongst indigenous groups who view conservation areas as part of their cultural and religious make-up.

74. Social sustainability will be achieved by continuation of the highly participatory process, established during project preparation, throughout implementation and evaluation. Annex H details the range of stakeholders involved in project formulation and their expected roles in implementation. The increased participation of communities in protected area management - including the development of participatory management plans with joint regulatory actions, zoning of buffer zones through joint decisions, and raising of awareness of protected area functions and values - will secure long-term commitment to these areas.

75. Sustainability will also be enhanced by phasing of project activities. The first phase will focus on raising skills of existing park staff for participatory management, providing basic equipment and developing joint management plans with local communities and zoning of buffer zones. Changes in park boundaries to increase areas under conservation would only occur during a second phase following evaluation of newly established participatory management structures and identified funding mechanisms. Similarly, support to setting-up operations in the three new protected areas would occur in the second phase of the project, once consultation processes are complete and the sources of long-term funding for the new areas are well-identified. In relation to private reserves and indigenous conservation areas the first phase will focus on those areas in the most strategic locations that will provide most connectivity between larger protected areas. A second phase would focus on extending this minimal number only when specific benchmarks indicators have been assessed, including economic sustainability of these reserves and advances in establishing funding mechanisms for the whole MSAP. On the whole, a phased approach to implementation will permit the project management to adapt strategies and actions to changing circumstances and reposition the project most effectively for meeting and sustaining its objectives.

MONITORING, EVALUATION AND PUBLIC PARTICIPATION

76. The project's Technical Co-ordinator, with support and information from four sub-regional assistants, will monitor implementation progress on a weekly or monthly basis depending on each activity and work schedule. He/she will be responsible for preparing periodic reports to be reviewed by the National and Regional Project Directors to ensure that implementation is following planned schedules and directions. At least once a year such reports would be shared with the Steering Committee to provide guidance and strategic advice. These reports would also provide the basis for the general UNDP yearly tripartite evaluations of project performance using indicators presented in the Logical Framework matrix, to measure the quality and impact of project implementation, together with a set of more specific parameters to be developed by the Technical Co-ordinator with each annual Operation Plan. Annual evaluation meetings will be held with major baseline projects and programmes in the Massif, and at the national level with the GEF/WB Los Andes project, to identify joint actions, ensure on-going complementary and increase synergies. The project's yearly Operational Plans will then be developed in collaboration with the different co-funding sources, taking into account the results of annual evaluations, Steering Committee strategic advice and co-ordination meetings.

77. The project will be evaluated at the completion of Phase I to assess attainment of objectives as detailed in yearly work plans and the Logical Framework matrix, to determine any necessary adjustments or substantive revisions resulting in changes in perceived risk, or the development of new opportunities in baseline operations.

78. Public participation in project implementation, monitoring and evaluation will be achieved through a range of different approaches. One will be the *Regional Project Advisory Groups* to be established in the four sub areas of the Massif. These will bring together at regular intervals local stakeholders and environmental advocates in the relevant localities to: (i) discuss, evaluate and disseminate project advances; and (ii) highlight new initiatives and challenges in their area thus providing guidance on local priorities to better focus and enrich project activities. A second approach will be to hold periodic fora and community meetings to discuss project actions - and any possible conflicts arising from these or other conservation activities in the region - and to promote information exchange between the different sub-regions of the Massif. A broader-reaching information dissemination strategy forms a

third approach through activities described under Output 6 of the project proposal, taking specific care to use media and languages to reach all the culturally diverse inhabitants in the Massif. Finally, annual reports on project evaluations and findings will be published to reach a still broader regional and national arena, including distribution in electronic formats and the formation of web-sites to facilitate inputs and suggestions to enrich project implementation.

LIST OF ANNEXES

Annex A - Incremental Cost Assessment

Annex B - Logical Framework- Project Planning Matrix

Annex C - STAP Roster Technical Review

C-1. Response to STAP Comments

Optional Annexes : on file at the GEF Secretariat and available through the GEF website.

Annex D - Focal Point Endorsement

Annex E - Project Area

E-1. Maps: Location and ecoregions

E-2. Biodiversity [Includes *maps* of project area location, ecoregions of globally outstanding biodiversity and protected areas; *tables* of the % of montane forest and paramo ecoregions remnants in project area, details of proposed protected areas in the project area and indicative species list ; and a *description* of current national parks and proposed core protected areas]

Annex F -Threats Assessment

Annex G - Project Work Plan

Annex H - Institutional and Stakeholder Analysis

Annex I - Common Annex: GEF Biodiversity Projects in the Colombian Andes

Annex J - Colombia GEF Portfolio

Annex K - Bibliographic References

Annex L - Project Categorisation Sheet

ANNEX A - INCREMENTAL COST ANALYSIS

Broad Development Goals

1. The 1998-2002 National Development Plan (NDP) highlights Colombia's commitment to sustainable development and natural resource management. It also outlines the current administration's Environmental Plan (Proyecto Colectivo Ambiental) whose three main objectives are clustered around the central axis of water conservation. One of these objectives is the conservation of priority areas within strategic ecoregions. As the source of four of Colombia's main rivers, providing 70% of the country's population with water, and housing rich cultural and biological diversity, the Massif is considered a strategic ecoregion. The GoC ratified the CBD on 24 November 1994 through law 165 and fulfilled its national commitments under the convention by preparing a National Biodiversity Strategy and Action Plan (1998). The NBSAP illustrates the national importance of the project's objectives, identifying the Andes as the top regional priority in terms of biodiversity conservation and sustainable use. This is further reflected in the *National Strategy for the Conservation of the Andes*, developed in July 1999 by the MMA, which, given the above-mentioned significance, includes four complementary projects under preparation for GEF financing. These projects, described in Annex I, include the present proposal.

Global Environmental Objective

2. The project's global environmental objective is to conserve the exceptionally high biological endowment of the Colombian Massif arising from its wide topographic and climatic variability, and demonstrated by the convergence of six ecoregions in this region. The convergence of these globally outstanding ecoregions in the core of the Massif form a unique mosaic of species composition and habitat diversity unparalleled in a country well known for its megadiversity.

Baseline

3. The Colombian Massif has been far less degraded than other parts of the Andes, with levels of deforestation and habitat degradation being lower than national averages. Some municipalities in the Massif maintain 85% of original montane forest cover, and others house some of the largest paramos in the country. This is due both to the remoteness of the region and the decisive action of the GoC which established some of the country's first protected areas there, including three National Parks recognised by the UNESCO Man and the Biosphere Programme as the core areas of the *Andean Belt Biosphere Reserve*.

4. Despite this, biodiversity in the region is under increasing pressure for two principal reasons. First, the core zones of the Biosphere Reserve and other protected areas are not able to realise their full potential in terms of biodiversity conservation. These core zones are currently not operating at the level required to ensure long-term survival of endemic species, particularly large mammals, nor prevent habitat fragmentation and the gradual erosion of genetic diversity. Undermining the role of these parks in conservation are: inadequate shapes, sizes and location, causing edge effects and excluding some of the most pristine and diverse habitat blocks; staff and equipment shortages, weakening operational capacities, particularly control and inspection thereby increasing the risk of encroachment; and incomplete management plans developed on sparse biodiversity data and with little participation of local stakeholders, resulting in their low awareness and commitment to park conservation goals. Secondly, land-use practices outside these core zones – agricultural practices,

livestock rearing, natural resource exploitation, and illicit crop cultivation – are leading to further habitat fragmentation, transformation and loss. (See Annex F for threats to biodiversity)

5. Government's response to these pressures on biodiversity and the water supply/regulation function of the Massif has largely taken the form of the establishment of National Natural Parks. However, with the recent economic crisis undermining park operations and increasingly aggressive land-use changes, the government is broadening the region's conservation strategy by seeking to include a wider range of actors and management approaches in conservation areas, and to address the root causes of biodiversity loss outside the parks. The programmatic baseline for this new strategy is described below with estimated costs in US\$ millions (m).

6. Strengthening National Parks. Sunk costs over the last six years for basic infrastructure, running and maintenance of the four national parks in the project area amount to US\$ 2.28m including park staff salaries. In view of the severe crisis in Colombia, the National Parks Unit budget has been greatly reduced this year and is expected to remain low for the coming two to three years. A conservative estimate for national resources to these parks over the next six years is 0.85m of which 0.6 will cover salaries for core staff in the parks and in the regional parks unit. This is barely enough to maintain existing operations, and will not provide for park rangers, new cabins in most threatened areas, and greatly needed communication and transport equipment, nor will it permit the formulation of management plans with local stakeholders which would improve commitment to park goals.

7. New protected areas under different management regimes . Over the past two years, several actions have been undertaken towards creating three new areas to protect some of the largest and most well-conserved habitat blocks in the Massif and to increase coverage of regional biodiversity assets. These include a University of Cambridge expedition to evaluate the biodiversity of the *Serrania de Churumbelos* and a municipal-funded survey to define this new protected area; consultations with peasant farmers on the proposed *Serrania de Minas* area funded by resources from the municipalities of La Plata, La Argentina y Tarqui amongst others; and environmental assessments of the proposed *Doña Juana* complex funded by the University of Nariño. Baseline expenditures to continue this process would come from municipalities, however, without the encouragement of a specific programme to lead this initiative, only an estimated 1% of relevant annual municipal budgets would be directed to this process, totalling 0.025m²². The Piemonte municipality in the *Serrania de Churumbelos* has allocated an additional 0.5m from petroleum exploitation royalties to stakeholder consultation for this proposed area.. The IAvH will complete biological studies in the lower altitude areas of this *Serrania* as part of a larger programme on evaluation of the Amazonian-Andean foothills, estimated at US\$ 0.020m. The regional environmental authorities, CRC and Corponarino, have allocated 0.15m to undertake more detailed studies in the *Doña Juana* complex. The total amount of baseline expenditure to establish the three areas is thus costed at 0.695m. However, under this scenario, long delays can be expected before these areas are set-up, habitat fragmentation will increase, and there will be a subsequent reduction in their current global value.

8. Networks of private reserves, indigenous and peasant conservation areas . Several baseline actions will seek to establish conservation areas in land linking the four national parks. *In the corridor between NP Huila and Purace* the Popayan University Foundation and CRC will undertake biological surveys to design a conservation and sustainable development programme for CRC (US\$

²² Through the decentralisation law of 99/93, municipalities receive about 0.3 m per year from the nation for environmental expenditures. Approximately 95% of this is spent on basic sanitation works, reforestation and environmental education leaving only 5% for other actions. Of this, an estimated 1% would be directed to the new protected areas. *Serrania de Minas* has 7 municipalities, *Churumbelos* 2 and *Doña Juan* 5.

0.07m); AECI will provide resources to the Paeces indigenous groups for land zoning and management of reserves (US\$ 0.8m), and the Nasa Chacha Corporation and European Union will fund the conservation of sacred lands (US\$ 1.1m); *in the corridor between Nevado del Huila and Hermosas* the CVC will support an initiative to stimulate the formation of private reserves (US\$ 0.3m); the National Private Reserve Network and CIC-Massif will support the formulation of private reserves (US\$ 0.15m), and the Tolima Coffee growing committee will provide limited resources for land purchase to protect areas that supply water to rural communities (US\$ 0.09m); the Gaitana and Rio Blanco indigenous councils will provide resources to buy land outside indigenous reserves in paramos near NP *Nevado del Huila* to transfer agricultural activities away from the park (US\$ 0.08 m); *in the corridor between the proposed Serrania de Churumbelos area and the NP Cuervo de Guacharos* the Ingana indigenous groups and community radio stations of the Belen de los Andaquies will promote the creation of an indigenous conservation area (US\$ 0.15 m). The NRPF will provide 29.4m to indigenous councils to improve reserve management. Total baseline expenditure for these actions is costed at US\$ 32.14m. Under this scenario, newly created reserves will be scattered across the large region, will not necessarily fulfil a connecting role between large habitat blocks, nor will their owners count with the skills or support for effective biodiversity management.

9. Alternative agricultural and livestock practices. *In the corridor between NNP of Hermosas and Huila*, the Tolima Secretary of Agriculture will invest in a programme to improve subsistence crop production particularly beans, maize and fruits for cold climates (US\$ 0.25m) and the CVC will support a sustainable agriculture programme, focusing mainly on land below 2,000 m.a.s.l (US\$ 0.4m); *between NNP Nevado del Huila and Purace* the CRC and UAESPPN will fund limited research on sustainable agriculture on paramo (US\$ 0.03m) and the Paeces indigenous group will invest resources to recover traditional agricultural practices (US\$ 0.1m); *between NPP Cuervo de Guacharos and the Serrania de Churumbelos* the GTZ and the network for Social Solidarity (RSS) will set up a programme for agroindustry and commercialisation (US\$ 0.6m); and *throughout the project area* the CRIC and ACIN will fund research on agricultural production to increase food security (US\$ 0.6m); the municipal agricultural extension system will provide services to farmers (US\$ 7.0m); the GoC will provide 2.48m through the Spokespeople of the Macizo Agreement (OVA) for productive projects for displaced populations (US\$ 0.15m), research and technology transfer in agricultural systems (US\$ 0.41 m), for a pilot project for commercialisation through PRONATA (US\$ 0.27m); promoting agricultural small businesses (US\$ 0.15m) and funding rural production through the Caja Agraria (US\$ 1.5m). NRPF investments of 8.8m will develop agriculture and livestock practices in areas where there are currently conflicts over land-use. This would include consensus-building between private sector, governments and communities to define practices that would provide both economic and environmental sustainability. It would also include a GIS to aid planning and evaluation of alternatives and resolution of land-use conflicts. However, again, most of this investment would be in the wider Massif region in land below 2,000 m.a.s.l. where soils are more fertile and conflicts over land-use greater. Total baseline expenditure is estimated at US\$ 20.26 m.

10. Framework for the adaptive management of Massif protected areas. In line with the government's commitment to a more extensive system of protected areas, some efforts will be undertaken in the Massif to contribute to the definition of such a framework. A GIS system is being developed for monitoring biodiversity in the Northern Andes through WWF, the amount corresponding to the Massif has been estimated at US\$ 0.1m; the Massif Inter-Corporative Agreement (CIC) is starting a GIS (US\$ 0.04 m); UAESPPN would dedicate staff time to lead the formation of a SINAP for the Massif estimated at US\$ 0.09m (15% of staff time); Huila will start

developing a departmental SINAP by undertaking biological studies and establishing criteria for management categories with approximately US\$ 0.35m targeted for Massif areas. Baseline expenditure is estimated at US\$ 0.58m, resulting in an un-coordinated set of management tools and incipient sub-regional protected area systems that focus more on political divisions than on adaptively managing regional biodiversity assets and for regional development.

11. Increasing public awareness and commitment to biodiversity conservation. Under the baseline scenario water conservation will take priority, with little emphasis on raising biodiversity conservation awareness *per se*. The Tolima Coffee Growing Committee will invest resources in raising school children's awareness of environmental services particularly water supply (US\$ 0.09m); the GoC, through the Voceros de Macizo agreement, will provide resources for cultural events and projects to increase regional identity and commitment to development processes including the conservation of environmental services (US\$ 1.5m); the CVC will provide education to communities on water conservation (US\$ 0.3m); the Popayan University Foundation will train human resources in ecology and conservation (US\$ 0.3m) and the Andaqui community radio will undertake a program for disseminating information on conservation actions (US\$ 0.21m). Total baseline expenditure is estimated at US\$ 2.40 million.

12. Biodiversity conservation in regional and local planning. As part of the OVA, the GoC will provide funds to CIC-Massif to develop a regional Sustainable Development Plan (US\$ 2.25m). Natural disasters contingency planning will be undertaken by the Nasa Kiwi corporation, to reduce environmental effects caused by natural disasters in the River Paez (US\$ 0.4 m) and by Nasa Chacha in the Purace and Huila corridor (US\$ 0.20m). The MMA will provide limited funds to determine organisational structures for regional co-ordination of environmental programmes and policies (US\$ 0.15m). The NRPF will invest to improve governance by establishing common departmental guidelines and developing municipal associations to identify common priorities and resolve conflicts. It will strengthen municipal management by developing models to be applied throughout the Massif and by increasing local government and community organisation skills for, and commitment to, land-use planning in accordance with Law 388 /1997. These investments, conservatively estimated at US\$118m²³, do not focus on conservation *per se* but will raise planning and management skills to a much higher level, thus creating an enabling environment for activities of Output 7 and generally improving conditions for successful project implementation. Total baseline expenditures are therefore estimated at US\$ 121m.

13. Natural resource exploitation and watershed protection. Regional environmental authorities will invest resources in the baseline scenario to control natural resource exploitation and protect watersheds. These will be funded by six regional environmental corporations (CARs) from a variety of budgets that include national allocations; lump-sums from the sale of the Salvajina and Betania hydroelectric stations in the cases of CVC, CRC and CAM; the smaller, but permanent, flow of royalties from energy production in these stations; and CRC and CVC pollution taxes. These expenditures are estimated as follows²⁴: CVC 18.0m, CRC 8.4m; CAM 1.8m; Cortolima 0.1m; Cornariño 0.1m; Coramazonia 0.02m; totalling US\$ 28.42m over six years. A further 2.0m from the OVA will be channelled to reforestation through the Plan Verde programme. The total baseline expenditure for these actions is estimated at US\$ 30.42 m.

²³ Departmental governance 30m, municipal 8. 10m for strengthening municipal administration and 70m for planning processes.

²⁴ CAR expenditures are derived from the total income of each CAR and the land that each has within the project area or in which they are obliged to spend resources to maintain water supplies to hydroelectric stations downstream.

14. Poverty alleviation, improved living conditions and illicit crop control. An extensive baseline programme will address poverty and poor living conditions as the main root causes of many proximate threats to biodiversity, including illicit crop production. This includes a US\$16.6m investment through the OVA providing rural electricity systems (2.0); improving rural housing (2.0); improving rural access and generating employment by community road re-paving projects (2.0); providing telephone communication in rural areas (5.6 m); supporting small business to generate new employment opportunities in rural areas (2.0); providing basic necessities through the Solidarity Network (1.0); and improving basic sanitation infrastructure (2.0). The National Royalties Fund will develop eco-tourism ventures in Paeces communities in the NPP *Nevado del Huila* (0.4). The NRPF²⁵ will fund the extraction of illicit crops in the geo-political Massif (US\$240 m) and area of influence, and develop incentives for their substitution by strengthening potato production, commercialisation and related agro-industries in the Massif municipalities of Cauca and Nariño (US\$150m). These actions will focus on land under 2,000 m.a.s.l, outside the project area, where most illicit crop cultivation occurs, but will benefit the GEF Alternative by removing this potential future threat and by providing commercialisation systems that could be used by peasant farmers from the project area once the conservation-compatible, high altitude, potato cultivation techniques are developed (Output 4). UNDCP will also support agricultural projects as an incentive to illicit crop substitution, again, mainly in areas under 2000 m.a.s.l. where coca is produced and where climatic conditions are more favourable to the alternatives being developed. These include increasing dairy farming productivity (US\$0.5 m), supporting agricultural producers associations in Cauca (COSURCA) for organic coffee and citrus fruit production (US\$12 m) and livestock rearing organisations (LICITAS) for improving cattle stocks, and processing and marketing of dairy and meat products (US\$17.2 m). Total baseline expenditures under this category are estimated at US\$ 436.7 m.

GEF Alternative

15. The Alternative strategy is to conserve the Colombian Massif - the remarkable global biodiversity values it harbours and its role in water regulation - by undertaking targeted actions building on a significant baseline program for sustainable development of the Colombian Massif. Baseline programming seeks to promote sustainable development by controlling natural resource exploitation, improving watershed management, alleviating poverty, and raising living conditions - actions which will contribute substantially towards protecting the unquestionable global values of the region by addressing critical root causes of biodiversity loss.

16. Interventions complementary to this sustainable development baseline include the design and operationalisation of a broad-based Massif Protected Area System (MPAS) as a regional framework for conservation and for facilitating the creation of new reserves under different management categories and ownership. This will allow for adequate linking to avoid more fragmentation of endangered habitats and offer comprehensive protection to attributes of significant global value. Within this framework, the project will also work closely with indigenous and peasant communities in strategic locations outside protected areas to abate the impacts of current agricultural and livestock practices to fragile paramo and montane forest vegetation, and reduce encroachment of protected

²⁵The NRPF estimates are based on figures reported in a programme in the final stages of confirmation. These have been considerably reduced to provide conservative estimates, thus counteracting any changes that may occur before project implementation. Two large NRPF investments have not been included in the baseline although they will also provide some benefits to the GEF Alternative – these are a 50m investment to develop a culture for peace in the region and 300m for a system to address rural land-tenure problems leading to land acquisition and certification.

areas. The main project outputs are as follows (these are described in detail in the brief and the logframe):

Strengthening National Parks. [*Total cost 5.077m; GEF 1.556m; Co-funding 3.521m*]. Operations of four existing national parks will be strengthened to provide more effective long-term conservation and to be managed through participatory processes that increase local community commitment to park protection. Completing information, participatory evaluation of park limits, and zoning in buffer zones (Activities 1,2,3,4) will cost 0.670m of which GEF will contribute 0.332m. Co-funding of 0.338m for this will be 0.070m from Holland distributed equally between the four parks; CRC 0.117m to the Hermosas and Nevado del Huila parks; IDB/CVC 0.151m to the Las Hermosas park. GEF will contribute 0.952m to strengthening the operational capacity of parks (Activity 5) costing at 1.625m, and for which co-funding of 0.673m has been secured as follows: Holland 0.131m principally to the Nevado del Huila park, and UAESPNN 0.542 divided equally to all four parks. Developing and implementing participatory management plans (Activities 5 and 6) will cost 2.782m of which GEF will contribute 0.272 principally to developing management plans. Co-funding of 2.510m has been secured for implementation: Holland 0.242, NRF 0.368, and NRPf 0.600 divided equally between all four parks; WFP 0.125 to Hermosas; CAM/CDM 0.832 to Purace Park; CRC 0.284 to the Nevado del Huila park; and IDB/CVC 0.059 to Hermosas.

New protected areas under different management regimes. [*Total cost 1.438m; GEF 0.255m; Co-funding 1.183m*]. Three new protected areas will be established to protect large habitat blocks and include under-represented ecoregions in the protected areas system. Surveys, draft proposals and participatory delimitation (Activities 1,2,4) will cost 0.336m of which GEF will contribute 0.101m and co-funding 0.235m [IDB/CRC/AMAZ 0.050 to Serrania de Churumbelos; IDB/CRÑO/AMAZ 0.035 to Serrania de Minas; NRPf 0.150 to all three]. Consultation and fine-tuning of proposals (Activities 3,5) will cost 0.089m of which GEF will contribute 0.051m and co-funding 0.038m [IDB/CRC/AMAZ 0.005 and IDB Corponariño 0.015 to Serrania de Churumbelos; NRPf 0.018 divided equally between all three areas]. Formal declaration and start-up of operations (Activities 6, 7) will cost 1.013m of which GEF will contribute 0.103 and co-funding of 0.910 from the NRPf divided between all three areas.

Networks of private reserves, indigenous and peasant conservation areas. [*Total cost 3.189m; GEF 0.987m; Co-funding 2.202m*]. These smaller protected areas will be established in strategic locations to increase connectivity between larger protected areas, facilitating gene flow and reducing the risk of long-term genetic erosion in the region. Surveying, registering and creating *private reserves* (Activities 1,2,3), will cost 1.197m of which GEF will contribute 0.475 and co-funding 0.722 [IDB/CVC 0.069 in the Hermosas/ Nevado del Huila Corridor; CAM/ CDM 0.517 in the Purace/Cueva de Guacharos; CRC 0.015 in the Nevado del Huila/ Purace and NRF 0.012 and others 0.109m in all four corridors. Support to *indigenous groups* to form conservation areas and recover cultural uses of biodiversity (Activities 6,7,8,9) will cost 1.325m of which GEF will contribute 0.300 and co-funding 1.025 [IDB/CRC/AMAZ 0.024, CRC 0.036 and Belgium 0.5 in the Cueva de Guacharos/Churumbelos corridor; NRPf 0.400m in the Nevado del Huila/ Purace and Purace/Cueva de Guacharos; NRF 0.012 and others 0.053 in all corridors]. *Creating peasant conservation areas* and improving management (Activities 4,5) will cost 0.667m of which GEF will contribute 0.212m and co-funding 0.455m [IDB/CRC 0.010 in Cueva de Guacharos /Churumbelos; IDB/CVC 0.183 in Hermosas/ Nevado de Huila; NRF 0.012 and NRPf 0.250 divided between all four corridors].

Alternative Agricultural and livestock practices. [*Total 2.018m; GEF 0.827m; Co-funding 1.191m*]. Culturally acceptable, conservation compatible practices will be developed and replicated in strategic locations to reduce the impact of unsustainable uses of high altitude potato cultivation in montane

forest and sub paramo areas; and of cattle grazing in paramos and sub paramo areas. Participatory development of alternative techniques and production systems through adaptive research and field tests in 3 demonstration zones (Activities 1,3,4) will cost 1,254m of which GEF will contribute 0.677 and co-funding 0.557 [CRC 0.038, IDB/CVC 0.219; NRPF 0.100 and others 0.222]. GEF resources will not be allocated to the extrapolation/replication and fine-tuning of these tests (Activities 5,7), costed at 0.542, to be funded in the Hermosas/Nevado del Huila corridor by IDB/CVC 0.100 and WFP 0.074; and in other corridors by NRF 0.088, PLANTE 0.200 and NRPF 0.080. GEF will contribute 0.060m to the training of agricultural extensionists in new techniques (Activity 6) costed at 0.076 and co-funded by the NRPF (0.016). GEF will also contribute 0.090m to the recovery of indigenous and peasant traditional land use practices (Activity 2) costed at 0.147 and co-funded through sources to be determined (0.057).

Framework for the adaptive management of Massif protected areas. [Total cost 1.993m; GEF 0.690m; Co-funding 1.303m]. A regional framework for conservation will be developed based on a Massif Protected Areas Systems (MPAS) that includes norms and management guidelines for a wide range of management categories, support systems and associations for networks to increase synergy between similar reserve types, and adaptive management tools to allow flexible management and quick responses to regional priorities and changing development scenarios. Monitoring of target biodiversity for measuring project impact and shaping the MPAS, (Activity 7,8) will cost 0.529m of which GEF will contribute 0.145m and co-funding 0.384m [IDB/CVC 0.057m, NRF 0.104m, IDB/CRC/AMZ 0.035m; IDBCRÑO/AMZ 0.010m, CAM/ UAESPPN 0.156m; CRC 0.020m and others 0.002m]. Capacity building for park management at professional and technological levels (Activities 1, 3) will cost 0.686 and be funding by SENA 0.590m; and Holland 0.090m. Defining norms, responsibilities, management categories and creating the MSAP (Activities 2,4,5) will cost 0.488m of which GEF will contribute 0.365 and co-funding 0.123 [CAM/ UAESPPN 0.012; CRC 0.024; and NRPF 0.087]. Dissemination of MSAP (Activity 6), will cost 0.040m funded by CAM/UAESPPN 0.027 and NRPF 0.013. Designing and setting up sustainable funding mechanisms (Activity 9) will cost 0.250m of which GEF will contribute 0.180 and Holland 0.070.

Increasing public awareness and commitment to biodiversity conservation. [Total cost 1.975m; GEF 0.975m; Co-funding 1.000m]. As a cross-cutting component supporting a range of project outputs, information and awareness programmes will be developed using a variety of media forms to disseminate project experiences, increase collective understanding of the role of biodiversity in regional development and create specific opportunities for public involvement in conservation actions. Information, communication and participation in conservation programmes (Activities 1,2,6) will cost 1.159m of which GEF will contribute 0.675 and co-funding 0.484 [IDB/ CRCAMZ 0.011; CRC 0.024;CVC 0.015; IDB/CVC 0.250 others 0.184]. Systematic registering of project processes and experiences in use friendly formats (Activity 3) will cost 0.324 of which GEF will contribute 0.100 and co-funding [NRPF 0.200 others 0.024]; Public fora, cultural and education events (Activities 4,5,7) will cost 0.492 of which GEF will contribute 0.200 and co-funding 0.292 [IDB/CVC 0.150 and others 0.142].

Biodiversity conservation in regional and local planning. [Total cost 1.046m; GEF 0.399m; Co-funding 0.647m]. A range of activities will be supported to incorporate biodiversity conservation into different institutional and social planning processes and to enhance the co-ordination of conservation actions in the region. During the first three years of project implementation these activities will also present particularly important opportunities to increase the contribution of considerable sums of baseline expenditure to biodiversity conservation and leverage additional funding for the second phase of the project. The development of guidelines and procedures for incorporating biodiversity

issues into planning and promoting complementarity between plans (Activities 1,2,5) will cost 0.365m of which GEF will contribute 0.174m and co-funding 0.191m [NRF 0.060m; IDB/CRC/AMZ 0.011m and NRPF 0.120m]. Training in resource acquisition and providing technical assistance to government staff and communities to implement plans within the MSAP framework (Activities 3,4) will cost 0.525m of which GEF will contribute 0.225m and NRPF 0.300m. Setting-up a regional co-ordination system to ensure co-ordination following project completion (Activity 6) will cost 0.156 all of which will be funded by the NRPF.

Project co-ordination. [Total cost 1.551m; GEF 1.311m; Co-funding 0.240m from UAESPNN].

Strong and effective project co-ordination is considered particularly important for maximising the impacts of the project for a variety of reasons that include:- the high amounts of co-funding and wide range of sources require careful co-ordination; the large area will imply high travel costs and increased security risks for which specific co-ordination arrangements have been developed²⁶, that are hard to charge to any one output; the very extensive baseline requires a strong co-ordination team to work with these initiatives, increasing their contribution to biodiversity conservation and leveraging considerable additional funds for the second phase of project implementation. The cost of this co-ordination represents 8% of the project budget (1.551m) of which GEF will contribute 1.311m and UAESPNN 0.24m.

Scope of Analysis

17. The scope of the incremental cost analysis covers the area of direct project intervention, that is the 20,000 km², of the nucleus of the Colombian Massif. It also includes the immediate area of influence, bringing the total scope to 36,780 km² representing the area known as the geo-political Colombian Massif. The analysis covers the six-year period of the proposed project and considers all actions necessary to remove proximate threats and underlying causes to the unique biodiversity of the Colombian Massif.

18. There are likely to be some incidental domestic benefits from the intervention, in terms of water conservation and regulation and downstream benefits from reduced sedimentation by protecting more paramo and montane forest, and also improvements in food security once barriers to adoption of alternative agricultural and livestock management practices are removed. However, these benefits are likely to accrue only in the long-term and are uncertain in nature. Therefore, GEF resources are needed to demonstrate the viability of these interventions and provide the catalytic financing necessary to promote wide adoption and replication. Nevertheless, significant co-financing has been leveraged to implement the alternative strategy.

Costs and Incremental Cost Matrix

19. The programmatic baseline designed to promote sustainable development in the Colombian Massif is estimated at US\$ 645.045m. The alternative strategy that includes specific actions targeted at conservation and that complement ongoing sustainable development efforts is estimated at US\$ 663.332 m (excluding all preparation costs). Therefore, the incremental costs of moving from the sustainable development baseline to the Alternative are estimated at US\$ 18.287m. Of this amount,

²⁶ The co-ordination team will include 4 sub-regional assistants in different parts of the Massif, responsible for informing the project co-ordinator, implementing certain activities, monitoring others, and liaising with local environmental advocates.

62%, or US\$ 11.287m, would be provided by non-GEF sources. GEF would provide 38% of the incremental cost (US\$ 7.00m) equivalent to 1% of the total GEF Alternative. See matrix below:

Component	Cost category	Cost (US\$ Millions)	Domestic Benefit	Global Benefit
1. Strengthened National Parks	Baseline	Total = 0.850	Some protection is afforded to 3,750km ² that includes important water catchment areas. Sub-optimal operations of parks, weak buffer zones management and lack of community commitment leads to increasing encroachment and habitat fragmentation.	Endemic and restricted distribution species have some protection but small sizes of parks and inadequate shapes cause border effect. This together with increasing encroachment from sub-optimal operations, leads to loss of globally significant species.
	GEF Alternative	Total = 5.927		
	Increment	<i>Co-funding:</i> Holland = 0.443 CRC = 0.401 IDB CVC = 0.210 UAESPNN = 0.542 WFP = 0.125 NRF = 0.368 CAM/CDM = 0.832 NRPF = 0.600 GEF = 1.556 Total = 5.077	Improved operations increase protection to water catchment areas and community participation in management reduces conflicts with local inhabitants. Reduced buffer-zone management conflicts and definition of conservation zones will reduce encroachment risks to parks. Improved morale of park staff enhances ability to work in isolated and harsh conditions.	Improved operations increases protection of large areas of 5 globally significant ecoregions. Redefined park boundaries and/or adjacent conservation zones in buffer-zones improve sizes and shapes of parks and reduce edge effect increasing protection of endemic and restricted distribution species. Increased community participation improves long-term sustainability of conservation.
2. Three New Protected Areas	Baseline	Total = 0.695	Large areas of well-conserved montane forest remain under no formal protection. Aggressive land-use practices in the region and advances in colonisation increase degradation and habitat fragmentation, increasing soil erosion, affect water regulation functions and reduce potential direct use values from forest products.	Areas of currently well-conserved and extremely high biodiversity are increasingly degraded. The opportunity to conserve considerable global values, at a time when costs are low, is lost. Parks do not benefit from connectivity with nearby large habitat blocks thus increasing isolation and genetic erosion.
	GEF Alternative	Total = 2.133		
	Increment	<i>Co-funding:</i> IDB/CARs = 0.105 NRPF = 1.078 GEF = 0.255 Total = 1.438	New protected areas under different management categories and regimes, provide new models for protected area management in the country; broaden the responsibility for conservation in Massif, and increase representation of regional biodiversity in SIRAP. Some long-term benefits in water regulation and soil conservation occur.	Formal protection afforded to 5,790 km ² from 4 globally significant montane forest ecoregions, protecting a number of endemic species and carbon sink role. Continuity of protected habitat with nearby parks increases overall conservation, particularly large home range species. Increased role of local & regional governments in protection improves sustainability of conservation.
3. Private, peasant and Indigenous reserves	Baseline	Total = 32.140	Park staff cannot accommodate increasing demands for advice on new reserves. A small number of private reserves are created through the efforts of individuals. Indigenous groups create sacred areas in reserves but are managed in isolation from other protected areas; peasant farmers continue reducing natural habitat in farms to increase agricultural production	Protected area management continues to be mainly under government responsibility. Large areas of inter-connected paramo in land between parks is increasingly fragmented, remaining montane forest stands in these areas are lost resulting in loss of connectivity between parks and reduction in genetic flow throughout region.
	GEF Alternative	Total = 35.329		
	Increment	<i>Co-funding:</i> NRF = 0.036 IDB CARs = 0.286 CAM CDM = 0.517 CRC = 0.051 BELGAS = 0.500 NRPF = 0.650 Others = 0.162 GEF = 0.987 Total = 3.189	Increased participation of private reserves & indigenous and peasant conservation areas in protecting regional assets; maintenance of connectivity of paramos conserves water supply and regulation functions; improved peasant farm management increases water and soil conservation and reduces risks of crop failures in the long-term.	Increased number of private reserves and conservation areas in strategic areas protect inter-connected paramos and increase connectivity between parks enhancing long-term conservation. Biological and cultural continuity of altitudinal gradient between Andean foothills and high peaks guaranteed, conserving vital gene flow throughout region.

4. Alternative Land Uses	Baseline	Total = 20.260	Given the link between current land-use practices, resource degradation, crop failure, food security and poverty, some efforts will be made to enhance production in environmentally sustainable ways but this will focus mainly on more fertile land below 2000m outside project area where populations are higher. More scattered action in high altitude land will impart new knowledge to a very limited number of farmers.	Continual use of paramo for seasonal cattle grazing, unsustainable exploitation of montane forests and heavy reliance on chemicals and aggressive techniques in high altitude potato cultivation will increase degradation, lead to increasing productivity failures, and pressure intact habitat blocks as agricultural frontiers expand. This will reduce connectivity between parks and increase encroachment of parks with ensuing losses in biodiversity.
	GEF Alternative	Total = 22.278		
	Increment	<i>Co-funding:</i> CRC = 0.038 IDB CVC = 0.319 WFP = 0.074 PLANTE = 0.200 NRF = 0.088 NRPF = 0.196 Others = 0.276 GEF = 0.827 Total = 2.018	More conservation-compatible land-use in high altitudes will reduce degradation of paramo areas increase conservation of water regulation functions; reduce aggressive techniques leading to long-term benefits for soil conservation and increased food security; reduced over-exploitation of forest protects potential direct uses of harvesting forest goods.	Demonstration and adoption of new conservation-compatible practices in strategic areas reduces main impacts on habitats outside protected areas conserving connectivity between these; improved food security stabilises agricultural frontier and reduces park encroachment; sustainable forest management and less degradation of paramo areas protects endemic species and maintains carbon sink functions.
5. MPAS Adaptive Management	Baseline	Total = 0.580	Incipient protected areas systems developed along political boundaries; absence of comprehensive framework for conserving regional assets causes overlaps, loss of synergies, conflicting approaches.	Lack of vision of broader ecosystem management and underdeveloped tools for this will cause inconsistencies in covering full range of globally significant biodiversity in region. Lack of management tools for system including sustained funding will endanger conservation in long-term
	GEF Alternative	Total = 2.573		
	Increment	<i>Co-funding</i> NRF = 0.104 IDB CARs = 0.102 CAM/UAE = 0.195 CRC O/P = 0.044 NRPF = 0.100 SENA = 0.590 Holland = 0.160 Others = 0.008 GEF = 0.690 Total = 1.993	Operational protected area systems with regional focus will provide for increases in efficiency in conserving regional assets and increase possibilities of working with complex multi-level planning processes; adaptive management tools will facilitate responding to regional priorities and directing limited resources to critical areas.	Regional approach to protected areas improves conservation of the confluence of 6 globally significant ecoregions. Specific norms and regulatory systems and monitoring of targeted diversity ensures common approaches, improves conservation and delivers more effective protection to critical areas; funding mechanisms increases sustainability of conservation efforts.
6. Awareness and Information	Baseline	Total = 2.400	Levels of awareness on the role of the Massif as a catchment area of national importance increases; there will be more support of, and participation in, watershed conservation measures in the region. Reforestation of watershed increases. Agricultural and livestock practices continue using aggressive techniques, loss of traditional knowledge continues.	Increased awareness of watershed conservation will not necessarily produce benefits to biodiversity as conservation of ecosystem structure and function is not focused in actions, non-native species are used in reforestation and only small areas targeted as the links between paramo and montane forest species, ecosystem dynamics and water regulatory functions are not widely known or disseminated.
	GEF Alternative	Total = 4.375		
	Increment	<i>Co-funding:</i> IDB/CARs = 0.011 NRPF = 0.015 CRC O/P = 0.200 IDB = 0.024 CVC = 0.400 Others = 0.350 GEF = 0.975 Total = 1.975	Similar benefits in water regulation conservation as baseline scenario. Greater participation in biodiversity conservation actions will facilitate work of park managers. New land-use alternatives will be more quickly and widely adopted, increasing food security over larger area.	Biodiversity conservation awareness increases understanding of protected areas roles and community compliance to zoning; facilitates management. Dissemination of alternatives & conservation practices reduces degradation and increases participation in conservation – all enhancing biodiversity protection in the Massif

7. Biodiversity in Planning	Baseline	Total = 121.000	Complex and multi-layer planning process in region will be streamlined, processes strengthened and commonalities identified. Indigenous peoples will have increasing roles in regional decisions.	Lack of incorporating biodiversity conservation actions in planning debilitates operations of protected areas, causes increasing land-use conflicts and foregoes unique opportunity for conserving ecological capital of high global value.
	GEF Alternative	Total = 122.046		
	Increment	<i>Co-funding:</i> NRF = 0.060 NRPF = 0.576 IDB/CARs = 0.011 GEF = 0.399 Total = 1.046	Increased integration between different planing levels within common framework will maximise impacts of investments. Increased resource mobilisation skills will increase flows to the region.	Incorporating biodiversity management principles in planning and using MPAS as a framework facilitates protected areas operations, reduces risks of future developments causing negative impacts on biodiversity, and leverages additional resources for conservation.
8. Project Management	Baseline	Total = 0	NA	NA
	GEF Alternative	Total = 0		
	Increment	<i>Co-funding:</i> UAESPNN = 0.240 GEF = 1.311 Total = 1.551	Capacities for implementation of multi-donor funded projects within a programme approach will be increased; regional projects and programmes will be more integrated around a common goal	Strong management will increase project success and leveraging additional resources above and beyond project budget from substitution of baseline, thus increasing global benefits derived from intervention.
Natural Resource Management	Baseline	Total = 30.420	Large amounts of resources will be invested in controlling natural resource exploitation in unprotected land providing increasingly sustainable management of natural resources in these areas.	Control of natural resource depletion helps control protected area encroachment but without improved parks operations and expanded protected area system, biodiversity continues to be depleted.
	GEF Alternative	Total = 30.420	-	-
	Increment	Total = 0	-	-
Poverty Alleviation and Illicit crop control	Baseline	Total = 436.700	Large investments raise living conditions including housing, employment, transport, sanitation. Agricultural alternatives, improved markets and commercialisation increase food security, higher incomes, reduce spread of illicit crops and reduce risks of escalating violence.	Alternative livelihoods, reduced poverty, improved living conditions & eradication of illicit crops, removes a significant number of present and potential root causes of biodiversity loss, increasing project impact and providing enabling environment for long-term conservation.
	GEF Alternative	Total = 436.700	-	-
	Increment	Total = 0	-	-
TOTAL	Baseline	645.045		
	GEF Alternative	663.332		
	Increment	18.287 of which GEF will contribute 7.0 and others 11.287		

ANNEX B - LOGICAL FRAMEWORK MATRIX

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS & RISKS
<p>Goal : To conserve globally outstanding biological diversity and ecosystem dynamics in the Paramo and Andean Montane Forests of the Colombian Massif. <i>In addition, the national objective</i> includes the conservation of environmental goods and services that these provide, particularly water.</p>	<p><i>By project completion</i>²⁷:</p> <ol style="list-style-type: none"> the populations of the following indicator species remain the same or higher than at project commencement:- <ul style="list-style-type: none"> <u>native and endemic species</u>, the spectacled bear, <i>Thremarthus ornatus</i>, Andean Tapir, <i>Tapirus pinchaque</i>, and small andean deer, <i>Pudu mephistophilis</i> <u>daily migratory species</u>: in the paramo the condor <i>Vultur gryphus</i> (to be monitored through the existing satellite programme); and the oilbird, <i>Steatornis caripensis</i>, and black tinamou <i>Tinamus osgoodi herskovitzi</i> in montane forest The water regulation and supply services of the project area remain stable 	<ol style="list-style-type: none"> Biological monitoring through the Renacer Foundation, MMA and Von Humboldt and periodic surveys by UAESPNN and universities in highly pressurised areas to determine population numbers; and systematic recording by UAESPNN of animals leaving parks and entering farms. Water levels measured by CAR and IDEAM stations 	<ul style="list-style-type: none"> Volcanic or seismic activity or prolonged irregular climatic events such as El Niño do not occur with such severity as to annul the impact of the project The population levels of threatened species are high enough for long-term survival
<p>Purpose: Establish a system of protected areas, under different land-use regimes, management categories and ownership's²⁸, that will: (I) conserve the full mosaic of ecoregions and ecosystems that converge in the Colombian Massif, (ii) provide a framework for regional conservation action, and (iii) engender the participation and commitment of indigenous groups and other local, regional and national stakeholders in the conservation of this biodiversity.</p>	<p><i>By project completion: (see footnote 13)</i></p> <ol style="list-style-type: none"> At least 50% of present interconnected paramos have been placed under some form of protected area The area of montane forest under some form of conservation has increased 100% The area covered by private reserves and peasant and indigenous conservation areas in land between the national parks, will have doubled <p>The number of inhabitants committed to biodiversity conservation will have increased by 50%</p>	<ol style="list-style-type: none"> Registers and/or declarations of protected areas (this will also serve for indicators 2 and 3) Community groups and inhabitants registered with the UAESPNN as participating in conservation events or owning some conservation area. 	<ul style="list-style-type: none"> Stakeholders of the region continue showing the same interest in participating in conservation programmes. The baseline projects that seek to alleviate poverty and raise living standards in the Massif have the positive impacts expected. The Massif continues to be flagged as a national priority region and receives the current level of resources that reflect this status.

²⁷ Specific *impact* benchmarks for Phase 1 will be included in the project document for that phase. These will be used for its evaluation and for the fine-tuning of indicators and work-plans for phase II. Performance indicators for project outputs for the different phases are indicated in respective outputs.

²⁸ These will include National Natural parks as well as departmental, municipal, peasant, private and indigenous reserves and the multi-use corridors.

<p>Output 1: Four National Parks and their buffer zones consolidated operationally, with joint management processes under way with local communities</p>	<ol style="list-style-type: none"> 1. The number of organisations and inhabitants from within and nearby the parks, that participate in conservation actions and programmes increases 10% annually during project 2. <i>By start of year three the vehicles, communication systems and infrastructure proposed for phase I</i> has been completed. 3. <i>By end of year Phase I</i>, the number of resolved reports on park violations has increased by 50% ; and park management plans have been updated participatively and include management actions and priorities for buffer zones. 4. <i>By project completion</i> habitat fragmentation in park limits is no greater than at project start 	<ol style="list-style-type: none"> 1. Park registers and reports. 2. Equipment list in Prodoc for Phase I ; inventories of park equipment and project evaluations 3. Register of penalties and sanctions; and new park management plans and minutes of joint planning meetings and agreements 4. Habitat coverage monitoring under GIS 	<ul style="list-style-type: none"> • Inhabitants in parks are willing to take part in and commit to new management regulations for these areas. • Local communities actively take part in the revision and up-dating of park management plans and the extension of these to buffer zones • The current institutional structure for parks services continues to receives at least the current support from national funds if not more.
<p>Output 2. Three new protected areas ²⁹ of highly diverse and well-conserved habitat complexes are established and operational under a mix of protection categories and management authorities (including combinations of national, regional, local and indigenous), thus increasing the area of target ecosystems under conservation.</p>	<ol style="list-style-type: none"> 1. <i>By end of year 1</i> the broad consultation on new protected areas is underway; and <i>by year 2</i>, 50% of local stakeholders show interest and support to the creation of the new areas. 2. <i>By end of Phase I, biological and socio-economic surveys required for declaring the new areas are complete and detailed proposals have been drafted for their creation</i> 3. <i>By end of year 5</i>, the new areas have been officially declared and registered as part of the MPAS; and the social and institutional structures for developing their management plans are in place 4. <i>By project completion</i>, the new areas are starting operations and the management plans in the process of development with priority actions being implemented 	<ol style="list-style-type: none"> 1. Project reports on consultation process, registers of the number and types of stakeholders taking part in consultations; and surveys to be undertaken during process. 2. Technical documents with survey results; formal proposals for each area with management structure details and evaluations of support 3. Official register of declared areas; and formal registration of community planning and management committees, and signed agreements with local entities 4. Project evaluation reports and management reports of new areas. 	<ul style="list-style-type: none"> • Municipalities, CAR' s, and indigenous reserves continue to show present support of new proposed protected areas • No new infrastructure projects are proposed before the processes to create the new protected areas are well advanced

²⁹ Serrania de Minas, Serrania de Churumbelos and Dona Juana Complex

<p>Output 3 . Co-ordinated and operational networks of private reserves, and peasant and indigenous conservation areas, established in four zones that link the existing parks and major ecoregions of the Massif, increasing connectivity and continuity of main habitat blocks</p>	<ol style="list-style-type: none"> 1. <i>By end of second year</i>, the number of protected areas identified in departmental, and municipal zoning and development plans and indigenous environmental plans, has increased 30% 2. <i>By end of Phase I</i>, the number of new reserves in buffer zones and corridors has increased 30%; and a proposal for new management categories in MPAS will have been developed. 3. <i>By end of year 4</i>, the number of spontaneous requests from communities or inhabitants requesting conservation of an area during has increased 50% 4. <i>By project completion</i> there will be an increase of 60% in the area of private reserves compared to year 1 	<ol style="list-style-type: none"> 1. Respective zoning and development plans 2. Declaration acts and decrees; and proposal for new category 3. Written requests 4. GIS monitoring 	<ul style="list-style-type: none"> • The current interest of local actors in creating new reserves continues and the areas created are large enough to provide increased connectivity.
<p>Output 4. Alternative land-use practices for three productive systems that currently threaten biodiversity in the Massif, tested in participatory pilot projects, and validated through replications within peasant land holdings that form part of the new Massif Protected Areas System. (MPAS)</p>	<ol style="list-style-type: none"> 1. <i>By end of year 1</i>, the specific locations for field tests within the pilot zones will have been identified based on participatory environmental and production assessments in each zone. 2. <i>By the end of Phase I</i>, at least 6 field tests in alternative livestock practices ; 8 in new techniques and production systems for high altitude potato cultivation; and one sustainable management plan for montane forest will have been undertaken 3. <i>By end of year 5</i>, successful alternative practices will be replicated in at least 10 localities to fine tune and validate experiences. 4. <i>By project completion</i>: <ul style="list-style-type: none"> • At least 30 outstanding traditional or peasant productive practices that mitigate current impacts on biodiversity will be surveyed, described and disseminated throughout the Massif; at least six indigenous 	<ol style="list-style-type: none"> 1. Project evaluations and report on specific locations for field tests 2. Project evaluations and field visits; register of field tests; documents of management plan. 3. Project evaluations and field visits 4. Documentation on traditional practices and review of dissemination material; reports on assistance to indigenous groups; and register of training events. 5. Survey of communities using pilot zones; register of request for replication of alternative practices and project evaluation reports 	<ul style="list-style-type: none"> • The technologies and practices resulting from the pilot projects are adopted by the communities whilst degradation of habitat is still low. • The climatic conditions allow tests and pilots to be undertaken according to schedule • Human resources trained in new alternatives remain within the region maximising their dissemination.

	<p>groups will have been supported to develop productive practices that aid conservation and undertake land zoning of their reserves; at least 12 training events for agricultural entities will have been realised.</p> <ul style="list-style-type: none"> • Communities that participated in field testing will have adopted at least 70% of alternative practices and show interest in their future use. • The number of requests for assistance in replicating and extrapolating alternative techniques continues to increase 		
<p>Output 5. A set of adaptive management tools developed and in place to facilitate the creation, operation, monitoring, funding and future expansion of a Massif Protected Areas System (MPAS)</p>	<ol style="list-style-type: none"> 1. <i>By end of year 1</i> a methodology for planning and managing NPP in the Massif has been completed and <i>by the end of Phase 1</i> this has been adapted or developed for all other categories of protected areas in the MPAS 2. <i>By end of Phase 1</i> all staff members of the Massif UAESPNN know how to ensure social participation in conservation; a set of inter-cultural regulatory norms has been defined by consensus for indigenous and peasant reserves and a <i>proposal for the MSAP has been drafted.</i> 3. <i>By year 4 the MPAS</i> has been formally constituted 4. <i>By project completion</i> the number of reserves under different management categories continues increasing and the structures that co-ordinate their operation are established and working. (networks, community management committees etc). 	<ol style="list-style-type: none"> 1. Reports on methodologies 2. Survey of park staff; and aide memoirs of meetings, acts and signed agreements 3. Copy of formal constitution 4. Register of reserves in the MPAS and documents on structures created, records of meetings, agendas, list of attendants, schedule of meetings (frequency). 	<ul style="list-style-type: none"> • The managers of protected areas in the Massif continue to show their present high interest in forming a protected areas system for the region • The different stakeholders continue to seek consensus on environmental regulatory systems and management • Municipal councils adopt the strategies developed to ensure sustainability of protected areas
<p>Output 6. Multi-format information and education programmes and campaigns</p>	<ol style="list-style-type: none"> 1. <i>By Phase 1</i>, the number of reports made by communities of acts against biodiversity 	<ol style="list-style-type: none"> 1. Register of reports to CARs and UAESPNN 	<ul style="list-style-type: none"> • The inhabitants of the Massif continue showing the same interest in

<p>implemented to raise the awareness of local communities on the importance of biodiversity conservation in the Massif and to increase their commitment to participatory conservation management.</p>	<p>conservation has increased by 20%; by year four this increases to 30% and does not fall from this level by project completion</p> <p>2. <i>By end of phase I</i>, the first information pamphlet has been published on pre-hispanic trails in well conserved areas.</p> <p>3. A yearly increase of at least 15% in the numbers of entries for the conservation competition to be set up through this output.</p> <p>4. <i>By project completion</i>, each department in the Massif has at least one conservation competition sponsored by a public or private entity; the number of radio stations and programme hours dedicated to conservation news and events has increased 50%; and the number of conservation events organised spontaneously by communities has doubled.</p>	<p>2. Published pamphlet</p> <p>3. Register of competitions and prizes</p> <p>4. Register of departmental events and competitions; review of radio programmes and schedules; and school and Community Action Councils registers, newspapers and local radio stations</p>	<p>increasing their participation in conservation actions</p> <ul style="list-style-type: none"> • Different stakeholders use the information disseminated through this output
<p>Output 7. A system established to incorporate biodiversity conservation principles in the institutional and social planning processes of the Massif and to co-ordinate the action of major regional conservation programmes & stakeholders.</p>	<p>1. <i>By end of Phase I</i>, the number of departmental, municipal, community and local development plans and projects that include elements of biodiversity conservation have increased by 25% and reaches 50% increase by project completion.</p> <p>2. The number of conservation and sustainable-use projects resulting from the training and advisory activities of this output, presented and approved for funding by different financial entities, increases yearly.</p> <p>3. The number of joint conservation actions registered in the yearly operational plans of CARS, municipalities' indigenous reserves and the project increases yearly . <i>Following project completion</i> joint conservation actions continue to be planned by different regional and local entities</p> <p>4. The number of signed agreements between local communities and public and private for joint conservation action,</p>	<p>1. Review of development plans and projects</p> <p>2. Training workshops reports and funding entities registers.</p> <p>3. Review of annual operational plans</p> <p>4. Review of signed agreements</p> <p>5. Proposal for co-ordination permanent system and signed agreements</p>	<ul style="list-style-type: none"> • The current flow of resources to the Massif municipalities and Regional Environmental Authorities (CARs) does not suffer major reductions • Different sectoral planning processes continue respecting National environmental norms (particularly in the area of transport and energy) • The current operations to maintain public order in the Massif continue with the same success as present • Local stakeholders continue supporting local planning processes and the implementation of resultant plans. • The Massif Inter-corporate Agreement continues co-ordinating the action of CARs in the region.

	<p>increases yearly.</p> <p>5. <i>By year 5 of project</i>, consensus has been reached on the structure, procedures and funding of a regional planning co-ordination system for conservation actions.</p>		
--	---	--	--

Activities of Output 1: Consolidate the four National Parks to better conserve target ecosystems:

- 1.1. Fill-in gaps in the physical and biological information of each park using satellite images and ground proofing to form a consolidated and systematic database for evaluating and redefining limits and establishing conservation zoning with local stakeholders.
- 1.2 Undertake more detailed socio-economic surveys and establish data bases for parks and their buffer zones including details of local planing processes and plans (Municipal Land Zoning Plan; village development plans, Indian Living Plans)
- 1.3 Participatorally define different conservation zones in parks and buffer zones with local stakeholders using the systematised information (1.1) and through meetings and consensus building activities. These zones would include areas for strict conservation, restoration and sustainable production practices)
- 1.4 Collectively identify potential areas for expansion of park limits to include adjacent intact habitat blocks, define and delimit new boundaries with local stakeholders and prepare legal documents and procedures for their formal adoption.
- 1.5. Strengthen the operational capacity of parks by providing infrastructure, equipment and self-help programmes for staff as basic requirements to effectively develop and implement participatory park management plans.
- 1.6 Develop up-dated management plans for the parks and buffer zones, through highly participatory processes.
- 1.7 Support the implementation of priority actions of newly defined management plans.

Activities of Output 2: Establish new protected areas to extend habitat under conservation and develop new management categories

- 2.1. Draft proposals that outline possible management categories and boundaries for three new protected areas, using information gathered from a review of municipal land zoning plans, the living plans of respective indigenous groups and the Action Plans of the CARs and through consultative meetings with major stakeholders
- 2.2 Collect more detailed information for each proposed protected areas by undertaking rapid ecological evaluations, participatory rural evaluations and stakeholder analysis and systematising this in user-friendly thematic maps suitable for broader scale consultations
- 2.3. Disseminate systematised information and hold consultations with a broader range of local stakeholders to discuss and formalise support to protected area proposals
- 2.4 Demarcate the new protected areas with the participation of local stakeholders and advance the legal processes for their formal declaration.
- 2.5 Identify the most appropriate joint management structures for ensuring the long-term management continuity of each protected area and their conservation strategies and safeguarding against institutional changes in the entities under whose jurisdiction they fall.
- 2.6 Set -up operations in each newly created area defining operational procedures and providing basic infrastructure, equipment and personnel.
- 2.7. Set-up processes that facilitate the formulation of participatory management plans for the new areas and their buffer zones

Activities of Output 3: Increase private reserve, peasant and indigenous conservation areas to increase connectivity between main habitat blocks and parks

- 3.1. Fully survey existing private reserves, collecting biological and socio-economic data and registering them as official protected areas within the Massif
- 3.2. Implement a training, information, and exchange programme to strengthen the planning and management of existing private reserves (both private individuals and businesses) and conservation areas in peasant small holdings, and to facilitate the creation of a network of private reserves within the MSAP.
- 3.3. Set-up an outreach and advice programme for the creation of new private reserves, particularly in park buffer zones and linking corridors, that includes differentiated content for each type of private reserve (often related to the conservation motivation of owners)
- 3.4. Assist peasant owners of small-holdings with conservation areas to more effectively plan and manage their farms and adopt production practices that are less harmful to biodiversity based on the pilot projects undertaken through output 4
- 3.5. Develop legal, normative and fiscal incentive proposals for a new category of protected areas specifically for conservation areas within peasant farms providing a format

that is different from other private reserves and facilitating their integration and management as part of the MSAP.

3.6. Provide technical assistance and support to indigenous groups to establish, delimit and manage their conservation areas through their autonomous land-zoning processes including the Inganos in the foothills of the Eastern Cordillera

3.7. Support inter-ethnic meetings to exchange views and experiences on the management and control systems of the conservation areas within each reserve and traditional and cultural uses of bio-diversity.

Activities of Output 4: Field testing and adaptive research for alternative agricultural, livestock and forestry practices

4.1. Survey traditional and indigenous agricultural, livestock and forestry practices throughout the project area to provide further input to the pilot projects to be undertaken through activity 4.3., and to recover and disseminate peasant and indigenous culture and knowledge of natural systems in the Massif including the use of older locally adapted crops

4.2. Provide support to the region's indigenous groups to recover, internalise and value cultural uses of biodiversity including the transfer of knowledge between generations and the initiatives of the Inganos in recovering their knowledge of the biodiversity through the full altitudinal range of the Eastern Cordillera foothills

4.3. Define specific sites to develop and test alternative land-use practices and systems within each of three zones selected for pilot projects³⁰, by first identifying the productive groups and associations in each zone and jointly surveying their environmental, productive and operational characteristics to identify and reach consensus on the localities and techniques for each pilot projects

4.4. Implement the pilot projects for field testing and adaptive research to determine the most suitable alternative practices to reduce the impact of three land-use practices on biodiversity (cattle rearing, potato mono-cultures and unsustainable use of forests)

4.5. Undertake a programme to validate, fine-tune and disseminate the findings of the most successful pilot projects through the extrapolation of these in peasant farms that form part of the MPAS (Act. 3.4). This will include field applications, technical tours and the incorporation of peasant and indigenous traditional practices identified in 4.1&2

4.6. Undertake a hands-on training programme for public and private, local and regional, agricultural entities to incorporate the newly developed agricultural, livestock and forestry practices and systems into their respective portfolios

Activities of Output 5: Develop tools for the adaptive management of Massif Protected Areas System

5.1. Design and set-up a permanent capacity building programme for Massif Natural Park staff to facilitate the implementation of park policy and the formulation, implementation, and up-dating of management plans in parks using a common approach

5.2. Define the associations, structures and respective operational guidelines for sub-networks of protected areas within the MSAP, clustered according to management categories, locations and political divisions, to ensure the co-ordination and joint operation of individual reserves and common approaches

5.3. Design and implement a training programme for protected area management at the technological level through SENA

5.4. Evaluate local experiences and hold meetings to reach consensus and formalise specific regulatory systems for parks, indigenous and peasant reserves to be included in the MPAS and develop their respective legal or social norms

5.5. Define and adopt operational procedures for the whole MPAS that are in accord with the norms, responsibilities & mandates of environmental institutions in the Massif.

5.6. Formally constitute the MPAS within the framework of decree 1124 of the National System of Protected areas and disseminate information on its role, structure and operations and norms regulatory systems

5.7. Design and implement a targeted biodiversity conservation monitoring system for the Massif, that includes a Geographic Information System compatible with those existing in the region, to facilitate the broad planning, monitoring and evaluation of the MPAS and project evaluation

5.8. Participatorally develop a property-planning methodology within the MSAP that incorporates the newly defined land-zoning and conservation needs for each ecosystem, and train reserve managers in this model

5.9. Establish a strategy for the long-term funding of the MPAS that draws on international experiences and that uses the supply and demand of environmental goods and

³⁰ Selected as on criteria such as role in biodiversity loss, type of ecosystem and habitat cover, socio-economic characteristics (see Annex X)

services provided by the Massif

Activities of Output 6: Increase community awareness and participation in biodiversity conservation

- 6.1 Implement a programme to increase the sense of regional identity and belonging in the Massif through community map-making ventures and restoration of pre-Columbian paths
- 6.2. Implement a rural information strategy using local radio stations, newspapers, written matter, television, and other available media, to disseminate the results of biodiversity conservation activities in the region and role of the project in these, and to raise awareness of the environmental services offered by the Massif and local benefits that could be derived from them in the future
- 6.3. Implement a programme to systematically collate the results of the pilot projects and protected areas experiences, using media that is suitable for the cultural diversity of the region (film, photographic, oral-in Spanish and other local languages), to feed into the information strategy in activity 6.2.
- 6.4. Establish a commemorative date, hold educational and cultural events and give rewards to actions in favour of biodiversity conservation and set-up a system of local sponsors for the continuation of these in the future
- 6.5. Implement an awareness building programme to demonstrate the importance of the reserve networks set up in four corridors (output 3) in the conservation of the regions biodiversity and environmental services, region using workshops, community map-making, marches, community environmental profiles, and field trips
- 6.6. Annually publish a regional report on the monitoring and evaluation of biodiversity conservation actions and define funding sources for its continued publication and circulation to local stakeholders and institutions
- 6.7. Set-up a system of consultations, meetings and fora to facilitate conflict resolving over conservation issues and public participation in project monitoring and evaluation

Activities of Output 7: A biodiversity overlay for institutional and social planning, management and co-ordination processes

- 7.1. Develop methodological guidelines and procedures to incorporate biodiversity conservation principles and the MPAS into municipal and departmental development plans and the Life Plan of indigenous groups, and implement this through respective operational plans (MDP and AOPs).
- 7.2. Hold annual joint planning sessions with the regional programmes in the Massif and CARs to ensure that biodiversity conservation actions are included in annual operation plans and to maximise synergy and complementary effects between different initiatives.
- 7.3 Implement a resource-acquisition training of trainers programme that includes project design, formulation, and implementation, programme for representatives from local stakeholders groups involved in conservation (Indian councils, private reserves owners, National Parks)
- 7.4. Provide technical assistance to staff from municipal planning units and conservation departments, and to communities, to facilitate the implementation of land-zoning plans within the framework of the MPAS and increase understanding on a range of biodiversity conservation issues
- 7.5. Develop guidelines and procedures and train CAR staff to incorporate biodiversity conservation principles, the MPAS and the zoning of protected areas and buffer zones, in environmental licensing procedures of the Massif CARs.
- 7.6. Jointly with main environmental authorities and stakeholders, set-up the structures and procedures needed to ensure co-ordination of actions following the project and that to make effective the Regional Environment System

ANNEX C - STAP ROSTER TECHNICAL REVIEW

Project Reviewer: Kenton Miller, WRI Vice President for International Conservation and Development, and Chair, World Commission on Protected Areas.

1. **Scientific and Technical soundness of the project**

The conceptual framework of the project follows current conservation biology and landscape ecological knowledge and principles. That is, an archipelago of core wildland areas of appropriate size and shape, provided sufficient connectivity in the landscape to ensure adaptive potential to change, migration and dispersal, all nested within greater landscape scaled bioregional social and community programs, is a solid strategy for in situ biodiversity conservation. There is sufficient knowledge in the region to plan and implement the proposed action. Colombia's national park program has had an outstandingly competent staff and policies dating back to the early 1960's, and can be expected to employ this scientific, technical and social knowledge when managing this project.

The approach proposed has very high probability of achieving the goal and objectives of the project. The indicators proposed in the logical framework (Annex B) will help guide the process. There are risks: not with the project design per se, but with working in this region, as noted in the risk assessment of the proposal. However, in my opinion, that only stresses the need to get on with project implementation asap. The critical issue is to launch the social dimensions of the project, together with base-line activities in the initial stage of the project to quickly gain community confidence, trust and support for the project. Livelihoods, food security, etc., must improve quickly for buy-in to biodiversity conservation to become a reality.

2. **Identification of global environmental benefits.**

The global benefits of the proposal are well presented and clear. There is no question that the biodiversity of the Colombian Massif is of central importance to the world. This area is a Hot Spot by analysis of Conservation International, and a critical eco-region by that of WWF.

3. **How does the project fit within the context of the goals of the GEF?**

The project focuses on a mountain range of highest biodiversity value. The scale of the proposal covers a geographic space of sufficient size to embrace the key elements of the Cordillera and its adjacent mountain ranges and ridges. This will enable the conservation program to provide connectivity to the country above 2000meters above sea level and the saddles and slopes in between the high areas.

4. **Regional Context.**

The geographic area of the proposal lies within Colombia. Thus, there are no immediate international dimensions to the project.

5. **Replicability.**

However, from the Replicability point of view, the implications of the project as a model have very significant importance to other Cordillera regions of Colombia, as well as to Bolivia, Ecuador, Peru,

and Venezuela. The challenges faced throughout the Andes are similar to those of the Colombian Massif. The high country is biodiversity rich and critical to water supplies downstream. Indigenous peoples that can contribute to and benefit from cooperative management of the areas occupy these regions as well.

The proposed "Corridor of the Americas" proposed by the Wildlife Conservation Society and supported by the World Protected Areas Commission, the University for Peace, and other entities, seeks to promote the extension of such projects as the Colombian Massif throughout the length of the Rocky Mountain/Andean Mountain chain from Alaska to Chile.

Thus, the project could include a more explicit activity to link its efforts up with other projects throughout the Andes. Specifically, the World Protected Areas Commission and partners are establishing a "learning network" the aim of which is to capture and share information from field-based innovations to promote in situ biodiversity conservation. The Colombian project could explicitly link with this effort as well to ensure that what is learned can be accessed by other governments and communities.

Secondary Issues

6. Linkage to other focal areas.

The project has taken into consideration its impact on the sequestration of carbon, land use degradation, and the conservation of forest and fresh water. Paramo ecosystems are particularly significant for their carbon storage. Opening these soils and their superficial organic layers for purposes of farming and grazing can be expected to release C into the atmosphere.

Logging around the lower altitudes is also a negative factor.

Deforestation has and continues at high rates at lower elevations, usually followed by fire. The use of fire in the land clearing process following logging, and in preparing Paramo for grazing also provides a net contribution of C.

As well explained in the proposal, by maintain the Paramo vegetation and forests at lower elevation, the project can contribute very importantly to the protection of the watersheds of the nation's most important rivers which provide 70% of the water consumed by Colombians. Hence why the Massif has been considered by the government to be a strategic site in its national strategy.

7. Linkage to other programmes and action plans at the regional or sub-regional level.

There appear to be adequate mechanisms to coordinate this project with other national, international and regional activities in the same region of Colombia.

Of most concern is the jurisdictional overlap with the protected areas and corridors of the project area. This coupled with the vertical decentralization from central offices, down through regional offices, to local bureaus, have always been a very complex and complicating factor in conservation management effectiveness in Colombia (and elsewhere). The authority and responsibility is often confused and confusing. Who can really establish zoning regulations, negotiate with landowners, lay out zoning space on the ground, and deal with infractions? With infractions along the park boundaries where indigenous territories or municipalities overlap, who is ultimately in charge? In the past, the park service has always lost. Why will it be different now? Surely the CAR's will have the most political clout.

Similarly, in Output #3 the project calls for assisting small holders to adopt new production practices, an effort that requires reversing and changing current conventional practice and wisdom in the agricultural department and extension agencies. Seldom does Environment win out over

Agriculture. Presumably there are strategies for fostering this shift in attitudes and practices, perhaps at the Cabinet level to begin.

The document does not develop a conceptual framework or action plan for addressing the full range of ecosystem services beyond water. It stresses biodiversity, which in of itself is not going to be, or yield benefits to local residents in any direct form. Options can include bioprospecting; employment in para- taxonomy (e.g., INBIO); employment in ecotourism that includes the construction, management and service provision in ecotourism lodges that offer locally produced foods; production of decorative plants; etc. Beyond the local community, there are benefits from ecosystem services, including nutrient flows to downstream agriculture, and control of flooding, and environmental security.

8. **Degree of involvement of stakeholders in the project.**

Table H-3 provides a summary. It would appear that project preparation provided adequate opportunity for the engagement of indigenous people, campesino communities, local government, and regional and local offices of the Ministry of Environment. Not clear was the involvement of Agriculture, Transportation, Water, and other public sectors.

Relative to past practice, this project has made an important leap forward in the way it has involved the residents of the project region right from the start. Arrangements are proposed for cooperative work in park planning, buffer zone management, and in support to those living in the greater landscape. Especially interesting is the request by the indigenous peoples to have the park service provide them with help on planning their sacred areas that will also help protect biodiversity.

Mechanisms are proposed for coordination horizontally among different types of management regime and responsible agency, and vertically from the center down to the local offices of the Ministry and project management. Similarly, there are mechanisms for conflict resolution and communication that appear to be adequate.

9. **Capacity Building**

There are clear activities to support the restoration of indigenous knowledge and practice, especially with respect to land uses that are biodiversity-friendly. The project espouses respect for indigenous ceremonial practices that take place in the natural environment, including the use of campfires that will require fuel-wood cutting. Methods and proposals to build indigenous capacity in terms of spreading older knowledge and practice to younger people and throughout the various ethnic groups is not explicit. Similarly, explicit approaches to demonstrating and spreading older locally adapted crops are not obvious in the document. Also, not clear, are efforts to not only deal with knowledge per se, but also with strengthening "indigenous management methods". Perhaps they are operating perfectly well in the face of pressures from government bureaus, squatters, commercial interests, etc. I'm thinking of strengthening the capacity of the ethnic groups to deal with the business of communications, public outreach, biodiversity project management, etc., in a greater society dominated by other values than their own regarding natural resources.

10. **Innovativeness of the project.**

The project is particularly innovative. Among the most creative aspects are:

- Incorporating Indigenous communities as fellow managers of protected areas (not as co-managers, but as managers!). This also holds potentially to campesino communities in their reserved lands. This expands the society of people and groups taking responsibility and accepting to exercise authority over biodiversity conservation at the whole landscape scale. This establishes then a management capability consistent with and parallel to the concept of the ecosystem approach.

- Working at a geographic scale consistent with the goal. The courage to work at the whole landscape level, and work with those who live there.
- Employs all the concepts and tools from conservation biology and landscape ecology, and bioregional management.
- Bringing in private reserves as elements in the whole archipelago.
- Establishing historic trails as a way to make connectivity relevant to local ethnic groups. This could be expanded as a concept to engage local schools, scouts, etc., as "hikes" to take; and provide interpretative materials to engage hikers in the biota and the indigenous culture.
- An internal feedback loop so that the training process is benefiting from lessons learned during the life of the project. (p. 14).
- Courage to move forward in the face of potential violence.
- Shift the balance of funding away from exclusive public sector finance, to a mix of sources. This adds security to the protected areas and conservation programs. Furthermore, there is an element of "he who gains should pay," which is unusual. That is, we need to move away from "providing benefits to" as though it was the right of local residents to "get" something from the parks; and, rather, speak of providing opportunities for people to "help produce and provide benefits" to themselves and others. In other words, share in the costs and the benefits.

Specific Comments:

P. 10. Para 35. I appreciate the sense of urgency to invest quickly in protection to endangered and highly significant biodiversity, and at the same time, initiate actions to foster social and economic security and livelihoods. This is critical. As is arising in the Mesoamerican Biological Corridor, a key point of conflict between the conservation, the social, and the economic points of view in program development is disagreement on which comes first. Obviously the answer is: "all three!" Yes, local stakeholders need to see tangible results quickly to develop trust and confidence in the project and the agencies in charge. And, destructive processes need to be stopped. And business needs to see that the economic environment is going to be conducive to their interests. So all three at the same time, in each project phase of activity and investment.

On the same point, I appreciate the focus of the project, to begin with a limited geographic area, and slowly move outward.

p. 11 para 37 and elsewhere, there is a lack of clarity on how the core protected areas are to be managed. Discussion on the buffer zones and overall land use beyond is clear. It is also clear that there is considerable overlap between indigenous territories and the key protected areas. So, how will the areas in the "VEN-like" overlapping sectors of individual parks to be managed? Will Indigenous planning decisions prevail in their areas within the legal national park areas, or vice-versa? This is important, because there is a real risk to in situ biodiversity if these overlap lands are to be farmed and hunted. They cannot then be counted biologically as "core" areas. Biodiversity is compromised even with blowgun hunting. It is important to clear up the exact Objectives of Management. The name or nomenclature is less important although confusion can be created if titles employed in Colombia are inconsistent with the internationally accepted IUCN framework.

p. 12 para 42. It might be helpful to employ the concept of "archipelago" and "mosaic of land uses" to help explain how private reserves, campesino patches of forest, and indigenous sacred sites can provide critical habitat requirements within the overall greater ecosystem.

Ecosystem services. Again, nowhere are the whole set of ecosystem goods and services provided by the Massif discussed and valued.

There is very little discussion of policy revision and formulation, and formal decision-making procedures. There is a risk of a somewhat loose if not anarchic process of approaches, agreements,

and regulations among all the constituency groups unless some type of process exists for pulling proposals together, drafting guidelines, and finally setting policy. Examples include the design of conservation regimes, land use zoning, etc.

The vertical effort to move decisions and consultation as close to the ground as possible is appropriate and fully supported by current concept and practice. It might be good to expand on this and set up very local "centers" for the project where information and maps are available, meetings held, etc. This was done in the Sierra Nevada with some success. But drawing upon the experience in South Eastern Mexico, one could also image having portable computers in local languages, with interactive programs that would engage people in the key questions they might have, in helping identify key medicinal plants, planning trails, etc. Training could be provided to use such simple systems. There is a neat interactive program at INBIO in the BIOPARQUE developed by Spain. In the case of Mexico, local indigenous peoples actually keyed out plants on portable computers as they helped inventory the area (see Gomez-Pompa).

This is an excellent project, and I recommend its support without reservations

C-1. - RESPONSE TO STAP COMMENTS

1. **Review Comment:** *Include a more explicit activity to link up with other projects throughout the Andes.*

Response: A sentence to this effect has been added in paragraph # 60. Specific details to operationalize these linkages and potential exchanges during project implementation will be included in the final Project Document. In addition, to communication tools such as project websites, electronic exchanges, and periodic information-exchange workshops, selected representative(s) from the *World Protected Areas "learning network"* could be invited to attend the annual Advisory Meetings for the projects within the *Conservation of the Andes Strategy*, thereby ensuring more effective exchanges.

2. **Review Comment:** *Concerns regarding jurisdictional overlap with the protected areas and corridors. Who can establish zoning regulations, negotiate with landowners, lay out zoning space on the ground, and deal with infractions? Who is ultimately in charge? In the past, the park service has always lost. Why will it be different now?*

Response: Jurisdictional overlap was recognised as an underlying cause contributing to biodiversity loss in the early stages of project formulation. Consequently, the project has been designed to actively address this issue. Actions have been identified at different levels of management and planning to increase the integration of different institutions in buffer-zones, so that by project closure, consensus over zoning and definitions of authority will have been clearly reached. These include the following:

- The Law 99/93 confers authority to CARs for controlling natural resource exploitation in buffer-zones, but the role of the MMA's National Parks Administrative Unit (AESPNN) is recognised in decisions related to core areas. For example, environmental licensing of development projects that will affect parks falls under the MMA authority and not the CARs.
- Since this law came into force, notable advances have been made to co-ordinate the different levels of environmental authority. To this end, the National Environmental System – SINA - is increasingly ensuring integration between different levels of authority. Baseline activities, including those of UNDP, will focus on further strengthening the SINA, as will project actions under Output 7 particularly Activities 7.2 & 7.6
- The mandate of the National Parks Administrative Unit has been broadened beyond National Parks management with Decree 1124 of 1999, entrusting them to lead the formation of the National System of Protected Areas –SINAP- and co-ordinate its operations once established. Buffer zones represent a category of land zoning within the SINAP and there is increasing recognition of the National Parks Administrative Unit's lead position within the management of these areas.
- At local levels the previous distribution of political forces is also changing. This is being reinforced by the shift in Park policy under the current administration, which focuses on increasing park outreach to local communities and setting up processes of enhancing community participation in the management of core and buffer zones. The significant number of petitions for advice in the establishment and management of private reserves, indigenous environmental plans and conservation of peasant reserves illustrates this shift and the new lead role of the National Parks Administrative Unit in buffer-zones and corridor areas. Activities under Output 1 and 3 of the project focus on cementing this allegiance.
- In the South Andean Region a unique situation exists in relation to the CARs. *The Massif Inter-Corporative Agreement* (CIC Massif) brings together the five main CARs with jurisdiction in the area to jointly plan and develop sustainable development. Within this agreement buffer zones are considered of high importance and have been chosen to serve as an initial point for joint action. The recent CIC Massif agreement signed in September of 2000 includes the National Parks Administrative Unit as part of its organisational structure. In addition, the National Park's Southern

Andean Division forms part of the technical committee that permanently evaluates joint programmes and integration issues, further ensuring their role in buffer-zone management and zoning initiatives in corridors. The CIC Massif is providing considerable co-funding to the current proposal and has formally committed itself to its goals in letters of support on file with UNDP.

3. **Review Comment:** *Assisting small holders to adopt new production practices (Output 3), will require changing agricultural department & extension agencies. Presumably there are strategies for fostering this shift in attitudes and practice.*

Response: The effects of recent earthquakes in the Massif were magnified by current levels of soil erosion causing landslides and the sinking of land in the south. This has increased the awareness of local and departmental agricultural entities on the need to shift agricultural activities to more environmentally compatible paths. An increasing number of NGOs and small institutions are developing agricultural alternatives but most focus on altitudes outside the project area below 2000 m.a.s.l. Departmental secretaries of agriculture and UMATAs have expressed their interest in raising their capacities in these alternatives. Activities 4.3. will develop alternatives for high altitude and will provide this capacity building. At the national level there are also signs of a shift in current attitudes and practices in the agricultural sector. For example, the MMA and the Ministry of Agriculture are developing policies for clean production and the PRONATTA programme which funds agriculture research transfer activities, has included environmental considerations as a priority criteria for project selection. These developments, together with a large baseline programme in the Massif for alternative agriculture and improved commercialisation systems for these products, illustrates the start of a paradigm shift. Project activities include those under Output 4 conceived to foster this paradigm shift at the regional and local levels. In addition, the GEF/WB Los Andes project has been designed to further support shifts in attitudes and practices in agricultural landscapes at the national level. 4.6

4. **Review Comment:** *Several aspects are not explicit in indigenous components including: (i) spreading older knowledge & practice to younger people and throughout the various ethnic groups;(ii) demonstrating and spreading older locally adapted crop; (iii) strengthening "indigenous management methods" in a greater society dominated by other values; and (iv) Whether Indigenous planning decisions will prevail in their areas within the legal national park areas, or vice-versa?*

Response: The project will address all the issues raised on indigenous components. The exact methods have not been made explicit as indigenous groups are autonomous and their methods will be defined by each group under the specific sub-contracts to be developed for these components at the project implementation stage. However, in general, these will include dialogues, mutual information exchanges, and field experimentation including approaches from two viewpoints, western scientific approaches and indigenous knowledge. The entry points between the project team and each group will be through existing organisational structures of "cabildos" that are responsible for transmitting elements resulting from these dialogues and experiments to corresponding indigenous groups through their respective forms of education and authority; and also through existing intra-ethnic and inter-ethnic structures that will permit information exchange and enrichment. To better illustrate the inclusion of these issues in the project, some changes have been made to the project brief and logframe. These are described below as well as specific replies to each point:

- (i) Under activity 4.2 (support to indigenous groups to recover and internalise cultural uses of biodiversity) the phrase "including transfer of knowledge between generations" has been included. In
activity 3.7 (support inter-ethnic meetings for information exchange) the phrase, "including the cultural use of biodiversity" has been included.
- (ii) Activity 4.1 will identify traditional agricultural systems including indigenous ones and the use of older locally adapted plants. These will be used to enrich alternative practices and be disseminated through activity 4.3. Phrases to this effect have been included in the corresponding section of the Logframe matrix.

(iii) A large baseline programme will strengthen general management of indigenous reserves in the Massif and strengthen their links with government. The success of this programme will be increased by the recent election of indigenous leaders as mayors of several municipalities and governor of Cauca. The project will co-ordinate with current baseline programming to ensure inclusion of the points raised and will also include these in activity 7.1 (develop guidelines to incorporate biodiversity management issues in Life Plans of indigenous groups);

(iv) The issue of overlapping indigenous reserves and parks is complex, was identified as a critical issue to be addressed, and represents one of the innovative aspects of this project. The National Constitution declares both the conservation objective of the area and the ethnic integrity of indigenous peoples as being of public interest – in other words both parks and indigenous groups have management responsibilities and rights in these areas. The solution is to reach a joint agreement over land-uses in these areas. Sacred lands within reserves will clearly be consistent with the management objective of the Parks Administrative Unit. Areas around the sacred lands will be the focus of most discussion. In these areas the goal is to ensure a sustainable livelihood for indigenous groups whilst meeting the parks conservation objectives. In part this implies ensuring that those areas under-use are not expanded beyond current sizes and that practices in these areas can sustain current populations and are conservation-compatible. Several project activities specifically address these challenges. More detailed and participatory park management plans will be developed and these will include zoning of park territory. One “zone” will correspond to these overlaps. It is highly likely that a new management category will be required for these zones in which joint decision-making structures are constructed between indigenous groups and parks staff. These will include negotiation and action that differs from community participation, as they require a truly inter-ethnic approach between present “modern-day” society and traditional societies and values.

Indigenous groups will also be offered assistance in sustainable practices for these areas, enhancing their uses of native crops and recovering traditional practices. Baseline actions seek to develop new markets that could include certification of products from such areas. Indigenous groups will also be invited to form part of the management structures for the whole park and offer important contributions to the conservation of the broader areas. Finally, “core” areas (“untouchable wild areas”) within the park may be increased by revisions of park boundaries to include adjacent well-conserved habitat area that compensate for these overlap areas where some sustainable-use will continue. Whilst seemingly complex, several aspects – including preliminary consultations - indicate this approach is possible and viable in practice. These include the increasing requests of indigenous groups to the Parks Administrative Unit on management advice, the firm stand these groups have made against unsustainable practices, particularly illicit crops in reserves, the increasing role they play in local political decisions and the large baseline programmes to improve management of reserves in general and strengthening the links between these groups and local government.

5. Review Comment: *The document does not develop a conceptual framework or action plan for addressing the full range of ecosystem services beyond water... nowhere are the whole set of ecosystem goods and services provided by the Massif discussed and valued.*

Response : The environmental services of the Massif are clearly headed by water, but it is also clear that, as with any other biologically rich area, there are other services. Annex E 1 explicitly describes the carbon sink function of paramos. In addition to those listed by the STAP reviewer, other services include the role in global climate regulation located in the zone of inter-tropical convergence, and the storage of natural germoplasm for a range of both domesticated and wild plants and animals that could provide potential uses in health and nutrition. These have not been listed or valued in the project as it is submitted under the biodiversity thematic area and not OP12, which explicitly requests this. The project includes an activity to design a funding mechanism for protected areas which will explicitly address the identification and costing environmental services. Under Output 6 a phrase referring to environmental services has been included under activity 6.2, and 6.5 to ensure that awareness and information programmes will disseminate knowledge on these and that local inhabitants become increasingly aware of future benefits that could be derived from them, thus

increasing their interest conservation.

6. Review Comment: *Clarify processes for policy revision and formulation, and formal decision-making procedures.*

Response : In accordance with the Decree 1124 of 1999 the National Parks Administrative Unit will lead the drafting and adoption of policies and guidelines for the MPAS, including the responsibility of progressively including new categories of PAs into the SIRAP drawing from this regional experience. Some management categories of the Massif System of Protected Areas will coincide those already within National Natural Park System and these will be made official through existing laws and norms governing this system. However, there will be other new categories needed - along with their respective norms and guidelines and these will officially created firstly through relevant regional, municipal and local legislation, including indigenous and community councils and later ratified by national law. The processes to define and develop these categories and guidelines, however, will be grounded firmly in the consultation processes that forms the center of the project strategy, including discussion of categories as well as building consensus with communities over conservation zones in buffer areas, the definition of new protected areas, the revision of park limits and the definition of regulatory systems including inter-ethnic ones. Information from these consultations will be used to develop proposals by specialists hired through the project and these drafts will then be referred back to stakeholders through formal consultation. Specific project activities will also focus on the establishment of joint management structures for protected areas (such as participatory committees). These will also form a key point for future consultation and decision making processes.

7. Review Comment: *The involvement of Agriculture, Transportation, Water, and other public sectors in project design is not clear.*

Response : *Agricultural entities* actually participated in the 40 community consultations undertaken as part of project design as well as in the inter-institutional regional and national meetings to further consult on project design, and identify and develop partnerships for implementation. At the regional level these include the departmental secretariats of agriculture and the municipal technical assistance from Cauca, Nariño, Tolima and Huila. At national level it includes the Ministry of Agriculture, the Colombian Agriculture and Livestock Rearing Institute and PLANTE that focuses on alternative agriculture. PLANTE has signed an agreement with the project and will co-fund agriculture activities. At the local level the project team has closely co-ordinated on project design with the Cauca network of agricultural NGOs co-ordinated by the Agriculture Secretariat. In relation to the *water sector*, contacts have been made with the municipal water authorities and with the local representation of ANDI (National Association of Industries) particularly relating to linking water regulation functions of parks and buffer zones to the design of funding mechanisms for their conservation. These initial consultations indicated strong interest in project goals and will be explored in depth in activity 5.9 of the project. Consultation with sectors such as transport and communications were less frequent or successful in part due to lack of awareness of their role in environmental concerns. Project activities will address this to some extent through output 7, however, more in-depth sectoral work is to be undertaken through the GEF/WB Los Andes project. Table H2 in the institutional annex has been developed to include these clarifications.

8. Review Comment: *The effort to move decisions and consultation as close to the ground might be expanded to include local "centres" for the project where information and maps are available, meetings held, etc.*

Response : The implementing arrangements of the project include four assistants that will be responsible for monitoring and facilitating project execution in the corresponding four sub-regions of the Massif. These will also co-ordinate with Regional Advisory Committees that will be formed by local environmental advocates meeting regularly to discuss project advances and act as one form of

local centres. Meeting facilities will be developed for this purpose in existing park installations in small towns in each of these centres of “nodes”. These facilities could be slightly expanded to allow for a broader range of meetings, consultations and information depositories for nearby communities and wider range stakeholders as suggested by the reviewer. This will be detailed in the project document when budgets are fine-tuned and following consultations with those examples cited by the reviewer. In addition to broadening the idea of project “nodes” to wider “centres”, each park will also be provided with facilities for meetings of nearby communities and rural inhabitants with possibilities for information exchange. These are already contemplated in the project budget and will serve as rural local centres. They will also be developed more to accommodate review suggestions.

9. **Review Comment:** *It might be useful to employ the concept of "archipelago" and "mosaic of land uses" to explain how private reserves, campesino patches of forest, and indigenous sacred sites can provide critical habitat requirements within the overall greater ecosystem.*

Response: This has been done in relevant sections of the brief and will be incorporated in the forthcoming Project Document.

ANNEX D - FOCAL POINT ENDORSEMENT

FROM :

PHONE NO. :

DEC. 18 2000 02:23PM



Ministry of the Environment of Colombia

1001-2-315

18 DIC 2000

December, 2000

Mr.
Rafael Asenjo
Executive Coordinator
UNDP/GEF
New York City
FAX No. (212) 9066990

Ref.: Conservation of Montane Forest and Paramo in the Colombian Massif

Dear Mr. Asenjo:

The project entitled "Conservation of Montane Forest and Paramo in the Colombian Massif" constitutes a national priority as the Massif has been designated a priority strategic ecosystem, with water conservation forming the central axis of the national environment plan. As such, the Massif plays a critical role in the Colombian Government's National Conservation Strategy for the Andes, an approach which ensures complementarity and synergy among a variety of initiatives and institutions and provides a framework for coordinated investment and technical assistance for the coming decades.

The UNDP Massif project has been designed through a highly consultative process with local, national and international counterparts to ensure that a highly complementary and programmatic approach is adopted for the conservation of globally significant biodiversity in the Colombian Andes. This participatory strategy is fully consistent with recent government policy regarding consultative ecosystem planning and management for a variety of conservation and productive uses.

The project's full preparation and presentation to the GEF is particularly timely due to the fact that 27% of Colombia's indigenous population lives in the Macizo and for the first time in history, local elections have produced indigenous government leaders at departmental and municipal levels. This new leadership in the project area bodes well for the project's objectives, which were the result and design of strong local participation and consultation with local indigenous groups.

The Ministry has cofinanced (US\$ 100,000) and collaborated actively in the development and formulation of this strategic initiative since PDF A funds were first approved in 1998. In 1999, the Colombian government - with assistance of UNDP - successfully presented the Massif proposal for formal GEF pipeline entry. The integrated ecosystem management approach adopted by the project falls squarely within Ministry policies for integrating conservation within development objectives within regional development plans.

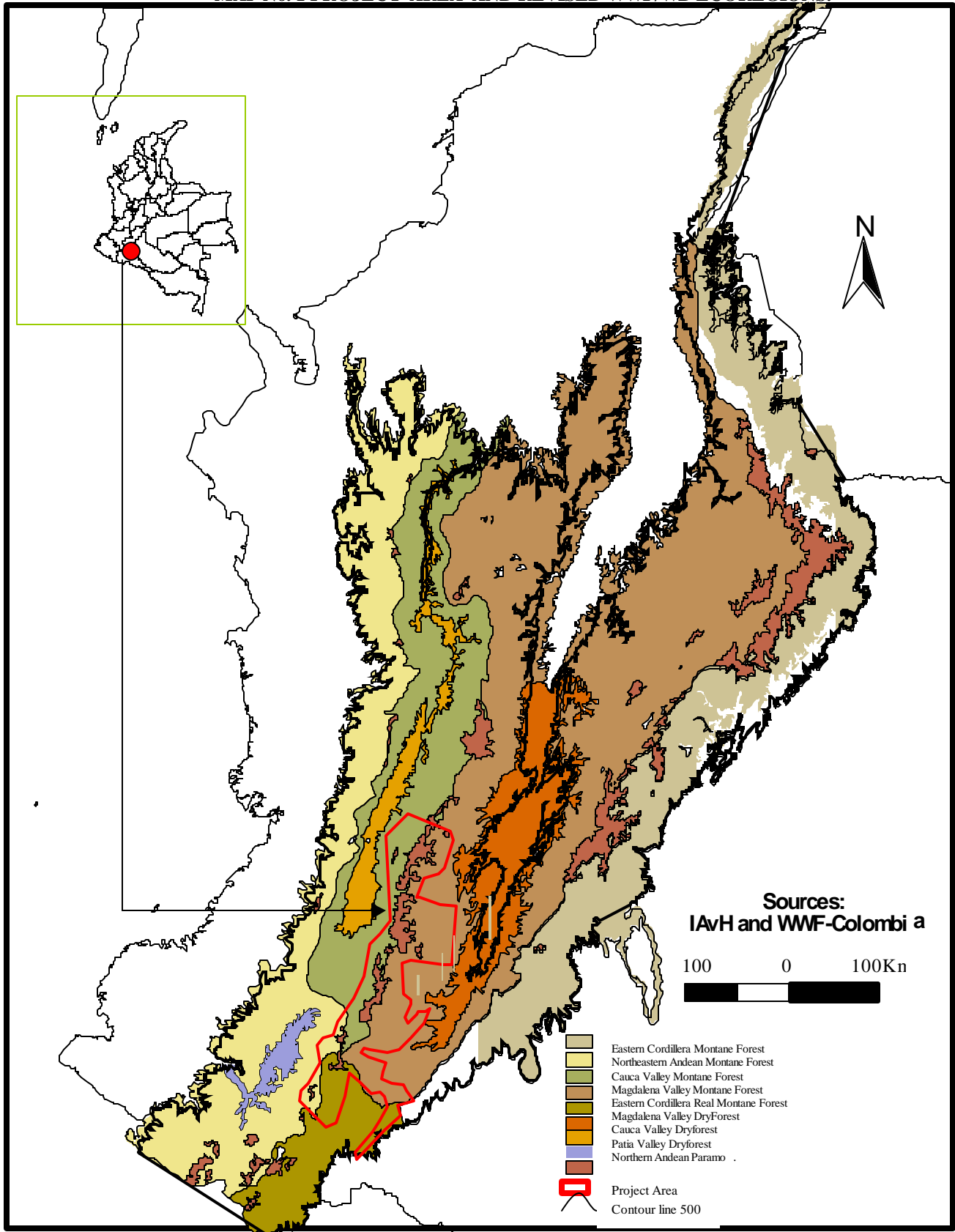
As such, the Colombian government wishes to stress the strategic importance of this proposal and its continued commitment to its objectives, as well as its full endorsement for presentation to the GEF for financing considerations.

Sincerely,

Claudia Martínez Zuleta
Vice Minister of the Environment

C.C. Francisco Vicens
C/ra. Nurado/ Correspondencia/ Cartas y Memos/CARTAS GEF/Carta Avel Macizo PNUD

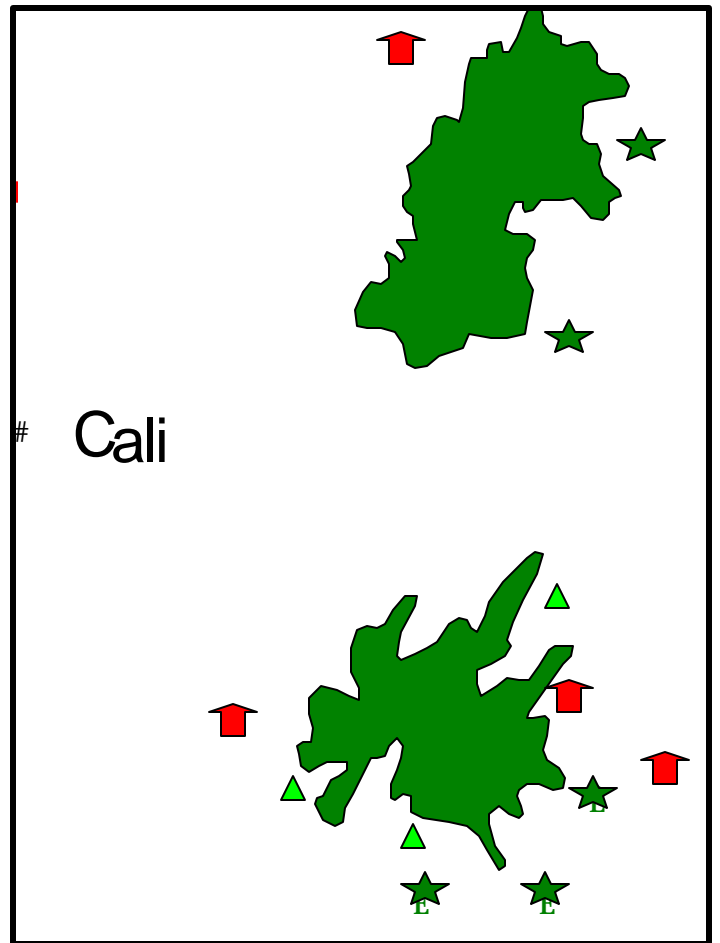
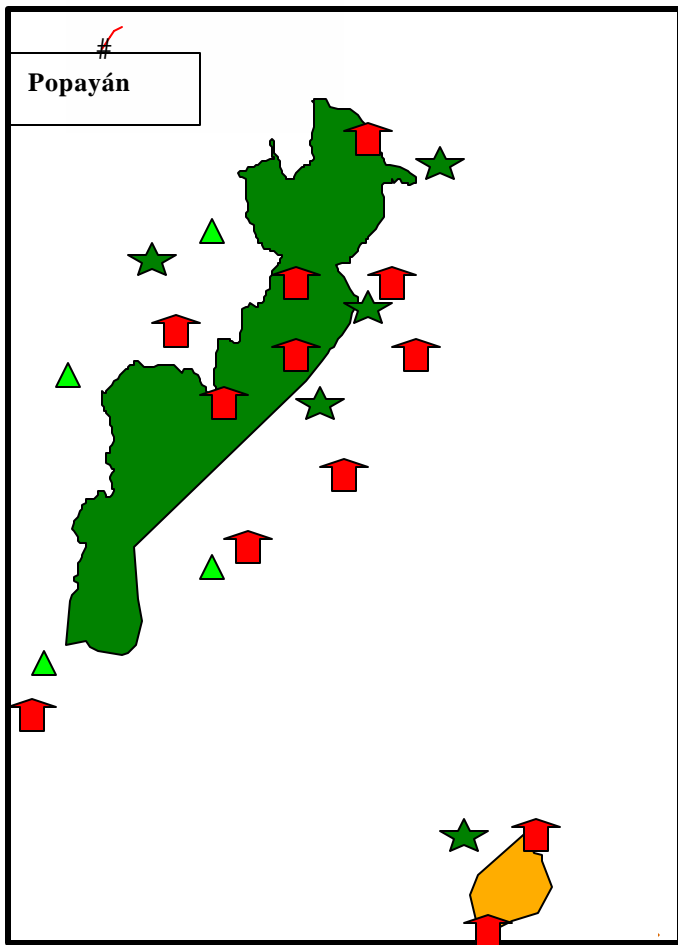
ANNEX E – PROJECT AREA
E-1. Maps Location and Ecoregions
MAP No. 1 PROJECT AREA AND REVISED WWF/WB ECOREGIONS.






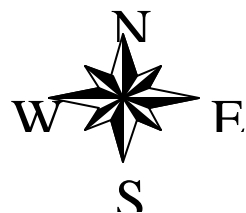
MAP No. 2 PARQUES NACIONALES NATURALES

NNP Purace y NNP Cueva de los Guacharos

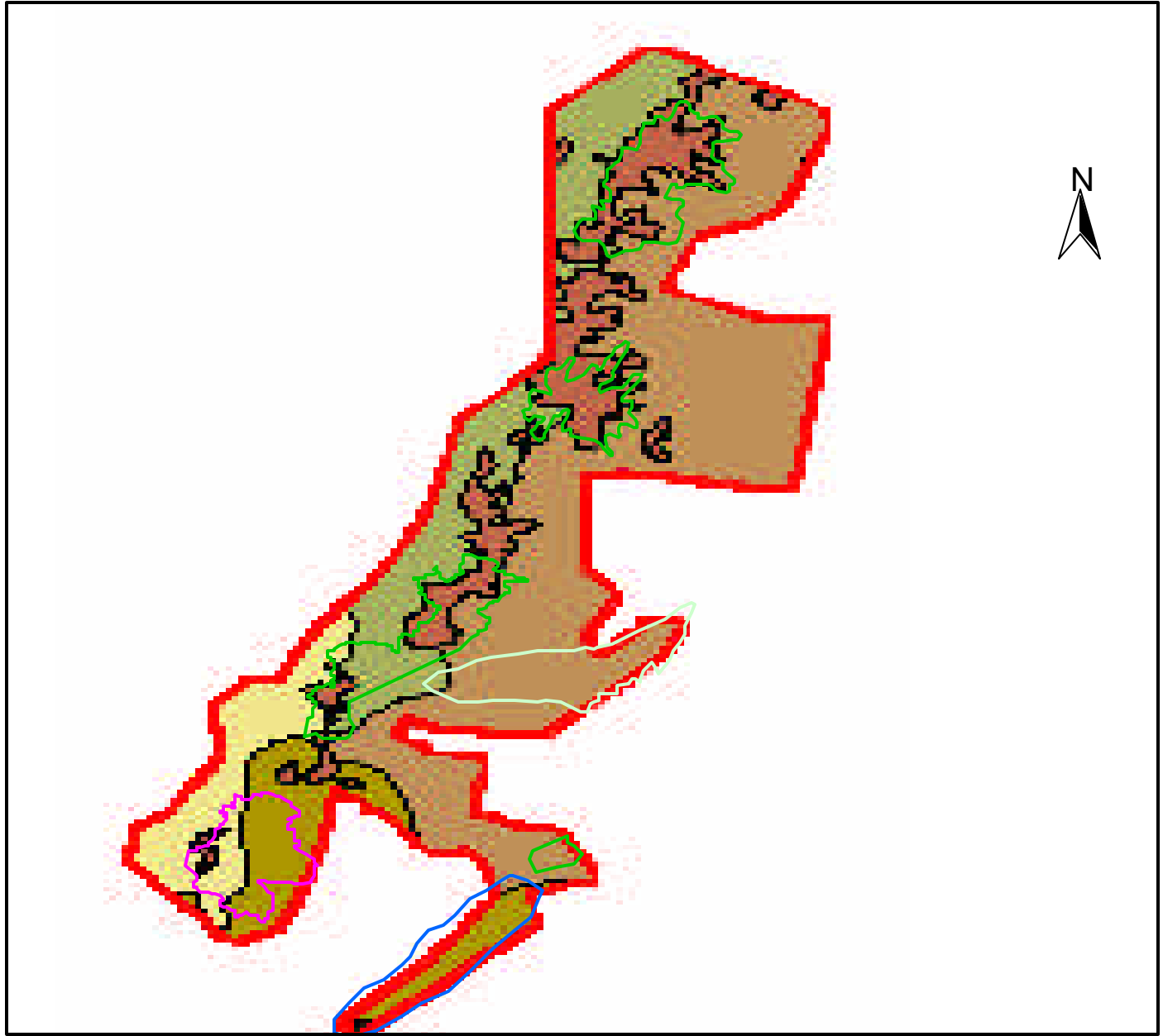
NNP Las Herosas Y NNP Nevado del Huila



-  Cabins.
-  Overlap with Indigenous reserves.
-  Front of main threats.













MAP No. 3 PARKS AND PROPOSED PROTECTED AREAS AND ECOREGIONS IN PROJECT AREA







Sources:
IAvH and WWF-Colombia

200 0 200Km



-  Eastern Cordillera Montane Forest
-  Northeastern Andean Montane Forest
-  Cauca Valley Montane Forest
-  Magdalena Valley Montane Forest
-  Eastern Cordillera Real Montane Forest
-  Magdalena Valley DryForest
-  Cauca Valley Dryforest
-  Patia Valley Dryforest
-  Northern Andean Paramo
-  Project Area

-  Parks
-  Serrania de Minas
-  Serrania de Churumbelos.
-  Serrania Doña Juana

E-2. BIODIVERSITY IN PROJECT AREA

1. The Colombian Massif is characterised by Paramo and Montane Forest ecoregions. The former is found at altitudes between 3,200/3,500 and 4,500 m.a.s.l although seasonal paramo can occur as low as 2,500m. It is a fragile and highly specialised shrub-like savannah, with up to 1,800 species, many of which are endemic, dominated by large clumped tussock grass, terrestrial bromeliads and ferns and shrubs of up to 4 metres. Four main plant associations occur in the paramo. The most characteristic is dominated by *Espeletia hartwegiana* (fraylejones), a slow growing plant with yellow flowers that attract many hummingbirds and bees, and short thick woolly trunks topped by rosettes of thick leaves with soft hairs that help minimise evaporative water and heat losses. Other associations are those dominated by *Calamagrostis* sp. and other grasses with sparse shrubs; areas of “chusque” *Swallenochloa* aff. *tessellata* and areas of waterlogged peat bog known as “achupallales” that are characterised by abundant terrestrial bromeliads principally of the genus *Puya* and mosses of the *Sphagnum* genus.

2. Paramo soils are deep, low density and highly porous, favouring extremely high levels of water retention. This, coupled with low levels of evapo-transpiration and high levels of precipitation, explains the vital role paramos play in water regulation and storage. The soils also have high levels of organic material in different stages of decomposition, containing up to 50% carbon compared with the average 3% of most other soil types. In paramo soils of 2 metres deep an estimated 17,000 ton/hectare of carbon may be stored compared to a value of 50ton/hect in tropical forest soils (Grupo de Paramos de Ecuador). The role of paramos in carbon sequestration and storage is thus increasingly recognised. If paramo vegetation is lost, the dark rich soils, when exposed to high levels of insolation, will increase in microbiological activity and organic material decomposition, oxidation and consequent liberation of carbon into the atmosphere (Revista Innovacion y Ciencia).

3. From 1,500 to 2,300 m.a.s.l. the cool and humid montane forest is characterised by high biomass, trees of up to 25 metres and an abundance of epiphyte orchids, bromeliads, tree ferns (*Cyathea* spp), mosses, lycopodes and bamboos (*Chusquera* spp). At higher altitudes up to 3,200 m it is characterised by smaller trees with predominant species including *Podocarpus*, *Clusia* and *Gnoxeyes*. In common with all montane forests, those in the Colombian Massif have high levels of endemism as a consequence of the diverse topography and climate. Northern Andean montane forest, however, has such high degrees of endemism that experts have differentiated seven separate montane forest ecoregions in Colombia and Venezuela (Dinerstein *et al*, 1995). The WWF has used this regional assessment and applied more detailed data to fine-tune ecoregion borders to a scale that can better serve to determine conservation priorities at the national level. Using this more detailed analysis, it becomes evident that five of the seven montane forest ecoregions in the Northern Andes converge in the Colombian Massif: The North-western Andean, the Cauca Valley, the Magdalena Valley, the Eastern Cordillera Real and the Cordillera Oriental Montane Forest Ecoregions, all of which are globally outstanding in terms of their associated biodiversity. This is clearly illustrated in Map 1 Annex E-1.

4. The fine-tuned ecoregion classification has also been cross-referenced with the IAVH ecosystem classification for Colombia to further assist assessments of conservation priorities in the country and detect gaps in protected area coverage. Within the Massif the main ecosystem types using the IAVH classification are Medium Dense Forest (1000-2000m), characterised by *Ocotea*, *Clinchona*, *Ceroxylon*; Low Dense Forest (2000-3,500m), characterised by *Weinmannia*, *Hedysomum*, *Ocotea* and in areas of more dense forest at these altitudes characterised by *Quercus*; Humid Paramo 3,500-4,000, characterised by *Espeletia*, *Swallenochloa* and *Calamagrostis*; and supra-paramo higher than 4,000m characterised by *Draba*, *Senecio*, mosses and lichens. The following table (1) illustrates the results of this cross-referencing, presenting data on the hectares in the project area for each ecoregion and ecosystem; the percentage that this represents in terms of national remnants for each category; and the percentage of remnants of each category covered by national parks at the national level.

5. It is clear from Table 1 that in addition to the unique convergence of five montane ecoregions, the Massif also has significant percentages of the remnants of each ecoregion (approx. 20% for Cauca,

Magdalena and Eastern Cordillera Real, and 2% for North-western Andean and Oriental Cordillera and 26% of North Andean Paramo). When ecosystem types within each ecoregion are considered these percentages rise considerably with the Massif holding 70% of the country's remaining humid low dense forest in the Cauca and Magdalena Valley montane forests and 30% of the same ecotype in the eastern Cordillera Real montane forest – a particularly important fact considering that currently none of this latter category is covered by national parks and that this makes up large areas of the proposed Serrania de Churumbelos protected area (Output2) (see Map2-Annex E-1).

6. Table 2 illustrates the main characteristics of parks (Output 1) including information on the number of indigenous reserves overlapping with each park, and the number of municipalities and CARs that cover each park and proposed protected areas (Output3). This is followed by a description of the each park and proposed protected area. Map 3 Annex E-1 shows park limits and discrepancies between the positions of existing park surveillance cabins and main threat fronts. Table 3 includes an indicative list of species found in the Colombian Massif.

TABLE E2-1. PERCENTAGE OF MONTANE AND PARAMO ECOREGIONS REMNANTS IN PROJECT AREA

Ecoregion	Ecosystems		Hect.	% of national remnants in area	NN Park coverage remnants (%)	
North-western Andean Montane Forests (Endangered, Globally outstanding, highest priority at regional scale)	Low Dense High Andean Forest	Perhumid (Aa1) Humid (Aa2)	2,122 38,464	1 26	19 2	
	Cauca Valley Montane Forest (Critical, globally outstanding, highest priority at regional scale)	Medium Dense Andean Forest	Humid (A3)	189	3	21
Magdalena Valley Montane Forest (Critical, globally outstanding highest priority at regional scale)	Low Dense High Andean forest	Perhumid (Aa1) Humid (Aa2) Humid-dry (Aa4)	1,214 57,376 962	1 70 9	10 29 11	
	Magdalena Valley Montane Forest (Critical, globally outstanding highest priority at regional scale)	Medium Dense Andean forest	Perhumid (A1) Humid (A3)	54,588 5,957	37 3	3 0
		Low Dense High Andean forest	Perhumid (Aa1) Humid (Aa2) Humid-dry (Aa4)	330,304 3,581 55,847	70 2 29	24 2 14
Eastern Cordillera Real Montane Forest (Vulnerable, globally outstanding highest priority at regional priority)		Medium dense Andean forest	Perhumid (A1)	49,094	16	0
	Low Dense High Andean forest	Perhumid (Aa1) Humid (Aa2)	89,310 1,900	30 2	0 0	
	Tall dense Sub Andean Forest	Perhumid	15,916	6	0	
Cordillera Oriental Montane Forest	Medium Dense High Andean	Humid-dry	Most remnants in project area		22	
Northern Andean Paramo (Vulnerable, globally outstanding, highest priority at regional scale)	Paramo	Humid (P1) Supraparamo (P4)	324,350 7,717	26 24	39 99	

TABLE E2-2. SUMMARISED DETAILS OF PROPOSED PROTECTED AREAS IN THE PROJECT AREA

Current and Proposed Protected Areas		Ecoregions of Globally Outstanding Biodiversity (MF=montane forest)	Hectares	Birds	Depart.	Municipalities	CAR	Indigenous Reserves	Peasant Reserve
Current National Parks	Las Herosas	North Andean Paramo Cauca Valley MF Magdalena Valley MF	125,000	NA	2	7	2	1	1
	Nevado del Huila	North Andean Paramo Magdalena Valley MF	158,000		3	9	3	9	0
	Purace	North Andean Paramo North-western Andean MF Cauca Valley MF Magdalena Valley MF	83,000	150	2	10	2	4	1
	Cueva de Guacharo	North Andean Paramo Eastern Cordillera Real MF Magdalena Valley MF	9,014 poss.ext. 50,000	267	2	2	2	0	0
Proposed new Core Protected Areas	Serrania de Minas	Magdalena Valley MF	76,000	NA	1	7	2	0	0
	Complejo Doña Juana	Northwestern Andean MF Eastern Cordillera Real MF	3,000	NA	2	5	2	0	0
	Churumbelos	Cordillera Oriental MF Eastern Cordillera Real MF	500,000	500	1	2	1	Ingana - Fragua	0

DESCRIPTION OF CURRENT NATIONAL NATURAL PARKS AND PROPOSED CORE PROTECTED AREAS

- 1. The Purace National Park** covers an area of 83,000 hectares between the altitudes of 2,600 and 5,000 metres in the Central Cordillera of the Andes, approximately 50 kilometres from the capital of the department of Cauca (Popayan). It is outstanding for the natural beauty of its landscapes, with more than 50 lakes, seven principal volcanoes, including the active Purace volcano (4,780m) and the Pan de Azucar volcano (5,000m), and two thermal springs, the Vinagre river (with acid and sulphuric water) and the Pilimbala River (with salt and sulphuric water). Characterised by large areas of paramo, including the paramos of San Rafael, las Papas, Letero and Cutanga, and extensive tracts of high Andean humid montane forest vegetation that are particularly rich on the eastern flanks of the Cordillera in the upper Magdalena Valley, this park encompasses the source of four of the largest rivers of Colombia: the Rivers Magdalena, Cauqueta, Cauca and Patia. Purace Park marks the heart of the Colombian Massif.
2. Marked differences in rainfall between the western and eastern areas of the park, together with the wide range of topographical features, support an extraordinary diversity of over 200 orchid registered species and at least 150 species of birds, including the endangered condor, black and chestnut eagle, mountain toucans, and the Andean cock of the rock. A wide range of mammals include the endangered spectacled bear, the smallest deer in the world (small Andean deer), the threatened paramo tapir, the bi-coloured antpitta - endemic to the Central Cordillera - and the frog *Atelopus ebenoides* which is endemic to the region. Although the ictiofauna has not been fully studied it is known to include the fish *Astroblephus grixalvi*, endemic to the mountain rivers of the upper Cauca river basin.
3. Despite encroachment in some areas, 76.44% of the park is untouched. There are clear possibilities for extension of its boundaries to include large intact habitat blocks of both paramo and montane forest to the north and south, as well as in the southeast towards the PNN Cueva de Guacharos forming a corridor along the only continuous link between the Central and Eastern Cordilleras of the Andes. In addition, adjacent private reserves are interested in being affiliated with the park, for example, the Meremberg Reserve, which has 350 hectares of pristine montane forest. An increasing number of landowners are requesting assistance to establish private reserves.
4. The existing park management plan identifies the areas most vulnerable to encroachment and determines priorities and opportunities for working with communities in buffer areas to increase community participation in conservation. The main threats come from the expansion of agriculture in specific areas encroaching on park lands and from population growth of indigenous groups within the park with related expansion of cultivated areas in these reserves to altitudes above 3,000 metres. Some small scale and localised mining for gold occurs in the park in El Marmol, for sulphur in the buffer zone and sand in Valencia. Plans for paving the road from Purace to La Plata and for a new road via Popayan to Pitalito, will require improved buffer zone management if encroachment is to be contained. The park counts with an Administrative Centre in Pilimbala and 6 cabins, not all of which are in good repair or ideally located to provide surveillance to pristine areas or those of most vulnerability. Human resources are currently one head of park, two technical staff, three workers and nine contracted staff.
- 5. The Cueva de Guacharos National Park** covers 9,014 hectares between 1,610 and 2,840 metres on a branch of the Eastern Cordillera. It is the country's first national park, created in 1960 to protect a complex of caves which house the world's largest colonies (6,000 birds) of the oil bird, *Steatornis caripensis*. This bird is the world's only nocturnal fruit-eating bird and has great importance in the religious conception and beliefs of several Amerindian groups.
6. Access to the park requires a five hour trek on foot or mule, and accounts for the extremely high level of conservation, with approximately 99% of the area untouched. It is connected to the Central Cordillera by a corridor in the Pitalito and San Augustin area, to the Eastern cordillera in the north via the Ventanas paramo and to the Serrania de Churumbelos in the south. The biota of the park shows strong influences from the Andean and Amazonian regions and includes endangered flora such as the tropical walnut *Juglans neotropica*, the quinine *Chinchona pubscens* and the Colombian pines *Podocarpus rospigliosii* and

P. oleifolius and endangered fauna such as spectacled bear, paramo tapir, small Andean deer, and cock of the rock. Endemism is high and include the regionally endemic tree lizard, *Anolis huilae*, and the green frog, *Gastrotheca andaquies*, the brown banded antpitta, *Grallaria alleni andaquiensis*, and the black tinamou, *Tinamus osgoodi hershkovitz* which are endemic to the park, and the spider *Heterophrynus nicefori* which is endemic to caves.

7. Despite its pristine nature, some species are endangered by the dimensions of the park being is too small for the feeding ranges of large mammals and the oilbird during non-breeding seasons. A proposal to extend the park would include 9,000 hectares in the north to the Aguacaras Guarapas stream, and 40,000 hectares in the south to meet the proposed Ingano indigenous reserve, La Fragua, which in turn would meet the proposed Serrania de Churumbelos protected area. This would provide a continuous area of protected land under three different management authorities (national, indigenous and municipal) conserving large areas of the Eastern Cordillera Real Montane Forest Ecoregion which is currently unprotected by the NNP system, and the transition of this to the Cordillera Occidental Montane Forest Ecoregion.

8. The park counts with eight staff (five permanent and three contracted) and has an initial management plan - currently under discussion with local communities - two cabins, a visitors centre for 38 people, a class room, a camping zone for eight tents and five kms of trails.

9. **The Nevado del Huila National Park** covers 158,000 hectares between 2,600 and 5,300 metres on the Central Cordillera of the Andean range. It is dominated by the enormous snow-capped mountain, Nevado del Huila, and includes 31,300 hectares of primary montane forest, 38,000 hectares of sub paramo, 65,600 hectares of paramo and 3,800 hectares of supra-paramo. It marks the divide between the Cauca and Magdalena valleys and is important as the source of 14 rivers that flow into the Magdalena river, providing water to nearby towns and to the largest rice producing area of the country.

10. Fifty-three of the 119 threatened species reported by IUCN in Colombia are found in this park. It also houses some of the largest settlements of the Paece indigenous group, once famous as fierce warriors, who now live in reserves on the western flank (el Panikita) and northern flanks (el Paez) of the mountain and practising subsistence agriculture, hunting, collection and some fishing. Nine indigenous reserves overlap the park boundaries and three others the buffer zone. The park has a total of seven staff who have developed good working relationships with the heads of the indigenous reserves. Park communication and transport equipment is insufficient and there are only two cabins within the boundaries. The main threats to the area come from traditional cultivation of the Paece within their reserves, some timber extraction and the start of some poppy cultivation in Cauca.

11. **Las Hermosas National Park** covers 125,000 hectares on the Central Cordillera (Cordillera Real) between the departments of Valle and Tolima and is one of the most isolated areas of the country with many lakes (330) interspersed by large tracks of paramo. It also marks the divide between the Cauca and Magdalena valleys and plays a vital role in providing water to the urban settlements and sugar cane areas of Cauca and the rice growing area of Tolima. The park has 65,000 hectares of paramo and 60,000 of montane forest and houses many of the characteristic species of these ecoregions including the red-backed hawk, *Buteo polyosoma*, and the scaly-naped parrot, *Amazona mercenaria*. In 1998, a five year management plan was developed for the park, and more recently staff have assisted 12 nearby villages to incorporate elements of conservation into their development plans. Main threats come from pressures from the private sector to buy land for water conservation programmes, which do not necessarily incorporate biodiversity management principles and from increasing poppy cultivation in the northern buffer zone. Little is known of the fragmentation of habitats in the park, and species inventories are incomplete. A total of nine staff serve the park; the administrative headquarters are in Buga, and operations are based in Santa Lucia

12. **The proposed Serrania de Churumbelos Protected Area** is located in the department of Cauca on a branch of the Eastern Cordillera. The relatively difficult access and little known character of the Serrania has so far enabled the area to remain highly conserved. However, with increasing interest in the potential of

mineral reserves in the area (petroleum and precious stones), as well as natural resources (timber and fertile soils), pressure is increasing, particularly in the area adjoining the Bota Caucana. During the development of Municipal Plans, local governments and communities underlined the importance of conserving the region, and consultations to officially declare the proposed area are well advanced. This new protected area would cover approximately 500,000 hectares, including not only continuous pristine habitat blocks of Eastern Cordillera Real and Cordillera Occidental Montane Forest Ecoregions, but also unique tracts of sub-Andean forest that mark a transition to vegetation types of lower altitudes in the Amazon Basin. This transition, coupled with the proposed La Fragua Ingano Reserve, would complete the cultural and biological corridor from the Amazon Basin to the high Andean peaks in the Central and Eastern Cordilleras.

13. . A recent expedition to the area led by the University of Cambridge confirmed the extraordinarily high biodiversity of this area, registering a total of 328 species in 29 days including 13 genera of bats and insects from 15 orders and 77 families with some very rare species. Of these, six were endangered, five endemic, and others identified as extending original distribution patterns such as *Myrmotherula spodinota*, registered for the first time in Colombia. Based on this short expedition an estimate of 500 bird species for the area was made, confirming its importance for avian biodiversity.

14. **The proposed Serrania de Minas Protected Area** is located in department of Huila on the eastern flank of the Central Cordillera and would cover an area of 3,000 hectares. The larger part of the area is owned by the nation, although some areas have signs of previous cattle rearing activity and some extraction of wood for carbon. The communities nearby support the proposed area and an NGO - the Fundacion Serrania de Minas - exists to advance this concept.

15. **The proposed Doña Juana Complex Protected Areas** located in the Departments of Nariño and Cauca at the summit of the Central Cordillera and would cover approximately 76,000 hectares. It comprises a landscape modified initially by volcanic activity and subsequently by some anthropic intervention, however, it includes large areas of well conserved paramo and montane forest. The land is, in large part, uncultivated and owned by the state and would thus be easily incorporated as a protected area. Some small areas of forest are owned by farmers and these are mostly used for cattle grazing and some subsistence farming. The proposal for a protected area counts with the support of communities in the region and has been included in the land-use plans of municipalities with territory in the area.

TABLE E2.3. INDICATIVE LIST OF COLOMBIAN MASSIF SPECIES

Fauna¹			
Scientific Name	Common English Name	Scientific Name	Common English Name
<u>73 mammal sp. including:</u>		<u>528 Birds species including ².</u>	
<i>Vampyrum spectrum</i>	Yellow shouldered fruit bat	<i>Tinamus osgoodi</i>	Black tinamou
<i>Strurnia erythromos</i>	White –lined fruit bat	<i>Anas flavirostris andium</i>	Speckled Teal
<i>Lagothrix lagotricha lugens</i>	Common woolly monkey	<i>Merganetta armata colombiana</i>	Torrent duck
<i>Alouatta seniculus</i>	Red howler monkey	<i>Vultur gryphus</i>	Condor
<i>Cebus apella</i>	Brown capuchin monkey	<i>Oroaetus isidori</i>	Black and chestnut eagle
<i>Aotus lemurinus</i>	Night monkey	<i>Phacobaenus carunculatus</i>	Carnuculated caracara
<i>Ateles paniscus</i>	Black spider monkey	<i>Penelope montagnii</i>	Andean Guan
<i>Didelphis albiventris</i>	White-eared opossum	<i>Rubicula peruviana</i>	Andean Cock of the rock
<i>Eira barbara</i>	Tayra	<i>Cistothorus platensis aequatoralis</i>	Sedge wren
<i>Potus flavus</i>	Racoon	<i>Leptopsittaca branickit</i>	Golden plumed parakeet
<i>Mustela frenata</i>	Long-tailed weasel	<i>Amazona mercenaria</i>	Scaley-naped parrot
<i>Mustela felipei</i>	Andean weasel	<i>Buteo polyosoma</i>	Red backed hawk
<i>Nasuella olivacea</i>	Cusumbo	<i>Grallaria rufocinerea romeroi</i>	Bicoloured antpitta
<i>Dasyprocta fuliginosa</i>	Black agouti	<i>Grallaria rufula</i>	Rufous antpitta
<i>Dinomys branickii</i>	Pacarana	<i>Grallaria quitensis</i>	Tawny antpitta
<i>Agouti taczanowskii</i>	Andean paca	<i>Grallaria alleni andaquiensis</i>	Brown banded antpitta
<i>Sciurus granatensis</i>	Red tailed squirrel	<i>Troglodytes solistitialis</i>	Mountain wren
<i>Microsciurus pucherani</i>	Andean dwarf squirrel	<i>Turdus serranus</i>	Glossy black thrush
<i>Choloepus hoffmani</i>	Hoffman two toed sloth	<i>T. fuscater</i>	Great thrush
<i>Felis concolor soederstromi</i>	Puma	<i>Tangara nigroviridis</i>	Paramo pipit
<i>Felis pardalis</i>	Ocelet	<i>Tangara vassorii</i>	Beryl spangled tanager
<i>Felis wiedii</i>	Margay	<i>Iridosornis rufivertex</i>	Blue and black tanager
<i>Felis tigrina pardinoides</i>	Oncillo	<i>Dubusia taeniata</i>	Golden crowned tanager
<i>Felis concolor</i>	Puma (C de G)	<i>Buthraupis montana</i>	Buff breasted mountain tan.
<i>Tremarctus ornatus</i>	Spectacled bear	<i>B.wetmorei</i>	Hooded mountain tanager
<i>Sylvilagus brasiliensis andinus</i>	Andean rabbit	<i>Urothraupis stolzmanni</i>	Masked mountain tanager
<i>Thomasomys cinereiventris</i>	Raton silvestre		Black backed bush tanager
<i>Mazama rufina rufina</i>	Deer	<u>Hummingbirds</u> from the genera	
<i>Pudu mephistophiles</i>	Small Andean deer	<u>Aglaeactis, Haplophaedia</u>	Amazilia, Coeligena
<i>Tapirus pinchaque</i>	Andean Tapir		Anthocephala Pterophanes
<u>Amphibians</u> such as <i>Osornophryne bufoniformis</i> , <i>Hylopsis buckleyi</i> , <i>Atelopus ebenoides</i>		<u>50 butterfly spp.</u> including <i>Morpho sulkowskii</i>	
<i>Gastrotheca andaquiensis</i> , <i>G. andaquiennes</i> , <i>Eleutherodactylus boulengeri</i>			
Flora			
Scientific names and common names in Spanish		Scientific names and common names in Spanish	
<u>Andean Montane Tree species include:</u> <i>Alchornea</i> spp (manzanito); <i>Verbesina arborea</i> (cubo); <i>Vallea stipularis</i> (nasua); <i>Hieronyma</i> spp (candelos); <i>Ficus</i> spp (higueron) <i>Myrica pubescens</i> (laurel de cera); <i>Inga</i> spp(Guamos); <i>Piper</i> sp (hojecueche); <i>Podocarpus oleifolius</i> pino colombiano; <i>Posoqueria</i> sp (azuceno); <i>Cinchona pubescens</i> (quina); <i>Meliosma</i> sp (calabacillo); <i>Hyeronima colombiana</i> (moliton); <i>Guarea sp</i> (macos); <i>Schefflera</i> spp; <i>Clusia</i> spp		<u>Mixed Andean forest species (transition)</u> : <i>Julgans neotropica</i> (nogal); <i>Nectandra cinnamomoides</i> ; <i>Ficus greifiana</i> <i>Myrcia fallaz</i>	
<u>Sub andean forest of the eastern cordillera</u> such as <i>Quercus humboldtii</i> ; <i>Trigonobalanus excelsa</i> .		<u>Palms include :</u> <i>Ceroxlyon</i> sp; <i>Geonoma</i> spp; <i>Aiphanes</i> sp	
		<u>At least 200 orchid species;</u>	
		<u>Grasses including</u> <i>Calamagrostis</i> sp.	
		<u>Bamboo areas</u> ; <i>Swallenochola aff. tessellata</i>	
		<u>Asteraceae family</u> : <i>Baccharis genistelloides</i>	
		<u>Ericaceae family</u> : <i>Vaccinium floribundum</i>	
		<u>Melastomataceae family</u> : <i>Miconia salifolia</i> .	

¹ It also houses many species from lower altitudes that are increasing threatened by habitat fragmentation in lowland forest and that have found refuge in the larger and more continuous habitat blocks of the Massif.

² Including 23 of the 52 migratory birds in South America. Duning, J. 1982. South American Land Birds. A Photographic Aid to Identification. WWF, USA.

ANNEX F - ROOT CAUSES OF BIODIVERSITY LOSS IN THE COLOMBIAN MASSIF

Early action by the GoC brought 3,750 km² of the Colombian Massif under protection in four National Parks in the Massif where forest ecoregions converge and the largest areas of paramo in the country are found. International recognition of these parks as the UNESCO Andean Belt Biosphere Reserve was formed consisting of three of the parks and the areas connecting them. Whilst the parks are the core zones of the Biosphere Reserve, no zoning of buffer areas nor transition zones was made, and local communities were, and are, unaware of its existence with the result that it has still to achieve its intended role in conserving the region's outstanding natural assets. A wide range of areas have been brought under some form of protection within the Reserve in the form of private, indigenous, peasant and municipal lands which have the potential of forming further core zones for strict conservation within the Reserve, providing valuable connecting corridors depending on their management categories, acting as transition zones between core areas. However, the role of these and the Reserve is undermined by a series of factors including design, location, functional, methodological and institutional factors that impede their effective synergy in a single framework that could guide conservation action in the entire region. The sub-optimal role of existing protected areas is exacerbated by increasing pressure from inappropriate land-use practices outside their boundaries that is increasing the danger to the protected land and the erosion of their ecological integrity. These practices are also pressuring specific species and increasing habitat loss in land outside protected areas, reducing the connectivity between these and placing the long-term survival of the Massif's unique mosaic at risk. These land-use practices include agricultural and livestock practices that are inappropriate for fragile mountain ecosystems, natural resource extraction such as logging for commercial and domestic uses, illegal hunting, small-scale mining, and localised cultivation of illicit crops, among others. The underlying causes of the sub-optimal role of existing protected areas and those relating to unsustainable land-use practices are described in this annex and the actions required to mitigate them. These were identified and quantified in a series of consultations over a two-year project preparation phase and through consultation with experts at the national, regional and local levels and extensive community meetings to discuss and propose possible alternatives.

GROUP I - SUB OPTIMAL ROLE OF CORE ZONES IN BIODIVERSITY CONSERVATION

<i>Root Causes</i>	<i>Activities to Mitigate</i>
<ul style="list-style-type: none"> • <i>Size and shape and location of parks:</i> The national parks in the Massif were originally delimited using criteria such as specific species conservation (e.g., Cueva de los Guacharos), political divisions or contour lines and not as a result of a systematic assessment that sought to include all ecoregions found within the area. Whilst they do include extremely important biodiversity, they are either too small for animals with large home ranges, have shapes that increase border effects, or exclude large areas of intact habitat blocks in areas adjoining park boundaries, hence playing a sub-optimal role in conserving the full mosaic of diversity in the Massif. In addition parks do not cover the full range of ecoregions and ecotypes in the area. 	<ul style="list-style-type: none"> ⇒ Revise boundaries of parks conserved habitat blocks (Ac creation of private reserves in <i>Activity 3.3</i>) to increase continu ⇒ Create new protected areas to large intact habit blocks present to complete the cover of all importance in the Massif. (<i>Out</i> ⇒ Promote creation of mosaics of intact habitat in areas between p
<ul style="list-style-type: none"> • <i>Staff and equipment shortages in parks and inconsistencies with changing policy.</i> National parks have few staff members and control and inspection is impeded by deficiencies in transportation and communication in this isolated region. The few inspection cabins do not coincide with the areas under pressure from encroachment (see Annex E1 map 3). Recent park policy focuses on more community participation and consultation which requires more time and new skills. The new policy is bringing stakeholders closer to park managers, and there are an increasing number of requests for assistance in establishing private reserves adjacent to park areas, but the limited staff cannot cover all these additional tasks and many are left unattended. 	<ul style="list-style-type: none"> ⇒ Increase park staff skills need management plans (<i>Activity</i> needed to develop plans and im roles (<i>Activity 1.5</i>); develop hu park management (<i>Activity 5.2</i> ⇒ Increase community participat (<i>Activity 1.6</i>) and awarene biodiversity conservation (<i>Out land-use practices (Output 4)</i>
<ul style="list-style-type: none"> • Underlying these deficiencies is the <i>funding system for parks</i> which has no clear relationship between funds raised in parks and returns to these; and also the sharp reduction in national funding of parks due to the economic crisis of the country. 	<ul style="list-style-type: none"> ⇒ Develop strategies to ensure lor and safeguard against fiscal crisis the provision of environmental se ⇒ Encourage the creation of ot different management regimes tl budget for their funding (<i>Outp</i>
<ul style="list-style-type: none"> • <i>Lack of stakeholder participation in park management.</i> The national parks of the area have management plans that were developed by technical staff using incomplete information and without the participation of stakeholders from buffer zone communities and from within the park. This has led to lack of understanding of the park's functions within the community, lack of knowledge of boundaries and less commitment to avoid encroachment. It has also meant that each park's role and contribution in the protection of regional assets is unclear and undervalued 	<ul style="list-style-type: none"> ⇒ Develop up-dated and/or new participatory processes with loca and within a regional context. De include joint control mechanisms ⇒ Develop user-friendly informatio on boundaries and their role in and 6.2) and build more importance of biodiversity conser
<ul style="list-style-type: none"> • <i>Incomplete scientific knowledge of biodiversity in the Massif.</i> Biodiversity conservation of this complex mosaic of species and habitats is hindered by incomplete inventories of species, or concentration of studies in small specific locations, dispersion 	<ul style="list-style-type: none"> ⇒ Fill-in gaps on knowledge o improve conservation decisions efficiency (<i>Activity 1.1.</i>)

<p>of information, poorly collated data or in formats that do not facilitate decision making for park managers. This impairs management plans and hinders the prioritisation of conservation efforts, which is vital considering the human and material resource deficits</p>	<p>⇒ Undertake targeted monitoring storage and management systems ⇒ Improve overall knowledge on Andes project - <i>Von Humboldt</i></p>
<ul style="list-style-type: none"> • <i>Overlapping institutional jurisdiction.</i> UAESPPN has jurisdiction over parks and their buffer zones. Regional Environmental Authorities (CARs) have jurisdiction over natural resource management outside national parks including buffer zones. Six CARs have jurisdiction in the Massif and not all adopt standardised approaches to conservation. This has led to uncoordinated conservation in areas of overlap and sub-optimal use of time and human resources. In addition local communities are unclear what constitutes the buffer zone and how this restricts land-use. The GoC published a decree in 1997 that defined the spatial parameters of buffer-zones but this was not detailed and did not include definition on productive systems that could be employed, on population densities permitted, on mitigation measures of existing impact, etc., hindering the development of management plans for these areas. 	<p>⇒ Undertake joint zoning of buffer and communities. (<i>Activity 1.3</i>) ⇒ Develop participatory management buffer zones with clearly defined each zone and set-up mechanisms resolution of conflicts over (<i>Activities 1.6, 5.5., 5.6.5.8 and</i></p>
<ul style="list-style-type: none"> • <i>Overlapping parks and indigenous reserves.</i> There are 49 indigenous reserves in the Massif and many occur in areas adjacent to and overlapping with parks boundaries. Indigenous groups have complete autonomy in their reserves and subsistence agriculture and hunting and collecting does occur in overlapping areas with parks; this is aggravated by the increased loss of traditional uses of biodiversity. 	<p>⇒ Provide assistance to indigenous conservation areas (<i>Activity 3</i> of traditional uses and culture (<i>Activity 4.2</i>)</p>
<ul style="list-style-type: none"> • <i>Different management approaches in protected areas other than parks.</i> In addition to the parks there are a wide range of protected areas in the Massif both in indigenous reserves, private reserves and conservation areas in peasant farms. These currently operate in individual manners each adopting different approaches to conservation thus reducing their joint contribution to the region. Indigenous reserves in particular hold great potential to enhance conservation as they currently cover much the same area as national parks (each category cover 3,750 km² of the project area). However, the forms of managing conservation areas of sacred lands in the reserves vary between ethnic groups and do not specifically focus on biodiversity conservation 	<p>⇒ Promote common approaches to areas whilst respecting autonomy ⇒ Strengthen the capacity of reserve issues and biodiversity management ⇒ Enhance co-ordination between (<i>Activities 5.2</i>) and define a protected areas system in the synergies (<i>Activities 5.4. and</i></p>
<ul style="list-style-type: none"> • <i>Lack of awareness of possibilities, procedures and benefits of creating private reserves</i> has led to a relatively small number of these in the region despite the fact that many areas of well conserved habitat remain under private domain and are increasingly at risk from agricultural expansion and aggressive land-use practices. Existing reserves are not in the most strategic locations and are often isolated and cover small habitat blocks rather than being a network of interconnected reserves linking large habitat blocks of the parks. Motivation for creating reserves varies widely including 	<p>⇒ Develop new management regulations institutions to manage protected areas ⇒ Define strategic localities in which others could be encouraged connectivity between habitat to promote new reserves through and technical assistance (<i>Acti</i></p>

economic and ethical interest. Peasant farmers are often unaware of the advantages of maintaining conservation areas within their small holdings and destroy remaining habitat to cover basic survival needs. A legal provision for peasant territories does exist but this is relatively new, hard to implement and requires large numbers of properties joined under one territory.

- *Regional, municipal and community planning processes* in the Massif are complex and often overlapping. Each department has a five year development plan, municipalities have recently developed a nine year land-zoning plan to be implemented through two yearly municipal operational plans, indigenous groups are developing environmental plans within their Life plans, and communities are formulating village development plans. These adopt different approaches and, while often including environmental concerns, these relate to land degradation, contamination and water conservation and not biodiversity concerns & protected area management.

⇒ Develop specific management programmes to encourage peasant areas within small-holdings, particularly existing parks or major habitat (3.4. and 5.8.).

⇒ Define common standards and a framework to incorporate biodiversity conservation plans into planning process (see Annex A)
⇒ Promote co-ordinated planning amongst different levels of planning
⇒ Develop a regional framework (Baseline action: Massif Inter)

GROUP II: LAND-USE PRACTICES OUTSIDE PROTECTED AREAS

1. Agricultural and livestock rearing practices ..

Root Causes

- *Land preparation practices for cultivation are unsuitable for fragile mountain soils* causing land degradation, soil erosion, and productivity failures. This starts with clearing undergrowth and felling trees and shrubs and is followed by fires which can get out of control and spread to nearby forest and paramo. Land is then ploughed, often down the gradient to avoid the roots becoming water logged but increasing soil erosion and loss of productivity, for example, in the potato growing areas such as the Paramo de Las Papas, the Paletara Valley (Cauca).

- *Wide-spread use of standardised production models* with heavy reliance on conventional monocultures, particularly potatoes and onions, using techniques delivered by agricultural extensionists that encourage substitution of forest cover for simplified agroecosystems dependent on the use of chemical pesticides, herbicides and fertilisers. Farmers have little knowledge of correct doses or application techniques leading to over-use and consequent soil degradation and water contamination. The use of organic substitutes introduces pests into the area and leads to further control with pesticides. New markets for alternative crops that could be produced at high altitudes with less negative effects are poorly developed and there are few technologies for cultivating high montane forest and paramo areas without causing degradation and biodiversity loss. Those that exist are poorly disseminated or have been tested in restricted conditions and with no stakeholder participation.

- *Sparse knowledge of processing technologies and commercialisation systems* coupled with a lack of storage facilities, transport and distribution systems increases farmers' dependence on intermediaries. This leads to low profit margins and in turn the use of more aggressive practices to boost production and income.

- *Livestock rearing practices* include the use of sub-paramo and paramo areas during three months of the year and their burning to encourage new shoots for cattle grazing. It also includes high densities of cattle on steep slopes, causing overgrazing, soil compacting, drying and loss of organic layers. This is increasingly common in paramo areas e.g. in Cauca near the NNP Las Hermosas and the connecting corridor NNP Huila - Las Hermosas, and on slopes in montane forest. In some areas livestock rearing is associated with introduced pastures or growing of herbaceous species to enrich natural pastures but this has led to loss of diversity of natural grasses and shrubs.

- *Increasing loss of ancestral and traditional knowledge* of cultivation techniques that are less degrading to biodiversity, for example, methods of cultivating land that

Activities to Mitigate

⇒ Develop and test land-clearing impact on biodiversity and pr land-use (*Activity 4.4.*); recover environmentally friendly land (*Activities 4.1, 6.2*); define appropriate practices within (*Activities 1.3*); formally adopt conservation (*Activity 5.5*) at land-uses (*Activities 3.4., 4.5.,*

⇒ Develop, adapt and disseminate mitigate impacts on paramo a 4.4.) and promote the adoption particularly near or within the (*Activity 4.5 and 6.3*)

⇒ Train agricultural extensionists agriculture and livestock practice region's conditions and in biodiversity conservation (*Act*

⇒ Develop agricultural and livestock systems, new alternatives (*Voceros del Macizo agreement*

⇒ Develop and or adapt technique cattle rearing in fragile area production systems at lower altitude higher lands and aggressive techniques *UNDCP and Voceros del Ma*

⇒ Collect and disseminate ancestral and techniques for agricultural

avoid water-logging but do not cause erosion or run-off

4.1. and 6.2.)

- *Extreme poverty and limited livelihood alternatives* lead to agriculture as main source of income and increasing pressure for higher production ⇒ Develop alternative livelihoods basic living conditions (Ba, Macizo, and NFPR)
- *Lack of awareness and participation in biodiversity conservation.* Despite a growing regional identity and unity and an increased awareness of the importance of water conservation, there is less awareness of biodiversity issues and the effect that agricultural practices can have on them. Inhabitants do not fully understand the rich endowment of the region, its economic and cultural values, the consequences in livelihoods and quality of life once this is lost . ⇒ Develop programmes to increase stakeholder awareness on the biodiversity issues and the different components required and the actions that each can take to achieve them.

2. Natural Resources Management

2.1. Commercial and Domestic Timber Exploitation for cooking, heat and community collective-labour-projects (mingas) such as roads and schools, and commercially for furniture, light posts, construction etc. In some areas land clearing for commercial forest e.g., the flanks of the Sotara volcano and flanks of the eastern cordillera to the PNN of Purace

Root Causes of Threat II 1..2:

Activities to Mitigate Threat II.1.2

- *Attempts to introduce alternative energy* such as biogas and energy efficient ovens have low success rates as the social and cultural practices of many indigenous groups in the region centre on open wood fires, and rural communities are unaware of the impact of firewood collection on conservation of natural resources (soil and water) and biodiversity conservation ⇒ Work with indigenous groups to substitute and assist them in developing alternatives for reserves (Activity 3.6). ⇒ Collect and disseminate practice wood for example the use of (Activities 4.1, 6.2). Develop programmes on biodiversity conservation and natural resource exploitation (
- *Community reforestation schemes are insufficient* and often limited by land shortages. There is little knowledge of sustainable forestry practices in rural communities and experiences using native species are small and scattered . The Certificate of Forestry Incentive which is applied in the region, requires specific studies and replanting of over ten hectares, effectively excluding all but middle income farmers. Rural communities and farmers have weak skills in resource acquisition and access to the scarce funds available for community reforestation programmes is very limited. ⇒ Baseline reforestation programme ⇒ Provide assistance to peasant communities in managing small-holdings and develop them within them. (Activity 3.4.) Increase awareness of deforestation and develop sustainable alternatives in rural communities including traditional products (Activity 4.4. and 6.2) and develop communities for resource mobilization and resources for reforestation (Activities 4.4. and 6.2) for community reforestation (ecologica) ⇒ Develop guidelines and train communities on biodiversity concerns in forestry and include biodiversity concerns

• *Commercial forestry practices are increasingly leading to overexploitation of resources.* Commercial loggers have little knowledge of sustainable forestry management practices; forestry permits do not fully address biodiversity concerns and are weakly enforced; commercial incentive schemes and loans often focus on introduced species such as pine and eucalyptus. The reduction of montane forest in other areas of the country is increasing interest in commercial exploitation in the Massif as resources in other areas become scarcer and demand remains high. Sub-optimal operations of protected areas in the region both in terms of weak inspection and control of parks and lack of knowledge of boundaries, restrictions and importance of protected areas has resulted in increasing pressures on parks for timber exploitation.

(Activity 7.1)
 ⇒ Clearly define protected areas zoning and conservation areas permitted, (*Output 5 and B planning*) and increase comm and regulatory systems (*Activi*)
 ⇒ Improve operations of existin protection against forestry encro large habitat stands under protect number of smaller private r indigenous conservation areas (

2.2. Illegal hunting and egg collection is pressuring on some species. Plant collection (wax palm, mosses, orchids, bromelia in the area despite campaigns and the introduction of artificial mosses in the ornamentals industry. Hunting is restricted to a small gro occasionally for commercial benefit but mainly to supplement diets.

<p><i>Root Causes</i></p> <ul style="list-style-type: none"> • <i>Poverty is high and agriculture failures are increasingly common</i> due to unsustainable practices (see above). Food security problems are increasing and hunting occurs to supplement diets. • <i>Protected areas are not large enough or the correct shape</i> to permit foraging areas for larger animals, and connectivity between habitat blocks is decreasing. This results in animals such as the spectacled bear, pumas leaving protected and forested areas, and entering small holdings where they are hunted by farmers that fear the safety of livestock or take the opportunity to supplement their diets • <i>Lack of understanding of role</i> of many plants such as lichens and mosses in protection of natural resources, including water and soil, and biodiversity 	<p><i>Activities to Mitigate</i></p> <ul style="list-style-type: none"> ⇒ Improve living conditions in alternative livelihoods and ac security (<i>Baseline Voceros de</i>) ⇒ Redefine limits to park bounda and provide larger territories under protection (<i>Output 2</i>) private reserves in strategi connectivity (<i>Output 3</i>) ⇒ Raise awareness on ecosystem and species diversity in conser vital to rural livelihoods. <i>Outp</i>
--	--

2.3. Small-scale mining in very localised areas is transforming habitats, increasing s oil degradation and water contamination. sulphur deposits in the region, particularly the buffer zone of Purace National Park. Natural sulphur deposits produce some contaminat that has local effects on aquatic life, however industrial mining has a more widespread effect as spoil is deposited in rivers, rai considerably. Once more common in the Massif, industrial mining is now restricted to the municipality of Purace and is no longer c commercial enterprises but rather by the indigenous groups that run a smaller part of the mine and use the spoil in construction depositing it in the river thus reducing localised impacts .

2.4 . Arson Not all fires are related to preparing land for cultivation; some are caused deliberately through arson as a form of settling personal vendettas, and fires spread to forest and paramo areas.

Root Causes of Threat II 3

- Low awareness in rural communities on the environmental and social importance of maintaining forest cover and the risk of arson
- Extreme poverty and land disputes increase conflicts and the risk of turning to arson for vengeance
- Neither the communities nor the responsible institutions have sufficient equipment to control fires once started.

Activities to Mitigate Threat 3

- Build awareness on the role of natural resources vital to alternative sense of identity in the region and conserving its resources. Implement in the region and provide suitable alternatives to resolve conflicts *Output 6 and baseline Macizo, and NPRC projects*

3. Illicit Crops Over the last few years cultivation of poppy has started in restricted locations, increasing destruction of montane forest vegetation in these locations.

Root Causes

- Unsustainable agricultural practices are increasingly causing crop failure and this, coupled with few alternative livelihoods, high levels of poverty and unsatisfied basic needs is resulting in some farmers turning to illicit crop production for survival
- Illicit crop production in areas outside the Massif is slowly starting to expand into specific localities of the region, although the isolation of the region, the strong indigenous presence position against illicit crop production and the still good public order of the region have limited this considerably.

Activities to Mitigate

- Develop and disseminate alternatives more suitable for the fragile montane forest (*Activity 4.4*)
- Improve living conditions with alternative livelihood options (*Baseline*)
- Provide incentives for substitution in localities where it is found (*Baseline*) still relatively small and scattered (*Baseline*)
- Undertake eradication of illicit crop production in the Massif to reduce its expansion (*Baseline funds for*)

ANNEX G - WORK PLAN

OUTPUTS AND ACTIVITIES	SEMESTERS	
	1	2
Output 1: Consolidate the four National Parks to better conserve target ecosystems:		
1.1 Fill-in gaps in the information of each park and form databases for redefining limits and establishing conservation zoning	X	X
1.2 Undertake more detailed socio-economic surveys and enrich data bases for parks and their buffer zones	X	X
1.3 Participatorally define different conservation zones in parks and buffer zones with local stakeholders		
1.4 Identify areas for expansion of park limits, define and delimit new boundaries and prepare legal documents for creation.		
1.5 Strengthen the operational capacity of parks , to effectively develop and implement participatory park management plans.	X	X
1.6 Develop up-dated management plans for the parks and buffer zones, through highly participatory processes		
1.7 Support the implementation of priority actions of newly defined management plans.		
Output 2: Establish new protected areas to extend habitat under conservation and develop new management categories		
2.1 Draft proposals for three new protected areas through assessments and meetings with stakeholders		
2.2 Collect more detailed information for each proposed protected areas and systematising this for broader scale consultations		
2.3 Disseminate information and hold consultations to discuss and formalise support to protected area proposals		
2.4 Demarcate the new protected areas with of local stakeholders and advance the legal processes for declaration		
2.5 Identify the most appropriate joint management structures for ensuring the long-term continuity of each protected area		
2.6 Set -up operations in each newly created area with operational procedures, basic infrastructure, equipment and personnel.		
2.7 Set-up processes that facilitate the formulation of participatory management plans for the new areas and their buffer zones		
Output 3: Increase private reserve, peasant and indigenous conservation areas to increase connectivity between main habitat blocks a		
3.1 Fully survey existing private reserves and registering them as official protected areas within the Massif		
3.2 Implement a training and information, programme to strengthen the planning and management of existing private reserves		
3.3 Set-up an outreach programme for the creating new private reserves, particularly in buffer zones and linking corridors		
3.4 Assist peasant farmers with conservation areas to effectively plan and manage their farms & contribute to conservation		
3.5 Develop complete proposals for a new category of protected areas for conservation areas within peasant farms.		
3.6 Provide technical assistance and support to indigenous groups to establish, delimit and manage their conservation areas		
3.7 Support inter-ethnic meetings to exchange experiences on the management of the conservation areas within each reserve.		
Output 4: Field testing and adaptive research for alternative agricultural, livestock and forestry practices		
4.1 Survey traditional agricultural, livestock and forestry practices throughout the project area		X
4.2 Provide support for the region' s indigenous groups to recover, internalise and valorise cultural uses of biodiversity		
4.3 Define specific sites to develop and test alternative land-use practices and systems within each of three selected zones	X	X
4.4 Implement the pilot projects for field testing and adaptive research to determine the alternative land-use practices		
4.5 Undertake a programme to validate, fine-tune and disseminate the findings of the most successful pilot projects		
4.6 Undertake a hands-on training programme for public and private, local and regional, agricultural entities in new alternatives		

Output 5: Develop tools for the adaptive management of Massif Protected Areas System		
5.1 Set up training programmes for park staff to improve implementation of new park policy, & up-dating management plans		
5.2 Define sub-networks of protected areas in MSAP to co-ordinate individual reserves and adopt common approaches		
5.3 Design and implement a training programme for protected area management at the technological level through SENA		
5.4 Reach consensus and formalise specific regulatory systems and norms for parks, indigenous and peasant reserves in MPAS		
5.5 Define and adopt operational procedures for MPAS in accord with the mandates of environmental institutions in Massif.		
5.6 Formally constitute the MPAS within the framework of decree 1124 of the National System of Protected areas		
5.7 Design and implement a targeted biodiversity conservation monitoring system for the Massif		X
5.8 Develop a property-planning methodology that incorporates the newly defined land-zoning within the MSAP		
5.9 Establish a strategy for the long-term funding of the MPAS using the environmental services provided by the Massif		
Output 6: Increase community awareness and participation in biodiversity conservation		
6.1 Increase the sense of regional identify through community map-making ventures and restoration of pre-Columbian paths		X
6.2 Implement a rural information strategy with different media to disseminate conservation actions and project results	X	X
6.3 Implement a programme to collate, in culturally appropriate forms, the pilot projects and protected areas experiences		
6.4 Establish a commemorative date for cultural events and give rewards to actions in favour of biodiversity conservation		
6.5 Implement an awareness building programme to demonstrate the importance of the reserve networks in the four corridors		
6.6 Publish an annual report on monitoring and evaluation biodiversity conservation actions and project results		X
6.7 Set-up a system to facilitate conflict resolving over conservation issues and public participation in project monitoring		
Output 7: A biodiversity overlay for institutional and social planning, management and co-ordination processes		
7.1 Develop guidelines and procedures to incorporate conservation principles into different levels of planning		
7.2 Hold annual planning sessions with the regional programmes to maximise synergy and complementary between initiatives.		X
7.3 Implement a stakeholder resource-acquisition training of trainers programme for local conservation stakeholders groups		X
7.4 Provide technical assistance to municipal staff and communities, to implement land-zoning plans in the MPAS framework		X
7.5 Implement capacity building of CARs to include biodiversity conservation & the MPAS in environmental licensing		
7.6 Set-up the system to make effective Regional Environment System & co-ordinate actions following project completion		

ANNEX H - INSTITUTIONAL AND STAKEHOLDERS ANALYSIS

TABLE H-1. INFORMATION ON INDIGENOUS GROUPS IN PROJECT AREA

	Population 1993 Census ³	Area of Reserves (Hectares)	# Reserves	Overlaps with Parks	Main settlements related to protected areas in project area	Ecotype
Kokonucos	6,141	24,462	6	6	Purace Park, Corridor Huila/Purace	Paramo-High Andean Montane
Guambianos	20,782	247,194	4	0	Purace Park, Corridor Nevado/Huila	Paramo- High Andean Montane
Inganos	17,855	10,000	3	0	Cueva de Guacharos / Serrania de Churumbelos corridor	Andean montane and pre-montane forest
Paeces	100,000	270,000	25	14	Nevado del Huila and Purace Parks, Corridor Hermosos/ Nevado, and Nevado del Huila/ Purace	Paramo – High Andean montane and montane forests
Totoroes	3,654	4,160	3	0	Corridor Purace/Nevado del Huila	Paramo -High Andean
Kamtza	250	500	1	0	Corridor Guacharos/ Churumbelos	Andean- Amazonian
Yanaconas	19,623	42,376	8	0	Purace Park and corridor Purace/ Guacharos	Paramo-High Andean and Andean montane forest
Total	168,305	598,692	50	20		

TABLE H-2. ORGANISATIONS CONSULTED IN PROJECT DESIGN

<i>Indigenous Organisations</i>	
ACIN	Organisation of Indigenous Leaders of Northern Cauca
ACITI	Association of Ingano Tandachiridu Inganokuna Leaders
CRIC	Cauca Indigenous Regional Council
CRIH	Huila Indigenous Regional Council
CRIT	Tolima Indigenous Regional Council
UMIYAC	Union of Indigenous Doctors in the Colombian Amazon
ZBBC	Ingano Indigenous Leaders of the Bota Caucana Zone
COMMUNITY ORGANISATIONS	
ASOMINA	La Mina Village Association
ASOBOLO	Association of Users of the Rio Bolo River Basin
ASOROBLE	The Oak Environmental Organisation
ASOYUMA	Association of Ecological and Green Councils of the "Alto Yuma"
ASOJERICO	Jerico Environmental Associative Groups
GEACP	Alto Cerro Punta
GEAO	Altos del Osos Ecological Group
GECC	Cueva del Guacharos Ecological Group
GEM	El Maco Ecological Group
GEPF	Picos del Fragua Ecological Group
OACB	Cerro Banderas Environmental Group
OVM	Colombian Massif Stakeholders Organisation
ASOGUABAS	Guacari Association of Agricultural and Livestock Producers
ASPATRU	Trout Fry Producers Association

³ Represents 27% of indigenous population in Colombia and 36% of the rural population in the project area. The ingano population is 69,188 Inganos in 11 reserves if the settlements in the Amazon area are included.

<i>Non Governmental Organisations</i>	
<u>Local</u>	
CNCh	NASA CHACHA CORPORATION
CNK	Nasa Kiwe Corporation
FMW	Manuel Maria Mosquera Wallis Foundation
FSM	Serrania de Minas Foundation
FUNTROPICO	Tropico Foundation.
FUNDAGEC	Cauca Ecological Group Foundation
FUNDECIMA	Colombian Massif Integration Committee Foundation
IMCA	Peasant Institute
<u>Regional</u>	
CIMA	Colombian Massif Integration Committee
CIPAV	Valle de Cauca Agriculture and Livestock Research and Development Corporation
CRG	Guadalajara River Corporation
CRP	Las Piedras River Corporation
CITMA	Tropical Andean Inter-institutional Co-operation for the environment
CORPOPALO	River Palo Waterbasin Development Corporation
FENSUAGRO	Agrarian Syndicate linked to the Massif Spokespeople Organisation
<u>National</u>	
ECOFONDO	Ecofondo Corporation
RRSC	Network of Civil Society Reserves
EI	Ethno-biology Institute
<u>International</u>	
ACT	Amazon Conservation Team (Colombia division)
CCF	Christian Children Foundation
WWF	World Wide Fund for Nature . (Colombia Division)
<i>Private Sector</i>	
ADEMCA	Cauca Business and Entrepreneur Association
CENCOA	Agrarian Co-operative Headquarters
FEDERACAFE	National Coffee-Growers Foundation
<i>Governmental Institutions</i>	
<u>Local</u>	
ASOMAC	Colombian Massif Municipalities Association
CMDR	Rural Development Municipal Council
MMA	Municipal water authorities
UMATA	Municipal Agriculture and Livestock Technical Assistance Units
<u>Regional</u>	
CAM	Alto Magdalena Regional Environmental Authority
CIC MACIZO	Colombian Massif Inter-Corporative Agreement
CORPES (Occidente)	Economic and Social Policy Council of Western Colombia
CORPOAMAZONIA	Amazonia Regional Environmental Authority
CORPONARIÑO	Nariño Regional Environmental Authority
CORTOLIMA	Tolima Regional Environmental Authority
CRC	Cauca Regional Environmental Authority
CVC	Valle de Cauca Regional Environmental Authority
DPS	Planning Secretariats from Cauca, Huila y Tolima
INTURHUILA	Huila Toursim Institute
UNAR	Nariño University
UNICAUCA	Cauca University
<u>National</u>	
DEAM	National Environmental Studies Institute
DNP	National Planning Department
ICA	Colombian Agriculture and Livestock Rearing Institute
IGAC	Geographical Institute Agustin Codazzi
INAT	National Risk and Land Improvement Institute
INGEOMINAS	National Geology and Minerals Institute

MAG	Ministry of Agriculture
MINAMBIENTE	Ministry of the Environment
MINAGRICULTURA	Ministry of Agriculture and Rural Development
UAESPNN	Natural National Parks Administrative Unit
IAvH	Alexander Von Humboldt Research Institute
INCORA	Colombian Institute for Agrarian Reform
UN	National University of Colombia
SENA	National Learning Service
RSS	National Network for Social Solidarity
NATIONAL PROGRAMMES	
PRONATTA	National Agriculture and Livestock Research and Technology Transfer Programme
PLANTE	National Alternative Development Plan

TABLE H-3. SUMMARY OF THE ROLE OF KEY ENTITIES IN PROJECT IMPLEMENTATION

ENTITIES	ROLE IN PRO.
INDIGENOUS ORGANISATIONS	
<p>Indigenous reserves are recognised as autonomous and impoundable areas in Colombia. Whilst totally autonomous, many reserves and indigenous groups are adopting management procedures that parallel governmental territorial units, such as municipalities. For example indigenous reserves are not bound by law to develop land-use plans as are municipalities, however, they are developing Life Plans which include environmental plans that set aside sacred land for strict conservation and outline natural resources management for the entire reserves. Each reserve has a leadership system and representation (cabildos) and these group into associations within ethnia. These associations often form inter-ethnic councils either at sub-regional, regional and national levels (see above). UAESPPN recognises the role of Indians reserves in biodiversity conservation and at a broader level, several baseline programmes seek to strengthen links between indigenous leaders and government at all levels - a task that will be facilitated by the recent election of a Guambiano leader as Governor of Cauca Department and of several indigenous mayors in Massif municipalities.</p>	<p>Indigenous leaders have taken part in designing The strengthening of conservation areas within key role in the project strategy and will be imp connectivity between habitat blocks and reduce with the autonomous nature conferred to these will provide direct support to indigenous groups by them under sub-contract, for example, th reserve in the Eastern Cordillera or the recover activities that focus more on providing advisory the project team or hired experts only o indigenous leaders fine-tune the formats and s second level, indigenous organisations will be Steering Committee through an elected rep involvement will be through extensive baseli positive effect on the input of these ethnia to dev region and provide opportunities for disseminat biodiversity conservation throughout the region.</p>
COMMUNITY ORGANISATIONS	
<p>A wide number of community organisations exist in the Massif. Many of these have taken an active role in the 40 community consultations for project design and others have been consulted on specific aspects (see above). These organisations include small and specially focused ones, such as the Cueva de Guacharos Ecological group composed of inhabitants around the park;; others that are taking on a sub-regional focus such as the Rio Bolo River Basin Users and others that have much broader memberships and goals, for example the Spokespeople of the Massif organisation-OVM-that is composed of peasants and indigenous community representatives. This organisation headed an unprecedented negotiation with the regional and national governments in late 1999 that resulted in an extensive agreement and allocation of resources (16 million dollars) to the Massif for improving living conditions and alleviating poverty. Execution of these resources is in initial stages and will be undertaken both through governmental institutions and those groups that</p>	<p>Community organisations will have a variety of activities they will take a leadership role, for expansions and the development of participator zones; in others they will provide an import project results and providing information for mc the Community Councils. At another level they Project Advisory Groups to be established in f will bring together local stakeholders and en localities at regular intervals, to discuss, eval advances; highlight new initiatives and cl providing guidance on local priorities to bet activities. The OVM will play a particularly baseline projects address root causes of bio advances made through the project.</p>

conform the OVM.	
------------------	--

NON-GOVERNMENTAL ORGANISATIONS

Local , regional, national and international NGOs exist in the Massif and have been consulted during project design. They will have d implementation. Many will provide essential support through implementing projects that form the baseline on which the project has been described in the Incremental Cost Assessment). ECOFONDO, for example, is a national NGO that funds community and local conservation of rural strategic ecosystems and sustainable development and could provide additional funding over the project life to expand areas or replicate successful experiences. A broad range of NGOs, by forming an important part of the Regional Project Advisory Group, will support project implementation through information exchange on progress of key baseline projects. In many instances specific advice and action will be sought during project implementation including the sub-contraction of services when necessary. For example, the RRSC will provide technical assistance in the formation of private reserves and the confirmation of local networks of these within the MPAS framework. The office of WWF will assist in developing the MPAS-GIS, ensuring its compatibility with other regional systems; the ACT will provide assistance in the creation of the La Fragua reserve; the Serranía de Minas Foundation will guide the initiative for creating the protected area in this region. CIPAV will be sought for advice in agricultural information exchange with the regional agro-silvopastoral project when this comes under

PRIVATE SECTOR

An increasing number of businesses are becoming involved in conservation of the Massif. Many of these focus specifically on protecting water supplies to heavy demand agro-industries, and sugar-cane and rice cultivation in the Valle de Cauca and Cauca. Whilst their current goals do not include biodiversity conservation, such businesses represent important potential partners, once awareness of water regulation, paramo biodiversity and habitat continuity (including links with montane forest) has been raised. As such, private sector specific focus of awareness campaigns and are expected to gradually take on a more active role as project implementation progresses. An important long-term funding mechanism for the MSAP will depend on willingness of these sectors to pay for environmental services in protected areas. Key private sector representatives will also be invited to form part of the Regional Project Advisory Groups.

GOVERNMENT INSTITUTIONS

The Ministry of the Environment –MMA- is the leading institution for environment policies in Colombia, and is in charge of managing the national ecosystems including defining priority ecosystems -one of which is the Massif. Through the National Natural Park Administrative Unit –UAESPNN- the MMA, manages 46 national protected areas: 34 National Natural Parks, 2 National Natural Reserves, 8 Sanctuaries of Flora and Fauna, 1 Unique Natural Area, 1 Park Way. There are four National Natural Parks within the Project area: Las Hermosas, Nevado del Huila, Purace, and Cueva de los Guacharos. The UAESPNN has recently been charged with the leadership and co-ordination of a broader national System for Protected Areas. At the regional level, the UAESPNN operates through 5 Territorial Divisions. The Southern Andean Regional Zone was designated to lead the project formulation having jurisdiction over three of the four parks in the project area (Nevado del Huila, Purace and Cueva de Guacharos). To a lesser extent the South-western and the Amazonian UAESPNN Divisions have also taken part in project development,

The Ministry of Environment through the UAESPNN is the entity responsible for the Project, accounting for performance and outcome. The National UAESPNN is overseeing project implementation at the national level within national policies and is co-ordinating national programmes. At the operational level the Southern Andean Regional Zone has designated responsibility for project implementation and employs 48 permanent professional, technical staff including those located in the parks and will be a technical co-ordinator and four sub-regional coordinators. Activities will be executed through sub-contracts and experts in relevant themes. The UAESPNN has a technical advisory committee, that has been established in the Conservation Strategy that includes four representatives of the MMA, International Co

<p>the former having jurisdiction over Las Hermosas Park and the latter over the buffer zone of Cueva de los Guacharos. All park managers have played very active roles in project design, development and consultation processes.</p>	<p>Humboldt Institute and national and international Technical Director of the MMA Ecosystems I Massif Steering Committee.</p>
<p>Regional Environmental Authorities– CARs. are the entities in charge of the administration, planning and control of the natural resources and in some cases of the sustainable development in their respective regions, excluding national protected areas, but including the buffer zones. Six CARs have jurisdiction over the geo-political Colombian Massif, five of them have subscribed to the Massif Inter-corporate agreement – CIC- Massif -advocating for sustainable development and environmental land zoning in the region and funded through the National Royalties Fund which allocates resources to this national priority ecosystem. The CARs are: CVC-, with jurisdiction in the Department of the Cauca Valley- (it did not subscribe to the Inter-corporate agreement as it does not contain areas of the nucleus of the Massif); CRC-, with jurisdiction in the Department of Cauca; CORPONARIÑO-, with jurisdiction in the Department of Nariño;–CORPOAMAZONIA-, with jurisdiction in the 10 Departments of the Amazonian and Orinoquía region; CORTOLIMA-, with jurisdiction in the Department of Tolima;–CORMAGDALENA-, with jurisdiction in the Basin of the Magdalena river which co-ordinates managing, protection and control actions in the adjoining zones of the Magdalena river.</p>	<p>The CARs will play a critical role in project's strong commitment to this through the allocation of their operational budgets and international sources design and through formal letters of support. They vary according to each project component. They will be a key player in helping define conservation land in which there is jurisdictional overlap. Their roles in Output 2 that focuses on creating new management regimes which may include joint municipalities. They will also provide vital support directed at natural resource exploitation control all of which will contribute to biodiversity conservation. A number of CARs in the project area, specifically will support joint programming sessions between CARs to ensure complementarities and synergies. They will be a key player in the Steering Committee by the CIC-Massif. This will be the project, channelling resources from the National Royalties Fund incorporating the project and the MSAP Sustainable Development Plans for the region.</p>
<p><i>Municipal Administrations and the Association of Massif Municipalities</i> (ASOMAC) mark the political and territorial levels of local administration and planning. They are responsible for developing nine year land-zoning plans and POTs for their areas and implementing them through two year operational plans. Existing and potential protected areas are indicated within these POTs. They also plan and develop infrastructure developments and projects that could impact the environment</p>	<p>Municipalities will provide important vehicles throughout the broader Massif area, both through conservation under the project, the agricultural and also the implementation of development plans within the framework for conservation. They will also execute projects that would be oriented to broaden participation particularly in agricultural alternative. Municipal incentives for conservation, particularly for private fiscal instruments and also through adopting of environmental services provided by protected areas on the Steering Committee through the president</p>
<p><i>National Learning and Training Service- SENA-</i> provides technical training for a wide range of professions throughout its regional offices. SENA institutions is well known throughout Latin America for its focus on developing human resources at a technological level that will provide capacity and human resources with higher employment possibilities than professional levels for which the markets are often saturated. SENA training representatives from communities in the Massif with reference in sustainable systems, reforestation and managing of water basin</p>	

framework SENA will collaborate by funding and delivering a programme to train protected area manager assistants that could be supported by regional and local entities to support to the MSAP at a level that can be afforded by local economies.

Alexander Von Humboldt Research Institute is a research institute affiliated to the MMA and mandated to promote, co-ordinate and undertake research that contributes to biodiversity conservation and its sustainable use. It led the formulation of the National Biodiversity Strategy and has developed a range of biodiversity assessments in the country including the eco-system classification used in Table E2 1 and the cross-reference of this with the WWF ecoregions at the national level to better determine biodiversity conservation priorities.

The IAvH has taken an active role in project definition of complementarities with the Los Andes conservation of Andes at the national level (see support from this institute will be delivered through assessments of the Andean foothills with the Andean input to the Fragua Reserve and Churumbelos. An Advisory Committee for the Conservation of the Massif will be part of the Massif project. Technical assistance will be sought for monitoring to ensure that information from this would feed into the biodiversity monitoring.

ANNEX I - GEF B BIODIVERSITY PROJECTS IN THE COLOMBIAN ANDES

Key Position of the Andean Region

Within a megadiverse country, the Colombian Andes are biologically the country's richest biogeographic region, surpassing even the humid lowland forests of Amazonia, with 21 distinct ecosystem types (Instituto Alexander von Humboldt, 1998) and high levels of endemism. This is largely due to the division of the Andean range into three distinct mountain chains in the south of Colombia. Each chain, or Cordillera, has high and differentiated diversity due to the wide range of altitudes, climates, and geology resulting in geographical isolation, particularly in the valleys and mountainous areas. The Andean region also has a remarkably high cultural diversity with numerous indigenous groups. Housing approximately 80% of the nation's total population, it holds a key role in the country's economy and as such had been placed as the highest priority in different national plans and policies including the National Development Plan, the Collective Environmental Plan, and National Biodiversity Strategy and Action Plan.

National Strategy for Conservation in the Andes

In view of its crucial importance, the GoC has taken significant care to ensure strategic GEF interventions in the Andean region in order to avoid irreversible losses to globally significant biodiversity. In August 1999, the MMA officially presented its *National Strategy for Conservation in the Andes* as the first stage of a long term policy to conserve biodiversity in this region. This strategy contains four well-targeted and coordinated GEF proposals designed to address the most immediate priorities in the region in a complementary, cost-effective and timely manner.

These four proposals include one national "umbrella" project and three sub-regionally based projects falling within OP #4, Mountain Ecosystems, and OP#3, Forests⁴. In view of the fragility and severe land degradation of mountain areas, they will also address the crosscutting issue of land degradation. The umbrella project entitled: *Conservation and sustainable use of biodiversity in the Andes region*, and presented through the WB will focus on themes best addressed from a national viewpoint such as: revision of the legal frameworks, developing conservation incentives such as environmental service fees and green markets, and incorporating biodiversity considerations in sectoral development. It will also develop national stakeholder and information networks, strengthen institutional capacity for biodiversity conservation and increase the knowledge base on biodiversity. In addition to these nationally oriented themes, the umbrella project will initiate regional conservation actions in areas selected for their global biodiversity significance and not included in the sub-regional projects of the Andean Strategy.

This umbrella project will be complemented by sub-regionally based projects in the Colombian Massif, the Sierra Nevada de Santa Marta and in the Serrania de la Macarena. These areas were selected based on four main criteria:- (i) the strategic value within the nation's biodiversity; (ii) innovative elements that could enrich the National Conservation Strategy; (iii) social and environmental processes that require differential treatment and (iv) well advanced and solid local processes that present opportunities to work in areas of potential risk with greater success rates.

The *Colombian Massif* is located at the confluence of four biogeographic regions (Amazon, Pacific, Orinoco, and Andes) and at the intersection of the three Andean Cordilleras giving rise to a rich mosaic of unique ecosystems. Furthermore, the Massif is known as the hydrographic star of Colombia and is the catchment area of the country's four most important rivers. The *Sierra Nevada de Santa Marta* is located at the confluence of the Andean and the Caribbean bioregions and marks the most northern extreme of the

⁴ See Colombia GEF Portfolio Annex

entire the Andean Chain. It the world's highest coastal peak, offering nearly all the climatic zones that can be found in Tropical America, resulting in outstanding biodiversity. The *Serrania de la Macarena* is located at the confluence of the Amazon, Andes and Orinoco bioregions, representing the most western point of the Guyana Shield and the oldest geological formation in the country. The Serrania has a remarkably high endemism and borders the eastern flanks of the Eastern Cordillera marking the biologically rich transition between Andean and Amazon ecosystems.

Each sub-regional project also presents unique cultural characteristics and important inputs for a national strategy. The *Colombian Massif* has the largest ethnic diversity in a uniform region and as such is ideal for the definition and development of inter-cultural management categories for the conservation in the Andean region. The *Sierra Nevada de Santa Marta* equally offers a unique input of indigenous knowledge to the conservation strategy as it houses the country's most culturally consolidated and structurally organized ethnic group. The *Serrania de la Macarena* in contrast presents the conservation challenges of areas under recent occupation following unplanned and rapid colonization processes. This region also presents an opportunity to evaluate a unique management category - Special Management Area- that requires the joint management of a Regional Environmental Authority (CORMACARENA) and the National Parks Service. The *Massif* and *Sierra Nevada*, in contrast, will consolidate and evaluate a different management category - namely a Biosphere Reserve - led by the National Parks Service Administrative Unit and an NGO, respectively.

Coordination Amongst Andean Projects

In addition to the general co-ordination efforts described in the Colombia GEF Portfolio Annex, additional measures have been taken to avoid duplicity between these closely related Andean proposals. These efforts have focused on the clear definition of each project's contribution to the Andean Strategy; the role of the National Parks Service, IavH's, CAR's, NGO's and other institutions in each project; and the identification of specific mechanisms to unify technical criteria, define complementary project baselines and co-financing sources and develop coordination mechanisms for project implementation .

Unification of technical criteria to ensure uniform inputs to the Colombia Andean Strategy

- All projects share the ecoregional approach in the design of their conservation strategy. The scale of the ecoregions presented in Dinerstein et al, 1998, has been detailed to allow national analysis and cross-referencing with the national ecosystems map produced by the Institute Alexander von Humboldt (1998). This classification has been used by all the projects as the basis for biological analysis.
- The projects support the design and implementation of the national system of protected areas currently being developed under the lead of UAESPPN that will include a broad range of management categories. They will implement regional systems that will serve as pilot experiences that could be replicated in other areas of the country. Furthermore, selection of sites for on the ground work has been based on an ecosystemic analysis to ensure representative regional systems of protected areas as the basis for long-term in-situ conservation.
- All projects recognize the importance of permanent participation to assure ownership and support of all stakeholders involved, from investors, the GoC, the technical and scientific community on the ground, implementing agencies and local communities. This is in line with the Parks Service's instrument entitled "*Política de la Conservación con la Participación Social*" which will be adopted for the development of conservation areas components of all projects.
- A complete biodiversity baseline for the Andes and biodiversity information system will be developed under the lead of IavH to address the lack of basic knowledge and poor access of information by decision-makers, seen as the root causes of biodiversity loss in Colombia. All projects in the Andean strategy will contribute to this goal and help disseminate the information in adequate format for decision-makers.

Economic Baseline and Project Co-financing

Project teams have worked together to identify their baselines and negotiate co-financing in order to optimise the use of available resources. As a result, a realistic calculation of the resources for each project was realized and defined to avoid double accounting.

Coordination Mechanisms for Project Implementation

A series of mechanisms have been established that will be further detailed as the projects mature. These include the following:

- To avoid duplication of efforts and assure unity of criteria, UAESPNN and IavH will coordinate the activities of all projects related to national parks and biodiversity information collection and management, respectively. The UAESPNN will be integral part of each project component focusing on the creation of regional protected areas systems ensuring that these become complementary and functional modules of the national system under creation by UAESPNN. Where appropriate the UAESPNN will use its close relationships with local communities and other stakeholders in and near national parks to strengthen the participatory processes of all projects. IAvH will offer training and its experience in ecosystem mapping and biodiversity characterization. Both IavH and UAESPNN will coordinate a revision of the current conservation legislation in Colombia according to their legal mandate and propose adequate modifications to the GoC consistent with the conclusions reached during the implementation of the strategy for the Andes.
- The Ministry of the Environment will convene an annual Andean coordination workshop, funded jointly through the projects in the strategy. These workshops will have open and closed sessions each with clearly defined objectives. The open sessions will be used to present project advances to diverse national and international audiences and provide international expertise on the state of the art of conservation and sustainable use of mountain ecosystems. The closed sessions will be restricted to project teams and experts and will focus on joint planning exercises, optimising resources, exchange of experiences and specific contribution of the projects to the Andean Strategy.
- Regular meetings will be held between project coordinators and national executing agencies to assure complementarity at the operational level. Project coordinators will convene these meetings as specific needs arise. Project coordinators will also be invited as observers to the IA evaluation missions of each respective project.
- Mechanisms, such as common web pages and information bulletins, will be developed for information exchange. All information collected by the projects will be of public domain, and will be integrated in the biodiversity information system under creation by IavH and the umbrella project

The work to be undertaken by the umbrella project on conservation incentives and green markets (including ecotourism) will be adopted in all the projects to improve long term financial sustainability of conservation actions. Local specificities and opportunities may be addressed in regional projects where appropriate and later taken up by the umbrella project. All projects will benefit from the biotrade initiative under implementation by IavH.

ANNEX J - COLOMBIA GEF PORTFOLIO

Colombia is generally recognized as one of the five “megadiverse” countries in the world (Mittermeier, 1998) with one the highest concentrations of species per unit area. It is home to about 15% of all known terrestrial species including the largest number of species of birds and amphibians in the world and one of the highest number of vascular plants and vertebrates. The country also possesses 18 ecoregions (WWF/World Bank report, 1996), the second highest of any country in Latin America. The most recent ecosystem map of Colombia (Instituto Alexander von Humboldt, 1998) identifies 65 ecosystem types.

This outstanding natural endowment is reflected in the country's current GEF portfolio which falls largely within the biodiversity thematic area and includes initiatives under three different Operational Programs (#2, #3, #4) and the crosscutting issues of Land Degradation and Watershed Management. The various proposals, at different stages of preparation and implementation, target key representations of the county's wide spectrum of ecosystems, geographical areas, and environmental and social issues, from the Andean Paramo, to the Amazonian Forest, to the Pacific Coast, to the Caribbean Marine Resources.

Whilst this range of initiatives is highly justified by the country's megadiverse status, it calls for the definition of a coherent programme approach in order to optimise resource allocation, ensure synergies and complementarities within the GEF biodiversity window and maintain coherency with national priorities, policies and plans. In this regard, the GoC has taken important steps to meet this challenge through the definition of a series of commitments and specific mechanisms including the following:-

- *Coordination Committee:* The Minister of Environment (MMA), UNDP and the World Bank have established a Permanent GEF Committee that became fully operational in the second semester of 1999 and has the following objectives:- 1) to ensure that all new GEF initiatives clearly respond to Government priorities, as defined by the National Environmental Policy and the National Biodiversity Strategy and Action Plan; 2) to clearly establish and ensure the thematic complementarity of different initiatives and their different geographical location, dispelling potential overlaps; 3) to exchange information on successful and unsuccessful experiences and lessons learnt during project preparation; 4) to create a forum of discussion between Implementing Agencies, Executing Agencies and GoC on portfolio progress and execution in order to improve the efficiency in the use of financial and human resources; and 5) to exchange technical assistance between the different initiatives.
- *Common Vision:* The Colombia biodiversity portfolio projects share the same vision and strategy whose main characteristics are:- 1) the conservation and sustainable use of globally significant biodiversity; 2) the identification and removal of barriers for biodiversity-friendly Sustainable Production Systems, as part of the strategy to prevent biodiversity loss; 3) the participation of the local communities, and civil society in the definition and execution of the conservation strategy; 4) the identification and operationalization of a broad range of protected areas under a mix of management categories for a more comprehensive conservation strategy; and 5) decentralized environmental management at the regional and local level, as a necessary factor for the success of any biodiversity conservation strategy.
- *Institutional and Organizational Coverage:* The GEF Colombia biodiversity portfolio features a wide institutional variety of executing agencies, not only ensuring the country's absorptive capacity for portfolio growth but also enriching the dialogue, exchange of experiences, and methodologies between individual proposals. This institutional diversity ranges from National Government Institutions (e.g. the National Parks Unit), to Regional Government Institutions (e.g. the Corporaciones Autonomas Regionales (CARs), to National NGOs (e.g. Foundation Natura and Foundation Pro-Sierra), to local NGOs (e.g. Proselva and Etnollano), and to research institutes (e.g. Instituto Alexander von Humboldt).

Portfolio Overview

The Colombia GEF biodiversity portfolio comprises nine projects. Under implementation (1), preparation (7), and identification (1). A summary of project partners, objectives, and status is described below.

Under Implementation:

1. Sustainable Use of Biodiversity in the Western Slope of the Serranía del Baudó (Choco) –Medium Sized GEF – Implementing Agency: World Bank. Executing Agency: Foundation Natura Colombia. The objective of this MSP is the development of a strategy for the sustainable use of biodiversity in the western slope of the Serranía del Baudó and the marine resources of its coastal area (Choco- Pacific Coast) in a joint effort between governmental institutions and civil society, designed to benefit local communities, within OP#2, Coastal, Marine, and Freshwater Ecosystems) and OP#3, Forests (GEF Approval April 1999; WB Approval June 1999; project start up September 1999).

Under Preparation:

2. Conservation of Biodiversity in the Sierra Nevada de Santa Marta – Full Size GEF – Implementing Agency: World Bank. Executing Agency: Fundación Prosierra Nevada de Santa Marta. The objective of this project is to conserve, restore and promote sustainable use of the mosaic of tropical ecosystems in the Sierra Nevada de Santa Marta, within OP #4, Mountain Ecosystems, and OP# 3, Forests (GEF-Council approval, December 1999).

3. Conservation and sustainable use of biodiversity in the Andes region. – Full Size GEF – Implementing Agency: World Bank. Executing Agency: Institute von Humboldt. The project's development objective is to increase conservation, knowledge, and sustainable use of globally important biodiversity in the Colombian Andes, within OP #4, Mountain Ecosystems, and OP# 3, Forests (GEF-Council approval, May 2000).

4. Biodiversity Conservation in the Paramo and Montane Forest Ecosystem of the Colombian Massif – Full Size GEF – Implementing Agency: UNDP. Executing Agency: National Parks Unit. The proposed project will protect globally outstanding ecosystems in the region, establishing a network of protected areas, improving buffer zone management by enhancing sustainable land use in areas adjacent to parks, and integrating biodiversity management principles into regional and local processes, within OP #4, Mountain Ecosystems, and OP#3, Forests. In view of the fragility and severe land degradation of mountain areas, it will also address the crosscutting issue of land degradation (Block A granted).

5. Biodiversity Conservation in the Special Management Area La Macarena – Full Size GEF – Implementing Agency: UNDP. Executing Agency: CORMACARENA. The objective of this project is the conservation of biodiversity in the special management area La Macarena, strengthening the management of the reserve and contributing to sustainable natural resources practices, within OP#4, Mountain Ecosystems, and OP#3, Forests (Block B granted).

6. Conservation and Sustainable Development of the Mataven Forest (Amazonia) –Medium Sized GEF – Implementing Agency: World Bank. Executing Agency: Etnollano. The objective of this MSP is to support the establishment and demarcation of indigenous territory as a strategy for natural resources conservation. It is working on the creation and management of the first "Indigenous National Park" as a strategy for conservation and sustainable use of biodiversity in the Mataven forest in the Amazon region, within OP#3, Forests. (Scheduled for Council approval in January 01).

7. *Community Based Management for the Naya Conservation (Choco)*–Medium Sized GEF – Implementing Agency: World Bank. Executing Agency: Foundation Proselva. The objective of this project is to develop and implement a community-based biodiversity management and monitoring plan, endorsed by local communities and government, to be the long term guide for future development in the Naya river basin of the Choco region, within OP#3, Forests, and OP#4, Mountain Ecosystems (Block A granted).

8. *Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System* –Medium Sized GEF – Implementing Agency: World Bank. Executing Agency: CORALINA. The objective of the project is to conserve biodiversity and ensure sustainable use of coastal and marine resources in the Archipelago, while enhancing equitable benefit distribution for the community, within OP#2, Coastal, Marine, and Freshwater Ecosystems (GEF-Council approval, May 2000).

Under Identification:

9. *Marine and Coastal Protected Areas System of the Caribbean and the Pacific* - – Full Size GEF – Implementing Agency: UNDP. Executing Agency: INVEMAR. The objective of this project is the conservation and sustainable use of biodiversity in the marine and coastal protected areas of the Colombian Caribbean Sea and Pacific Ocean, in order to contribute to the preservation of the cultural diversity and the sustainable development of the nation, within OP#2, Coastal, Marine, and Freshwater Ecosystems (Block B under preparation for presentation in mid 01).

ANNEX K – BIBLIOGRAPHIC REFERENCES

References Cited

- Asociación de Cabildos Inganos Tandachiridu Inganokuna, Unión de Médicos Indígenas Yageceros de la Amazonía Colombiana, and Cabildo Ingaño-Kamsá de Mocoa, 1999. *Por la diversidad biológica y cultural del piedemonte amazónico colombiano*. Programa de recuperación cultural, desarrollo sostenible y conservación de la biodiversidad, indígenas Inganos, piedemonte amazónico colombiano. Amazonía.
- Cementos mexicanos. (Cemex) 1997, *Megadiversidad. Los Países Biológicamente Mas Ricos del Mundo*. Canada.
- Cuervo, Andres M, T M. Donegan, C. E. Gonzales, J. M. Ochoa, J. Lázaro, & P. G.W. Salaman Donegan, 1999. *Rapid biodiversity assessments & conservation evaluations in the Colombian Andes (Abajo el Extremo Dose; Arriba la Naturaleza)*. EBA Project Report. Edited by Thomas. M, and P.G.W. Salaman. Colombia.
- Departamento Administrativo Nacional de Estadística. 1995. *Estadísticas de Colombia*.
- Dinerstein, E. et al, 1995 "A Conservation Assessment of the Terrestrial Ecoregions of Latin America and the Caribbean. World Bank/WWF
- Galo Medina, Patricia, 1999. *El páramo como espacio de mitigación de carbono atmosférico*. Grupo de Trabajo de Páramos del Ecuador. Mena Publishers
- Grupo de Páramos del Ecuador, 1997. *El Páramo como Espacio de Mitigación de Carbono Atmosférico*". Serie Páramos. No. 1. Abya Yala Publishers
- Guhl, E. 1991. *Los páramos circundantes de la sabana de Bogotá*. Jardín Botánico José Celestino Mutis.
- Hernandez, C. & Rodríguez J, 1979. *Dos nuevas taxa del género Grallaria*. Caldasia. Vol XII # 60 (5)
- Instituto de Hidrología, Meteorología y Estudios Ambientales (IDEAM) y Ministerio del Medio Ambiente, 1999. *El macizo colombiano y su área de influencia inmediata*. First version. Bogota.
- Instituto de Investigación de Recursos Biológicos Alexander Von Humboldt, 1999. *Informe Nacional sobre el Estado de la Biodiversidad*. Tomo III. Capacidad Actual para la Conservación y el Uso Sostenible de la Diversidad Biológica. First Edition
- Instituto de Investigación de Recursos Biológicos Alexander Von Humboldt, 1997. *Lista preliminar de especies vegetales ubicadas en alguna categoría de amenaza*. Programa de Biología de la Conservación. Internal Report
- Ministerio del Medio Ambiente- UAESPNN. 1999. *Participación social en la conservación en la biodiversidad*. Bogotá.
- Ministerio del Medio Ambiente. UAESPNN. Decreto 1124 de 1.999. Bogotá. 1999
- Orejuela, J. E. . 1985. *Tropical forest birds of Colombia: a survey of problems and a plan for their conservation en: diamon, A.W. y T.E. Lovejoy (eds) conservation of tropical forest birds*. ICBP technical. Publication No. 4 Paston Press. Norwich. UC.
- Revista Innovación y Ciencia. 2000. *Los Páramos Andinos Frente al Calentamiento Global*. Vol IX
- Stotz, D.F., J.W. Fitzpatrick, T.A. Parker III, & D.K. Moskovits. 1996. *Neotropical birds: Ecology and Conservation*. Chicago. University of Chigago press

Background References Used

- Díaz Ibarra, S.L. 2000. *Caracterización de comunidades vegetales de páramo en el volcán Doña Juana, cordillera centro oriental de los andes colombianos*. Unpublished report. Departamento de Biología Universidad del Cauca
- Ministerio del Medio Ambiente- UAESPNN. 1999. *Sistema nacional de áreas protegidas- SINAP*. Bogotá.
- Organización Internacional de Maderas Tropicales (OIMT). 1998. *Actualización forestal tropical*. Boletines de la Organización Internacional de las Maderas Tropicales.

- Quintana, C.A. 1999. *Proyecto de planificación de fincas, agroecología y organización comunitaria en la subcuenca del río Piendamó*. Corporación Inter-institucional del Trópico Andino para el medio Ambiente – CITMA
- PLADAMASUR. 1998. *Plan de Desarrollo Ambiental y Productivo del Macizo Colombiano y Sur del Cauca*
- Sturm, H. & O. Rangel. 1985. *Ecología de páramos andinos. Una Visión Preliminar Integral* Universidad Nacional de Colombia.
- Asociación centro Nacional Salud, Ambiente y trabajo Agua Viva. CENSAT AGUA VIVA. 1999. *Páramos y bosques de niebla*. IV Conferencia Latinoamericana de Páramos y Bosques Altoandinos. Málaga, Santander, Colombia.
- UAESPNN. 1999 *Plan de manejo institucional del parque nacional natural nevado del Huila*. Internal report
- UAESPNN. 1999. *Plan de manejo institucional del parque nacional natural Puracé*. Internal report.
- UAESPNN. 1999. *Plan de manejo institucional del parque nacional natural Cueva de los Guácharos*. Internal report
- UAESPNN. 1999 *Plan de manejo institucional del parque nacional natural las Hermosas*. Internal report
- Zambrano P.R *et al.* 1996. *El páramo, ecosistema a proteger*. ECOAM.

ANNEX L - PROJECT CATEGORISATION SHEET

<u>a. Focal Area Categories</u>					
<u>Biodiversity</u>		<u>Climate Change</u>		<u>International Waters</u>	<u>Ozone Depletion</u>
Conservation ✓		Energy conservation (prod./distribution)		Transboundary Analysis	Monitoring:
in situ ✓	ex situ	ESCO' s	Efficient Designs	Strat. Action Plan Development	ODS phase out (Production)
Sustainable Use		Solar:		Freshwater Basin	ODS Phase Out (Consumption)
Benefit-sharing		Biomass:		Marine Ecosystem	Other:
Agrobiodiversity		Wind:		Wetland Habitat	
Trust fund		Hydro:		Ship-based	
Ecotourism		Geothermal:		Toxic Contaminants	
Biosafety		Fuel cells:		GPA Demonstration	
Policy & Legislation ✓		Methane recovery:		Fisheries Protection	
Buffer Zone Dev. ✓		Other:		Global Support:	
<u>b. Categories of General Interest</u>					
Investment ✓		Technical Assistance ✓		Targeted Research	Land Degrad.
Technology Transf		Small Islands		Info/Awareness ✓	Private Sector
<u>c. Community & NGO Participation</u>					
<i>involvement type</i>	<i>project design</i>	<i>Implementation</i>	<i>info/awareness</i>	<i>consultation</i>	
<i>Names of Communities and NGOs involved</i>					