

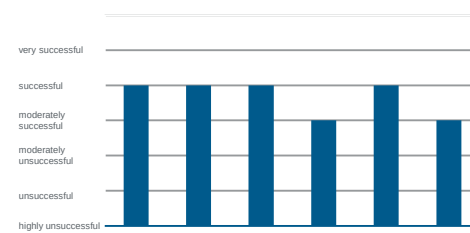
Ex-post evaluation of protected area programme, Ecuador

Title	Protected area programme		
Sector and CRS code	Biodiversity 41030		
Project number	2008 65 477		
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)		
Recipient/Executing agency	Republic of Ecuador/Ministry of Environment (Ministerio del Ambiente)		
Project volume/ Financing instrument	EUR 20,500,000/budget funds for grant		
Project duration	12/2008 (financing agreement) to 12/2019 (final inspection)		
Reporting year	2024	Year of random sample	2021

Overall rating:
successful

Objectives and project outline

The objective at outcome level was to strengthen prioritised areas of the national protected area system by involving regional and local actors in management responsibility. At impact level, the aim was to contribute to the conservation of biodiversity. The project comprised four components: (1) consolidation of existing protected areas, (2) establishment and integration of new sub-national protected areas along with establishment of ecocorridors, (3) strengthening the financial sustainability of the protected areas, and (4) strengthening the executing agency.



Key findings

The project had positive developmental impacts in the structuring and financing of protected area management. However, risks remain with regard to its sustainable financing. Nevertheless, the project has been rated "successful" for the following reasons:

- The design and subsequent implementation were tailored to the national strategies and made a significant contribution to their implementation.
- The measures were implemented almost according to plan and were of good quality overall.
- The project was complex, with many awards of contracts and a comparatively long implementation period. Following an interim evaluation, the project focused on a smaller, more manageable number of protected areas to be promoted.
- Results of deforestation analyses show a declining deforestation dynamic for the promoted protected areas. Overall, however, the data on the state and development of biodiversity in the promoted protected areas is insufficient. As a result, the evaluation of the overarching impacts is subject to uncertainty.
- The combination of the financing of investments in individual protected areas and the capitalisation of the protected area fund (FAP) is a success factor of the project. The FAP contributes to the sustainable financing of protected area management.
- The project had a structural impact on Ecuador's entire protected area system.

Conclusions

- With sufficient capitalisation, protected area funds make a significant contribution to partial financing of ongoing costs and thus to safeguarding the sustainability of the impacts.
- Interim evaluations can be a useful tool for increasing efficiency and effectiveness.
- Lack of monitoring data on the status of biodiversity in the protected areas makes it difficult to prove impacts.

Ex post evaluation – Rating according to OECD-DAC criteria

Overview of sub-ratings:

Relevance	2
Coherence	2
Effectiveness	2
Efficiency	3
Impact	2
Sustainability	3
Overall rating:	2

Project Summary

The aim of the programme was to strengthen prioritised areas of Ecuador's national protected area system (Sistema Nacional de Áreas Protegidas, SNAP) by involving regional and local actors in management responsibility. This was intended to contribute to the preservation of Ecuador's biodiversity at a higher level. The Ecuadorian Ministry of the Environment (Ministerio de Ambiente del Ecuador, MAE) was the executing agency.

The project's target group was in particular the population in the vicinity of protected areas and ecocorridors as well as the institutions responsible for managing the protected areas at municipal, regional and national level (indirect target group). The programme was designed as an open programme and comprised four fields of action.

1. Consolidation of priority national protected areas (Patrimonio de Áreas Naturales del Estado, PANE).
2. Establishment and integration of additional new sub-national protected areas into the National System of Protected Areas (SNAP) and establishment of ecocorridors.
3. Strengthening the financial sustainability of SNAP.
4. Implementation of accompanying measures to strengthen the Ministry of the Environment.

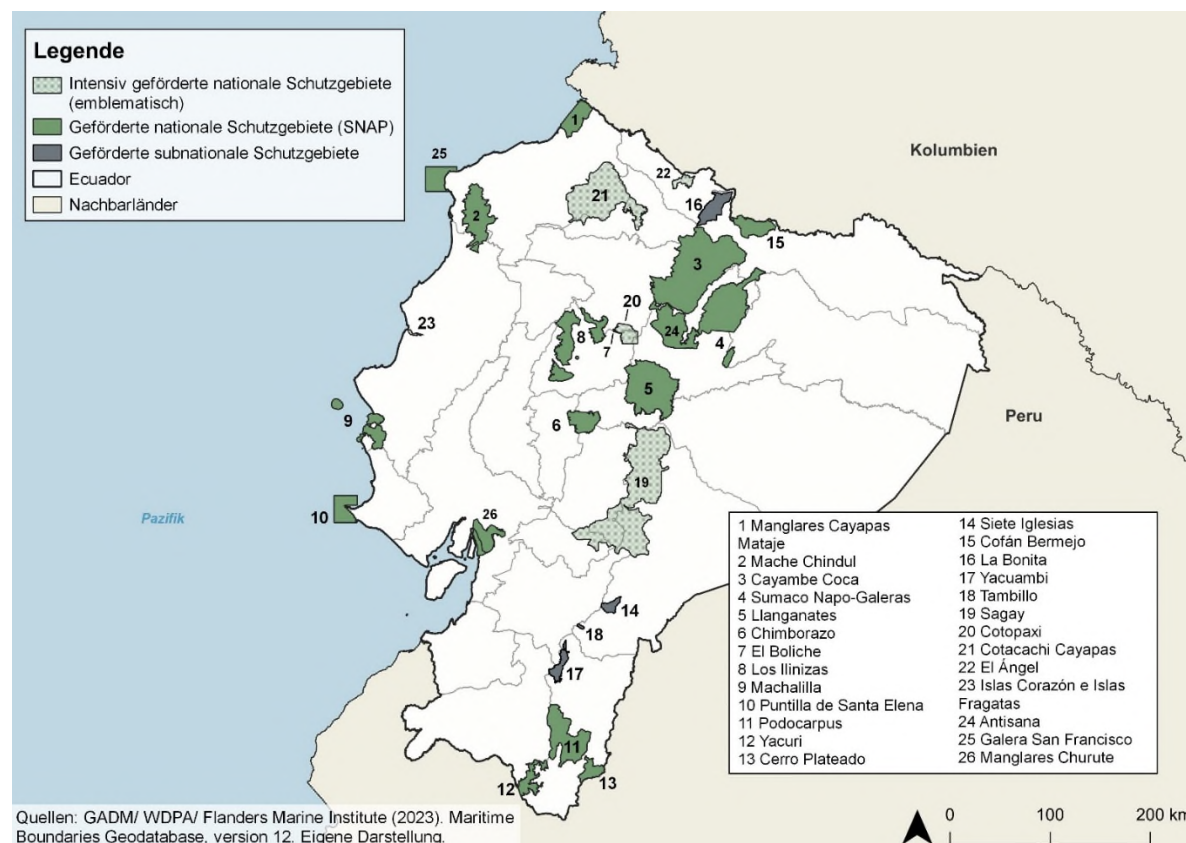
The programme was implemented nationwide in 22 protected areas at national and territorial authority level, five of which were given special priority. It also supported the establishment of new protected areas and funded measures to promote sustainable economic systems in ecocorridors.

Total costs

In EUR million	Investment (planned)	Investment (actual)
Investment costs (total)	31.11	33.26
Counterpart contribution	4.31	6.77
Financing	26.80	26.49
<i>of which BMZ budget funds</i>	<i>20.50</i>	<i>20.20</i>

Map/satellite image of the project country including project areas

Figure 1: Overview of promoted protected areas



Rating according to OECD-DAC criteria

Relevance

Alignment with policies and priorities

The protected area programme was intended to contribute to the preservation of biodiversity and the natural livelihoods of the population as part of the national biodiversity strategy, the so-called “Patrimonio de Áreas Naturales del Estado (PANE)”, and to strengthen the national protected area system “SNAP” (Sistema Nacional de Áreas Protegidas). The project’s objectives were therefore in line with the Ecuadorian government’s objectives at the time of the project appraisal in 2008. At that time, the Ecuadorian government had adopted a new strategy (Políticas y Plan Estratégico Sistema Nacional de Áreas Protegidas) aimed at strengthening the national protected area system through consolidation and targeted expansion of the national (PANE) protected areas as well as the establishment of new, decentralised protected areas.

The strategy also envisaged a greater integration of existing protected forests into the national protected area system and the creation of ecocorridors to preserve and bolster the biological interconnection of natural spaces. The challenges identified in the national strategy papers were the sustainable management of the protected areas, in particular its sustainable financing, the promotion of cooperative measures that promote the active and voluntary contribution of the (indigenous) population in the protected areas and the improvement of biodiversity monitoring. The design of the programme to be evaluated was in line with these challenges and was closely aligned with Ecuador’s national strategy. Ecuador’s protected area policy updated in 2022 (Plan Estratégico del Sistema Nacional de Áreas Protegidas del Ecuador (2022–2032)) consistently continues to implement the 2007

strategy. Therefore, the current strategic orientation is also in line with the objective of the programme to be evaluated. The updated strategy of the National Protected Area System (2022–2023) also demonstrates the relevance of the selected topics, as, for example, sustainable protected area management and its financing, the strong participation mechanisms with regard to the local population and the integration of previously under-represented ecosystems continue to be of high importance. Ecuador achieved the Aichi goals for the protected area in 2020 and joined the “High Ambition Coalition” as well as committing to the goal of expanding the proportion of area protected to 30%. As an interim conclusion, it can therefore be stated that the programme was and is in line with Ecuador’s national objective and strategic orientation from both a current perspective as well as from the perspective of the time.

The project aligned with the German-Ecuadorian DC programme “Protection of the environment and natural resources”. The design of the project (as well as that of the overarching FC programme) aligned with and continues to align with the German DC targets for the protection of biodiversity, which are expressed, among other things, by a) the “Global Biodiversity Framework”, b) the 2030 Agenda with the project’s contribution to Sustainable Development Goals 15, 13 and 1 (see also the section on the 2030 Agenda), c) the Federal Ministry for Economic Cooperation and Development (BMZ) “Biological Diversity” sector concept and its recommendations for action, as well as d) the “One Health” strategy.

The area of climate action played a moderate and not explicitly highlighted role in the planning and implementation of the project (KLA 0, KLM 1), although many protected areas of the SNAP are also relevant from a climate action perspective and the project contributed to this. This applies, for example, in the area of sustainable water use for the “Reserva Ecológica (RE) El Ángel” (adaptation) and the conservation of mangrove forests in the “Reserva de Vida Forestal Isla Corazón e Islas Fraguas”. Programmes for reducing greenhouse gas emissions (GHGs) and increasing climate resilience, to which the improvement of protected area management also contributes, are anchored within the “Nationally Determined Contributions” and the “Estrategia Nacional de Cambio Climático 2012–2025”. For example, the resilience of the water supply is strengthened by the sustainable protection of the wetlands of RE El Ángel.

The project was institutionally embedded in the national protected area system and was within the framework of the standards applicable there. The Ministry of the Environment acted as the executing agency. The choice of the executing agency was appropriate as it has responsibility on a national level.

Alignment with needs and capacities of persons concerned

The project’s target group was the population in the protected areas and their surroundings as well as in the biodiversity corridors (corridors that connect protected areas with each other). Indigenous population groups and women were identified as particularly vulnerable parts of the target group. In fact, the population around the protected areas visited by the evaluation mission consists predominantly of smallholder farmers with indigenous and mixed population groups.¹ The target group is the right one, as smallholders benefit from sustainable land use to safeguard their livelihoods. At the same time, smallholder farming also poses a risk to biodiversity in the protected areas, as it is in the interests of smallholders to extend the land they use to the protected areas. Against this background, the project required close cooperation with the population from the planning stage to implementation. Among other things, the design provided for the development of concrete guidelines for cooperation with the local population as an integral part of the management plans for the protected areas and the follow-up of the cooperation. Furthermore, Component 2b of the project aimed to promote sustainable development measures in the buffer zones of individual protected areas as well as “bio-emprendimientos”, i.e. individual activities aimed at the sustainable use of natural resources, for example in the areas of sustainable forestry, tourism development, and organic cocoa and organic coffee cultivation, in the biocorridors. With the support of the “bio-emprendimientos”, the physical investments made to improve the tourist framework conditions and by taking into account participatory protected area management methods, the project also aimed to alleviate poverty as one of the main catalysts of usage pressure.

From today’s perspective, it would be preferable to involve the affected population even more closely in the management of protected areas, for example by participating in inspection visits, demarcation work and decision-making processes, in order to further mitigate conflicts of objectives between conservation and economic development opportunities, and to promote acceptance of nature conservation.

¹ According to the final inspection report, this is also the case for the areas not visited during the evaluation mission.

The funding measures were designed to promote women in co-determination committees both at individual project level and at the level of protected areas and, in particular, to involve them in participatory processes. Further promotion of women was neither explicitly envisaged as part of the project nor part of the target system. Accordingly, a more in-depth analysis of gender impact potentials was not carried out. Due to the fact that the project's objectives were primarily ecological and the fact that, at the time of the appraisal, the promotion of gender equality was not yet a priority focus area of German DC, this is acceptable and should not be evaluated as a deficiency.

From the current perspective, human rights aspects could have been given greater consideration in order to introduce the executing agency to international environmental and social standards at an early stage (e.g. development of a complaints mechanism for the protected areas).

During project planning, the ESIA identifier C was assigned, no need for action. This no longer corresponds to today's understanding of the potential risks associated with the project. Particularly in view of the fact that illegal actors in the park (e.g. poachers, gold prospectors, etc.) may be armed, violent confrontations cannot be ruled out. A classification in category B+ therefore seems appropriate at present.

Suitability of project concept

At the time of the appraisal, unsustainable agricultural production techniques, the expansion of agricultural production to higher altitudes and the high poverty levels of the predominantly indigenous local population were identified as structural causes of the increasing usage pressure on the existing protected areas and their protected flora and fauna. The usage pressure is amplified by greater temperature fluctuations and changed precipitation patterns as a result of climate change. The following main constraining factors regarding the effective protection of biodiversity within the protected areas and the sustainable use of natural resources around them were identified: (a) a lack of a legal framework for the establishment of the new sub-national protected areas, (b) a lack of capacity of the responsible institutions at national, regional and local level, and (c) lack of financial resources for the adequate management of existing protected areas and for the inclusion of additional areas in the system. While (a) falls under technical cooperation, the constraints listed under (b) and (c) were to be addressed with the following measures:

- (1) Consolidation of priority national protected areas (Patrimonio de Áreas Naturales del Estado, PANE).
- (2) Establishment and integration of additional new sub-national protected areas into the National System of Protected Areas (SNAP) and establishment of ecocorridors.
- (3) Strengthening the financial sustainability of SNAP.
- (4) Implementation of accompanying measures to strengthen the Ministry of the Environment.

Through investments in the construction of park infrastructure (e.g. administrative buildings, accommodation for rangers, control posts) and the financing of equipment (vehicles, GPS devices, communication equipment) in the national protected areas (PANE) and the new, sub-national protected areas (SNAP), the aim was to strengthen the capacities for the administration, control and protection of the promoted protected area system. This, as well as training measures for staff and updating management plans, was also intended to increase management effectiveness. Additional investments in the development of tourist infrastructure were intended to increase the attractiveness of the protected areas for visitors. The resulting hoped-for increase in visitor numbers would strengthen the protected areas on the revenue side. The project provided for further capitalisation of the "Fondo de Areas Protegidas" (FAP) amounting to EUR 5 million to ensure the sustainable operation of the financed infrastructure and generally stabilise the financial sustainability of the Ecuadorian protected area system. The FAP is part of the overarching environmental protection fund "Fondo de Inversion Ambiental Sostenible" (FIAS) and serves specifically to finance ongoing costs in Ecuador's national protected areas. Sustainable economic systems were to be promoted within the ecocorridors in order to create income opportunities and reduce usage pressure. Together, the planned activities and the results at outcome level were intended to "strengthen the national protected area system (SNAP) in priority regions with the involvement of regional and local actors in management responsibility". A contribution to the "preservation of Ecuador's biodiversity" was to be made at an overarching impact level through the stabilisation of numbers of key species, declining deforestation in the protected areas and improved living conditions within and outside the protected areas (see Figure 2 for a graphical representation of the Theory of Change).

Scientific meta-studies show that protected areas are in principle an appropriate approach to protecting biodiversity, and contribute to stabilising population sizes and their diversity.² The few contrafactual studies³ that are able to make causal statements about the effectiveness of protected areas by identifying suitable comparison groups via matching procedures also achieve positive results.⁴ Overall, the planned measures were expedient in addressing the core problems. The objective of the project seems realistic and the underlying impact logic coherent in itself.

The selected target indicators were essentially taken from the impact matrix of the SNAP itself and were mostly well suited for determining the target achievement. In the course of the EPE, indicators were slightly adjusted so that they correspond to the current formal requirements of the Federal Ministry for Economic Cooperation and Development (BMZ).

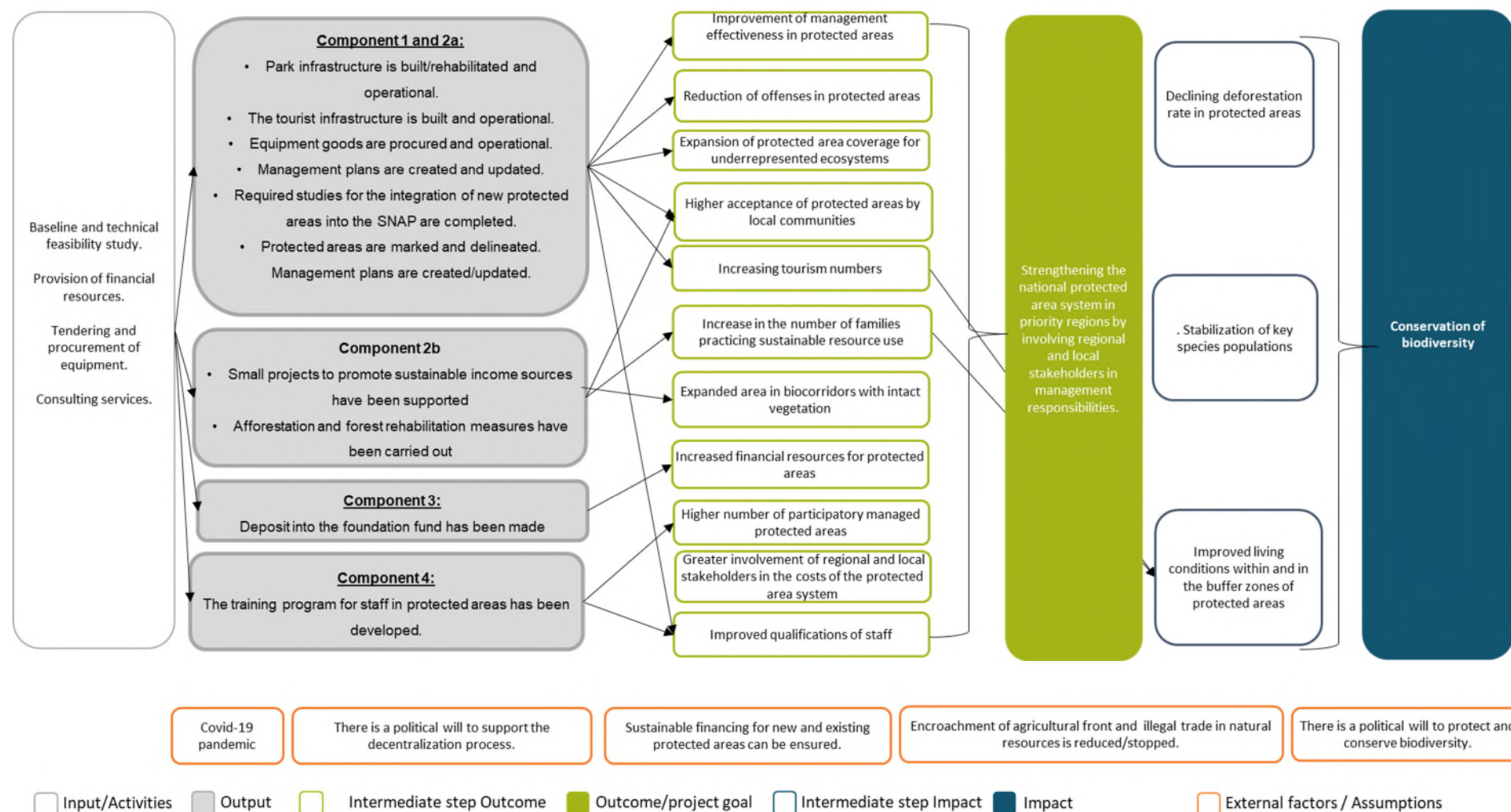
The project's original design pursued a holistic approach. It aimed to promote sustainable forms of economic activity in the eco-corridors and buffer zones in order to improve the living conditions of the local population and reduce usage pressure. Local residents were also to benefit indirectly from the promotion of park tourism. It should be noted that in the design only a part (not specified at the time) of the EUR 8 million provided for component 2 was intended for the economic promotion of the local communities. Poverty alleviating effects could therefore be expected selectively, but not on a broad scale.

² Examples are the studies by Bruner et al. 2001 (Bruner A., Gullison R., Rice R., da Fonseca G., 2001, Effectiveness of Parks in Protecting Tropical Biodiversity. *Science* 291, pp. 125–128) and Leverington et al. 2010 (Leverington F., Costa K., Pavese H., Lisle A., Hockings M., 2010; A Global Analysis of Protected Area Management Effectiveness. *Environmental Management* Vol. 46, 685–698.).

³ Causal studies that use a suitable comparison group and a temporal before/after comparison to make statements about what would probably have happened without the evaluated intervention (i.e. forest conservation measures).

⁴ Examples are the studies by Andam et al. 2008 and 2013 (Andam K.S., Ferraro P.J., Pfaff A., Sanchez-Azofeifa G.A., Robalino J.A., 2008, Measuring the Effectiveness of Protected Area Networks in Reducing Deforestation. *Proceedings of the National Academy of Sciences*, Vol. 105 (42), pp. 16089–16094. <https://doi.org/10.1073/pnas.0800437105>; Andam K.S., Ferraro P.J., Hanauer M.M., 2013. The effects of protected area systems on ecosystem restoration: a quasi-experimental design to estimate the impact of Costa Rica's protected area system on forest regrowth. *Conserv. Lett.* 6 (5), 317–323. <https://doi.org/10.1111/conn.12004>).

Figure 2: Programme's Theory of Change



However, direct integration of the local population into protected area management, for example by remunerating member of the local population to take part in patrols or by enabling them to receive a proportion of the entry fees, as is now customary in some sub-Saharan African countries, was not envisaged.

Reaction to changes/adaptability

At the time of the project appraisal, support was planned for 22 named protected areas, subject to any adjustment of the list by the Ecuadorian Ministry of the Environment. Following a mid-term evaluation of the project in 2014, the recommendation was made to reduce the use of the project's funds to a limited number of so-called "emblematic protected areas". While the basic approach of supporting the overall SNAP system has not been changed, the investment measures subsequently focus on five selected protected areas. The programme has therefore demonstrated its adaptability in an exemplary manner. The decision to focus on emblematic protected areas was made mainly for pragmatic reasons: for example, the mid-term evaluation in Ecuador showed that geographically central protected areas were preferred in order to facilitate the implementation of the investments, as well as those with potential synergies with new sub-national protected areas to be established and with the eco-corridors to be created. In terms of relevance, it would have been desirable to base the selection more on the priorities of the national strategies.

Rating summary:

In its design, the programme was precisely aligned with Ecuador's national strategies in the area of the development and management of protected areas and was intended to make an important contribution to their implementation. The relevance is also reflected in the fact that the relevant approaches are updated in the country's current strategies and policies. The various components of the project address the different challenges identified in the strategies. The design was also geared towards the needs of the target group. Overall, the project's relevance is rated as successful.

Relevance: 2

Coherence

Internal coherence

The current overall German DC programme in the field of biodiversity in Ecuador is intended to contribute to the "preservation of natural bases for livelihoods through the protection, valorisation and sustainable use of biodiversity and ecosystem services". Strengthening institutional capacities for biodiversity conservation, efficient and effective conservation area management as well as the sustainable valorisation of biodiversity, taking into account sustainability standards and involving the local population, all play an important role.

The programme was an expedient addition to FC's existing portfolio for the conservation of natural resources. In particular, it supplemented the *Socio-Bosque programme (Programa Socio bosque, PSB)*, which was launched in 2008 on the initiative of the Ecuadorian Ministry of the Environment and is currently also financed from FC funds (Programme Forest Protection (Sociobosque) and REDD, BMZ No. 2009 66 846). Under certain preconditions, PSB provides funds for forest protection for indigenous and Afro-Ecuadorian communities as well as private forest owners in order to offer a financially viable alternative to illegal timber exploitation and thereby reduce pressure on biodiversity. Various activities supported by GIZ help promote sustainable value chains ("supply chains") that work towards the same goal in parallel with the protected area programme, mostly with other actors. According to the appraisal report on the evaluated programme, it was also planned that TC would support an adjustment of secondary law in the biodiversity sector in order to help supervise the implementation of the above-mentioned Ecuadorian policies and improve the framework conditions for sustainable protected area management. In fact, the GESOREN TC project (up to 2013) provided close supervision for the "Siete Iglesias" municipal protected area, for example, which also contributed to the success of the FC support for this protected area. The mid-term evaluation of the programme evaluated here recommended working more closely with the TC project "Pro-Cambio" from 2016. However, no indications in this respect could be found in reports and discussions held as part of the EPE.

The implementation of the programme was consistent with international norms and standards. The Protected Areas Programme contributed to the achievement of the United Nations 2030 Agenda, in particular to Development Goals 13 (Climate action), 14 (Life below water) and 15 (Life on land) and to the key objectives of the Biodiversity Convention Action Plan, in particular to Targets 11 (protected areas), 14 (ecosystem services) and 12 (conservation of endangered species). By protecting forests as important CO₂ sinks, the programme contributes to climate change mitigation and is therefore in line with the Paris Agreement. The programme also takes into account the economic interests of local communities. At the time of project planning, there was neither a binding human rights concept nor the corresponding Federal Ministry for Economic Cooperation and Development (BMZ) guidelines, which were issued in 2011 and 2013 respectively.

External coherence

The investment measures, the promotion of protected area management, including the contribution to its sustainable financing under FIAS, as well as the management methods used here, were well embedded in the framework set by the Ecuadorian government and the commitment of other international donors. The project supported the state mechanisms for protected areas: the PANE in the area of overarching strategy, the FIAS in the area of financing and the SNAP when it came to protected area management.

As far as sustainable financing is concerned, one of the main challenges has been the ongoing provision of operating resources for the protected areas at national budget level. The FIAS is a nature conservation fund with a foundation-like legal form and capitalisation of approximately EUR 110 million (as at 31 December 2021). The Fondo de Areas Protegidas (FAP), which was set up specifically for protected areas and which currently has capital of USD 27 million, is part of the FIAS. The Ecuadorian government as well as various international donors and private organisations (e.g. NL, GEF, WWF, UNESCO, AGIP, LUNDIN) contribute to the financing of the capital stock, whose returns are used to provide some of the financing for ongoing operating costs in the protected areas. With regard to strengthening the SNAP's financial sustainability, the programme being evaluated here worked closely with the "Programa de Sostenibilidad Financiera" financed from GEF funds (Global Environmental Facility) and implemented by the UNDP. As part of the above-mentioned programme, GAP analyses of the financing needs of all protected areas and further measures to improve financial sustainability were carried out. Participation in this fund is also of greater significance across the full scope of this programme because it harmonises various donor contributions in this area. Comparable payment modalities and also the uniform mechanism for using the fund's resources in operation and maintenance contribute to comparable standards in different protected areas.

With regard to the management principles to be promoted, existing approaches were further developed and extended to the entire protected area system. For example, the technical support as part of the "Aula Verde" training programme aimed at distributing professional management systems throughout the state protected area system (and not only to the protected areas supported by the programme). Unfortunately, however, sub-national protected areas were not systematically included here.

Measures to promote cooperation with local communities were also expediently embedded in the commitment of other donors. With regard to the participation of the local population in the project preparation and implementation, the protected area programme primarily used the methods, knowledge and experience of the "efi Programa de Pequeñas Donaciones del FMAM" (PPD) implemented by the UNDP. The PPD also financed projects to promote sustainable economic structures.

Rating summary:

We rate the internal and external coherence of the project as successful overall. In the case of the significant strengths in the use of national systems and existing capacities that cannot be overlooked, the non-consideration of sub-national protected areas in the promotion of management capacities by the "Aula Verde" had a slightly restrictive effect.

Coherence: 2

Effectivity

Achievement of (intended) goals

The aim of the programme was to “strengthen the national protected area system (SNAP) in priority regions by involving regional and local actors in management responsibility”. Strengthening here refers to both the expansion of the protected area and the qualitative improvement of management. Five indicators were formulated to measure the achievement of module objectives.⁵ The achievement of the targets at outcome level can be summarised as follows:

Table 1: Overview of target achievement at outcome level

Indicator	Status at PA	Target value according to PA/EPE	Actual value at PCR	Actual value at EPE
(1) Area of newly included, previously unrepresented or under-represented ecosystems in the SNAP	N/A	At PA: 100,000 ha	2019: 13,630 ha	2023: 99,067 ha Achieved
(2) Financial participation of regional and local actors in the budget of municipal and communal protected areas	Average budget of municipal and communal protected areas in the years 2012–2014: USD 232,527 ⁶	At EPE: Real budget increase compared to the base year by at least 5%.	2018: USD 524,221	2023: USD 274,705, which corresponds to a real budget increase of 7.6% compared to the base year 2013. Achieved
(3) Reforested/rehabilitated land in promoted biocorridors	N/A	At PA: 20,000 ha	2019: 52,809 ha	2023: 52,809 ha Achieved
(4) Number of national protected areas (Patrimonio de Áreas Naturales del Estado PANE) managed in a participatory manner ⁷	1 Protected area (Siete Iglesias)	At PA: 8 protected areas	2019: 6 protected areas	2023: 6 protected areas, corresponds to 75% of the target value. Partly achieved.
(5) Average value of management effectiveness	45.15 (from 22 protected areas)	Increase of the base value by 25% to 56.4 points	58 points. Equivalent to an increase of 28.5% compared to the base value	54.7 points: Equivalent to an increase of 21.15% Partially achieved

⁵ The indicators were partially adjusted ex post as part of the evaluation (see Appendices for more information). In addition to the five module target indicators, further indicators were defined in the project documents to map the success of the three main fields of action – (1) consolidation of PANE, (2) establishment and integration of sub-national protected areas in the SNAP, (3) capitalisation of the FAP. The additional indicators are listed in the appendices, but are not taken into account here, as the module target indicators already adequately map the module target achievement.

⁶ Total budgets of: AECM Siete Iglesias, Tinajillas Rio Gualaceño, La Bonita, Los Guayacanes/Mangahurco, Yacuambi, Runahurco.

⁷ The indicator is measured using the national management effectiveness evaluation (EEM – Evaluación de la Efectividad de Manejo), which in turn is based on the internationally recognised Management Effectiveness Tracking Tool (METT). As part of the EEM, the participatory management of protected areas is also measured on a scale of 0–21. A protected area is considered to be participatively managed if it has reached a minimum number of 15 points.

Contribution to goal achievement

The programme was largely implemented as planned at the time of the appraisal. As a result of an interim evaluation in 2014, the investment measures were limited to five selected protected areas, so-called “emblematic protected areas”, but did not abandon the basic approach of supporting the overall system of the SNAP.⁸ Therefore, the measures to strengthen financial sustainability and the management capacity of the protected areas continued to relate to the entire protected area system. Based on the findings gained during the on-site visits as part of the evaluation in the Cotopaxi, La Bonita and El Ángel protected areas, the decision to focus the investment funds is to be welcomed, as the significance of the individual measures in the five selected protected areas has been greatly increased and it can be observed that the protected area programme has actually made a significant and relevant contribution in these protected areas. This would not have been possible if the funds had been distributed across 22 protected areas. From the perspective of the EPE, the instrument of an interim evaluation has therefore proven to be an effective means of adjustment of the project concept to actual project developments.

Indicator 1: The project made a tangible contribution to expanding the protected area system to include under-represented ecosystems. The area target formulated in indicator 1 was almost achieved. In fact, the area of newly established, under-represented protected areas supported up to the time of the EPE is well above the target value. Since the final inspection in 2019, at least four new protected areas have been designated, in particular the “Reserva Marina Puerto Cabuyal – Punta San Clemente” with an area of over 130,000 ha. This also counts as an under-represented ecosystem. With the designation of new protected areas, around 20.5% of Ecuador’s total area is now under protection.

Indicator 2: A prerequisite for strengthening the protected area system is adequate cost sharing by regional or local authorities. Municipalities temporarily invested twice as much in the protected areas under their responsibility as in the baseline year 2012/13. As a result of the Covid-19 pandemic, contributions have fallen significantly, but are still above the initial level in real terms.

An important source of funding for the national protected area system is the FAP. The in-payment to the protected area fund (endowment/perpetual tranche) was made in the planned amount and in line with the stipulations, even though the structure of the fund was modified by the Ecuadorian government during project implementation. This also led to considerable challenges in project implementation. As a result, the EUR 5 million in-payment made as part of the programme to the FAP contributed to strengthening a fund that, combined with contributions from the Ecuadorian state, the World Bank, Conservación Internacional, Pluspetrol and Lundin Gold, has now grown to total over EUR 27 million.⁹ It is currently supporting 42 protected areas in Ecuador in the financing of operating costs of around USD 3 million annually. A total of around USD 24.3 million has flowed into the protected area system since the establishment of the FAP between 2002 and 2022.

The FAP contributes to reducing the remaining financing gaps of the protected areas (including all 22 supported by the programme). However, on a critical note, only the protected areas of the National System of Protected Areas benefit from this support and not those of the territorial authorities.

Indicator 3 shows the size of the areas outside protected areas (i.e. in biocorridors and buffer zones) that were supported under Component 2 through cooperation with the UNDP PPD through agroforestry, restoration and reforestation measures. In total, the activities took place across an area of 52,809 ha. Quantitatively, the target of 20,000 ha set at the time of the appraisal was significantly exceeded. However, it should be noted that these measures were not financed exclusively from FC funds and that the project being evaluated here was only one contribution to the achievement of the target. The evaluation team does not have any information on the qualitative condition of these areas.

Indicator 4: The number of protected areas using participatory management methods could be increased, albeit not to the desired extent. In total, only six of the protected areas supported achieved the specified minimum score of 15 points (on a scale of a maximum of 21 points) in the evaluation of participation. Analysis of selected

⁸ These protected areas were: Parque Nacional (PN) Cotopaxi, PN Sangay, Reserva de Vida Silvestre (RVS) Islas Corazón y las Islas Fragatas, Reserva Ecológica (RE) El Ángel and RE Cotacachi Cayapas.

⁹ The figures are taken from an FIAS report published to mark its 20th anniversary: Fondo de Áreas Protegidas Ecuador/Fondo de Inversión Ambiental Sostenible FIAS (2023). Fondo de Áreas Protegidas Ecuador 20 años. Quito, Ecuador.

questions from the EEM has also shown increased acceptance of the state protected areas and their administration by the local population since the start of the project.

Due to the improved tourist infrastructure, the number of tourist visits to many protected areas increased by 2019 and created employment opportunities for the local population. However, these figures fell significantly due to travel restrictions and other consequences of the coronavirus pandemic, and have been slow to stabilise. As part of the cooperation with the “Programa de Pequeñas Donaciones del FMAM” (UNDP) 2021 project, ecological employment opportunities were created in local communities. Here, the cooperation with an existing project, its contacts with the local population and the experience in cooperation with local communities had a positive impact on the implementation of the project’s measures. In total, more than 25,000 families were supported by this programme, which only received some financing from FC funds, according to UNDP reports. However, the PPD’s measures were concentrated on the eco-corridors and protected areas at sub-national level. As a result, the national parks did not benefit from these. The focus was on improving employee working conditions and supporting associations that now operate the shops and restaurants on the sites.

A systematic and functioning complaints mechanism for the local population with regard to the activities of the protected areas was set up as part of the project, but could not be identified as part of the EPE. Rather, the conversation partners made reference to many informal communication channels. These sound to be expedient, so there still exists the possibility to file complaints. Participation procedures, e.g. as part of the precise definition of the delimitation of protected areas, have contributed to taking into account the interests of the affected population.

Indicator 5: On average, management effectiveness has increased significantly in the promoted protected areas. Nevertheless, the target of an increase in the base value by 25% was missed by close to 4 percentage points. The indicator was measured on the basis of the national management effectiveness evaluation system (EEM – Evaluación de la Efectividad de Manejo), which is based on the internationally recognised Management Effectiveness Tracking Tool (METT).

In the area of the financed infrastructure, the creation of tourist infrastructure, park management stations, ranger stations and control posts improved the conditions for the permanent operation of the national protected areas. The control and monitoring activities were strengthened by the financing of visible borders between the protected area and other areas and of equipment (e.g. vehicles, radio communications, early warning systems regarding volcanic activities). The financed infrastructure examined as part of the EPE sample was of good quality. Although it now exhibits clear signs of wear, it remains largely functional. The vehicles found were heavily used, but still functioning. Motorbikes in particular have proven to be an important means of improving surveillance of protected areas, as they are particularly mobile and relatively inexpensive in terms of upkeep. The “El voladero” ranger station modernised as part of the project in the El Ángel protected area was severely damaged by an earthquake in 2019, is no longer usable and must be demolished. A radio communication system examined within the scope of the EPE sample – AEM La Bonita – was not functional. However, this was not due to technical reasons, but because the necessary licence fee had not been paid since 2019.

According to the information provided, the management plans for the protected areas created or revised with the help of programme funds align with Ecuadorian and international standards, but now urgently need to be updated.

The “Aula Verde” training programme and the support for the professionalisation of the management plans for the protected areas helped to strengthen the personnel’s technical capacities. The fact that the majority of park managers trained at the time still hold these positions is very positive, as it means that this remains effective today. On a more critical note, the protected areas in the protected area system of the territorial authorities have not benefited from these technical support measures.

Overall, the strengthening of infrastructure, the equipment provided for protected areas, cooperation with the local population and the creation of employment opportunities, the contribution to sustainable financing and the strengthening of the technical capacities of personnel contribute to improved conditions for sustainable park management and improved management effectiveness.

Quality of implementation

The programme was highly complex with many different components (infrastructure, technical and advisory support, sustainable financing, intervention in the area of the national protected area system but also within the framework of eco-corridors, municipal and provincial protected areas). The implementation of an interim evaluation of the project in 2014 contributed to increasing the quality of implementation. This interim evaluation – which is not carried out as standard in FC programmes – led to a decisive adjustment of the programme: the concentration of the investment measures on a limited number of protected areas and thereby an increase in the programme's significance in these areas.

Decisions by the Ecuadorian government with regard to the sustainable financing of the protected areas made management of the project difficult: the dissolution of the FAN as the predecessor model of the FAP/FIAS¹⁰ and the subsequent suspension of Germany's cooperation in the field of biodiversity with Ecuador in order to establish the FAP/FIAS significantly delayed the implementation of the programme and, due to higher prices resulting from inflation, also led to higher costs as the programme was delayed. The consultant's support for programme management took up a significant share of the financing (see Efficiency). The quality of the management was appropriate and satisfactory, taking into account the complexity of the programme.

Unintended effects (positive or negative)

There are no indications of unintended effects.

Rating summary: All in all, the planned components were largely implemented according to plan and in good quality. On a critical note, the territorial authorities were not taken into account in the technical support for the protected areas and the earthquake risk was apparently not sufficiently taken into account from a structural point of view, at least in the context of the rehabilitation of Reserva Ecológica El Ángel. The dissolution and subsequent re-establishment of the Protected Area Fund made it more difficult to manage this component of the project better. With regard to cooperation with the local population, the involvement of the PPD was successful. This would have been even more effective if even greater coherence had been achieved between the intervention area of the PPD and the programme. Despite these criticisms, we still rate the overall effectiveness as good, as the positive results clearly outweigh the negative ones and largely meet expectations.

Effectivity: 2

Efficiency

Production efficiency

Around 73.4% (EUR 24.4 million) of the programme's total costs were used for investment measures, e.g. infrastructure in existing and new protected areas (park management buildings, ranger stations, control posts, interpretation centres, sanitary facilities, paths, viewing points, equipment to improve control and monitoring activities, delimitation and physical delineation of prioritised sections of protected area boundaries, accommodation for park rangers, a training centre). This also includes the contribution to the capitalisation of the protected area fund of EUR 5 million each from FC funds and from Ecuador's budget funds.

This share of investment measures in the total costs of the project is within the scope of most projects in the area of promotion of protected area management. The construction and procurement prices were assessed as appropriate by the executing agency, consultant and as part of the final inspection independently of each other, also in view of the indisputably high construction quality. A random examination of individual construction contracts as part of the evaluation did not give any other result. The construction of the ranger station and the interpretation

¹⁰ In light of the arguments raised that (i) NGOs such as the FAN successively took over the responsibilities of state agencies and collected funds from international donors that the state was entitled to, the FAN was dissolved in 2014 by government decree in the third term of office of President Correa. The funds were to be liquidated as proposed by the government and transferred to the Ecuadorian state budget for use in environmental protection. The contractual agreements between KfW and the Ministry of the Environment did not permit this unilaterally ordered transfer of funds; the relevant clause instead provided for a bilateral agreement in the event of the FAN's dissolution. After a period of political tensions, the Ecuadorian government decided to establish the successor organisation FIAS; a private non-profit institution with the same objective as the FAN. This meant that the FAN's temporarily frozen assets could eventually be transferred to the FIAS. Source: Bath et al. (2020), Case Study 2: Public-Private Challenges in CTF Governance: FAN to FIAS in Ecuador.

centre in the Área Ecológica de Conservación (AECM) “La Bonita Cofanes – Chingual” can be used as an example. At USD 800 m² including sanitary and electrical facilities, prices were customary for the area. Specific costs for the other ranger stations/interpretation centres were also similar.

A total of 19.3% of the total costs went to services provided by the implementation consultant and measures to support programme management. At EUR 6.4 million, the amount is significantly higher than the EUR 4.3 million planned in the project appraisal. Approximately EUR 2.4 million was also spent as consulting costs on measures for strategy development, capacity building, communication and environmental education. Overall, this represents a high proportion of consulting costs and can be explained by the comparatively high complexity of the programme, which required comprehensive and wide-ranging support from the executing agency. The programme's various fields of action are as follows: structural support for the protected area system, e.g. via park management plans for the entirety of the national protected areas at the time, as well as a corresponding training programme. In addition, investments have been made in a number of protected areas that cover different regions of the country and which pose various challenges in the area of biodiversity. The necessary cooperation with and support of the local communities, albeit via the PPD, as well as the preparatory work to support the protected area fund FAP also contributed to comparatively high consulting costs. These various consulting services were necessary for the overall concept and were based on the executing agency analysis in order to work towards achieving the targets. Where applicable, efficiency could have been increased if the concentration on the so-called “five emblematic protected areas” had already taken place at the time of the project appraisal. In this case, consulting services could have been better focused in some cases. It would also have been possible to structure the contribution to the protected area fund in such a way that essentially the “emblematic protected areas” benefit from the ongoing support of the operating and management costs. This would have led to a higher level of coverage of these protected areas' operating costs. However, both of these measures would probably have had the consequence that the structuring effect with regard to the entire protected area system would have been lower.

The FC funds were implemented through 31 different awards of contracts, further small-scale awards of contracts within the scope of the disposition fund and a disbursement to the Ecuadorian central bank in relation to the contribution to the FAP. Overall, the programme is to be described as “small scale”. In the overall design, on the other hand, such a procedure seems justified in order to cover the needs of the individual protected areas and the different components in an appropriate and adequate way.

When awarding consulting contracts, it was noticeable that in addition to the contract for the implementation consultant, a total of 11 other consulting contracts, some of which were small scale, were awarded for different services. Some of these were services that had been planned from the outset, such as supporting the development of management plans for the protected areas and for indicator follow-up. In some cases, this also concerns consulting services that were not planned from the outset, which were used to solve unforeseen challenges so that the achievement of targets would not be jeopardised. The programme's flexibility to be able to respond to such challenges is to be welcomed and has contributed to its success. In order to make this flexibility even more efficient, it may have been prudent to examine whether a framework tender for corresponding consulting services could have reduced the overall expense.

On the timeline, project implementation was set at six years at the time of appraisal. In fact, the financing agreement was signed at the end of 2009, with the last disbursements made in October 2019 and the final inspection carried out in December 2019, i.e. ten years later. The suspension of the development cooperation between Germany and Ecuador in the area of biodiversity in 2014 and 2015 initially had a delaying effect against the background of exploratory drilling for crude oil extraction in the Yasuni National Park. Although this park was not directly affected by the programme's investments, it is still part of the Ecuadorian protected area system. This triggered a diplomatic crisis between Germany and Ecuador, which temporarily led to payments being stopped for a while. A further 24-month delay occurred when the Ecuadorian government unexpectedly initiated the dissolution of the National Environment Fund FAN in 2016, which had already received EUR 5 million from FC funds in 2011 (see Effectiveness).

These reasons are the main cause of the delayed implementation of the programme. The delays as such were beyond the influence of the programme. The prices for consulting services and construction work have increased moderately during this phase, which has a negative impact on the efficiency of the programme.

Allocation efficiency

In order to achieve the objectives at outcome and impact level, the programme started at two levels: the direct promotion of protected area management through investments in infrastructure and equipment and, in parallel, the capitalisation of the protected area fund FAP, which is intended to finance some of the ongoing costs of protected area management through the distribution of the achieved return on investment in the long term. With regard to one of the core problems that still exists to this day, the sustainable financing of protected area management, it would have been possible to fully concentrate the programme on supporting the sustainable financing of the operating and management costs of the protected areas by making in-payments to the FAP's fund assets. This would have led to higher annual payouts to the benefit of the protected areas and thereby may have ensured that they are better equipped over the long term. However, it is important to take into account that essential basic equipment for achieving the conservation objectives of the protected areas would have been lacking. In this case, a comparable level of control and supervision of the protected areas as well as attractiveness for paying tourists could probably not have been achieved. The combination of investment, capacity building, participation and promotion of sustainable financing is feasible against this background and appropriate in view of the programme's objectives.

Rating summary:

The high complexity of the programme, the high number of awards of contracts and the associated comparatively long implementation time from the start prevent a successful evaluation of efficiency. The rising prices during this period as well as the long-term delays, primarily for political reasons, have a moderately negative impact on the evaluation. The well-balanced distribution of the budget in relation to the programme's various target dimensions is a positive factor. To increase efficiency, it would have been desirable to concentrate the programme's investments on a limited number of protected areas from the outset.

Overall, we rate the FC programme's effectiveness as moderately successful.

Efficiency: 3

Impact

Overarching (intended) developmental changes

During the project appraisal, the objective at impact level was formulated as follows: Conserving the biological diversity of Ecuador. The target achievement is summarised in Table 2.

Table 2: Target achievement at impact level

Indicator	PA status	Target value according to PASNAP/EPE	Actual value at PCR	Actual value at EPE
(1) The situation of key species in the programme's intervention area is stable or has improved.				
(a) Vegetation cover of the "Páramo" in Reserva Ecológica El Angel in ha.	Vegetation cover of at least 1,426,100 ha	Vegetation cover remains at least 1,426,100 ha	Intact vegetation cover across 1,411,839 ha Achieved	Reduction of vegetation cover by 14,261 ha, which corresponds to a reduction of 1%. Partially achieved

(b) Mangrove area in the RVF Corazón y Fragatas	77 ha	At least 77 ha	663 ha Achieved	663 ha Achieved
(c) Number of <i>Tabebuia chrysantha</i> per parcel of land	60	>= 60	67 Achieved	67 Achieved
(d) Number of bird species in protected areas	N/A	Minimum 55		>55
(2) Average deforestation rate in the promoted protected areas.	Average deforestation rate between 2001–2009: 0.047% p.a.	At EPE: The average deforestation rate is declining, i.e. is below 0.047% p.a.	Average deforestation rate between 2010–2019: 0.04% p.a.	Average deforestation rate between 2010–2021: 0.04% p.a. or 0.025% p.a. between 2019–2021 Achieved

Contribution to overarching (intended) developmental changes

The evaluation of the programme's contribution to target achievement at impact level is based on limited data availability and plausibility considerations. Due to the size of Ecuador's protected area system, the diverse factors affecting the ecosystems and the limited project funds, the project activities can only have a limited impact on the preservation of biodiversity. Comprehensive data on the biodiversity situation within the protected areas supported is not available. Currently, there is neither a monitoring system for the status of biodiversity covering the entire protected area system nor decentralised monitoring systems that systematically record biodiversity within the individual protected areas. A multi-sectoral and scientific study¹¹ on the state of the large wetlands of the "Páramo" in 2023 describes in detail the problem posed by the limited availability of figure-based data on the state of flora and fauna nationwide.

As part of the project monitoring, a set of indicators (**indicator 1 and the associated sub-indicators**) was created to record the situation of key species in some protected areas. This programme's impact indicators were monitored and recorded in the programme's official final report in 2019. As a result, the indicators were deemed to have been met in the 2019 final inspection. No further surveys have been carried out since then, meaning that up-to-date, systematically prepared data was not available for all indicators up to the date of the ex-post evaluation. The sub-indicators for the size of the mangrove areas, the number of *Tabebuia chrysantha* and the number of bird species in protected areas have been met – only the intact vegetation cover of the Páramo has decreased slightly by 1% since the start of the programme (indicator 1a). Nevertheless, a 2023 scientific compilation on the state and development of biodiversity in the Páramo (a treeless, alpine tundra ecosystem in the Andes) concludes that "the protective effect of the protected areas existing under the SNAP in Ecuador is significant, and biodiversity within the protected areas relevant to the Páramo has improved or at least remained at the same level".¹²

However, a key limitation is that these sub-indicators are not representative of the status of biodiversity in the promoted protected areas and therefore, according to the evaluation team, have only limited significance when it

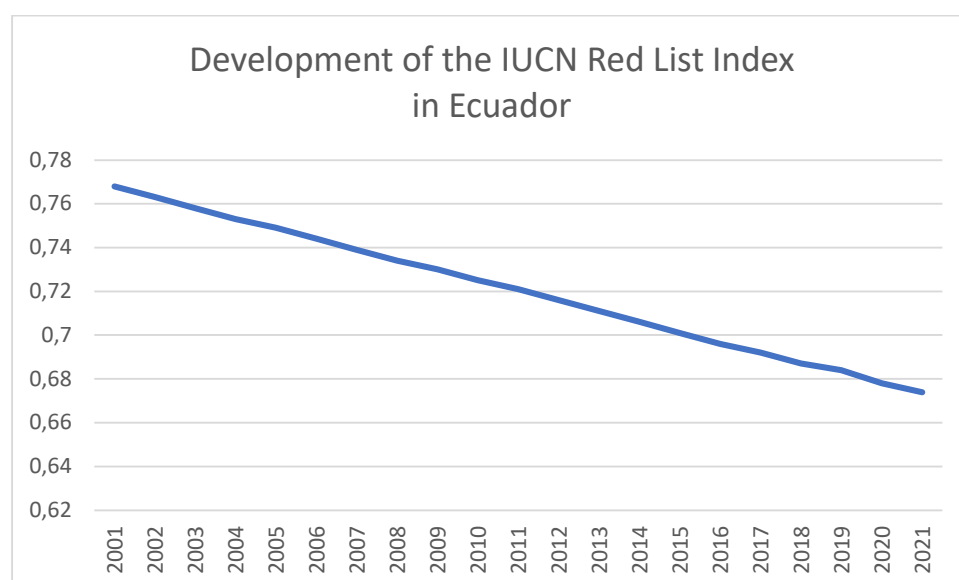
¹¹ Los páramos del Ecuador - Pasado, presente y futuro, <https://shorturl.at/bipC5>, 2023 (last accessed 06 June 2024)

¹² P. Mena-Vásquez, R. Hofstede, E. Suárez Robalino (Editor), 2023, Los páramos del Ecuador: Pasado, presente y futuro, USFQ Press. (<https://libros.usfq.edu.ec/index.php/usfqpress/catalog/book/32>, last accessed 19 February 2024).

comes to evaluating target achievement. The results are also in contrast to the development of the general threat to biodiversity in Ecuador according to the International Union for the Conservation of Nature (IUCN) Red List Index. The threat situation there has deteriorated continuously over the past 20 years (see Figure 3). The index measures the change in aggregate extinction risk for different species groups. Its value ranges from 1 (the risk of extinction is classified as “least worrying” for all species) to 0 (all species are classified as “extinct”), indicating how far the group of species has moved towards extinction overall. For Ecuador, the index value fell from 0.769 in 2001 to 0.674 in 2021 – the year of the last survey. A recent scientific study that specifically examines the threat situation of amphibians in Ecuador comes to a similar conclusion: Almost 60% of all amphibious species in Ecuador are currently considered endangered, with the number of endangered species doubling over the last 10 years (from 2011 to 2021).

The data does not allow conclusions to be drawn about differences in the threat situation between protected areas promoted and not promoted by the programme or between protected and unprotected areas in general. The overall negative trend in the Red List index does not mean that the programme considered here did not achieve any relevant impacts. For example, it is plausible that the threat situation would be even greater today without the programme. However, this cannot be said with certainty on the basis of the available data.

Figure 3: Development of the Red List Index



Source: Own representation based on OECD data (https://stats.OECD.org/Index.aspx?DataSetCode=RED_LIST, last accessed: 19 April 2024)

The development of deforestation is used as a further measure of the state of ecosystems in the protected areas promoted, and thereby for evaluating target achievement. Nationwide, the condition of forests has deteriorated over the past two decades (which is consistent with the increase in the threat situation according to the Red List Index). According to current calculations by Global Forest Watch, Ecuador lost around 954,000 ha of tree stock from 2001 to 2022, which corresponds to a tree stock downturn of around 5.0% since 2000.¹³ Around 25% of tree stock losses are caused by the destruction of humid primary forests. The total area of humid primary forest in Ecuador decreased by 227,000 ha during this period, which corresponds to 2.1% of the primary forest stock. At the same time, the area used for agriculture is steadily increasing; by approx. 900,000 ha. from 2000 to 2018.¹⁴ This statistic aligns with many statements from representatives of various institutions who were interviewed as part of the evaluation. They emphasized that there is significant pressure from outside the respective boundaries of the protected areas, which is currently being largely resisted by the efforts of the protected area management.

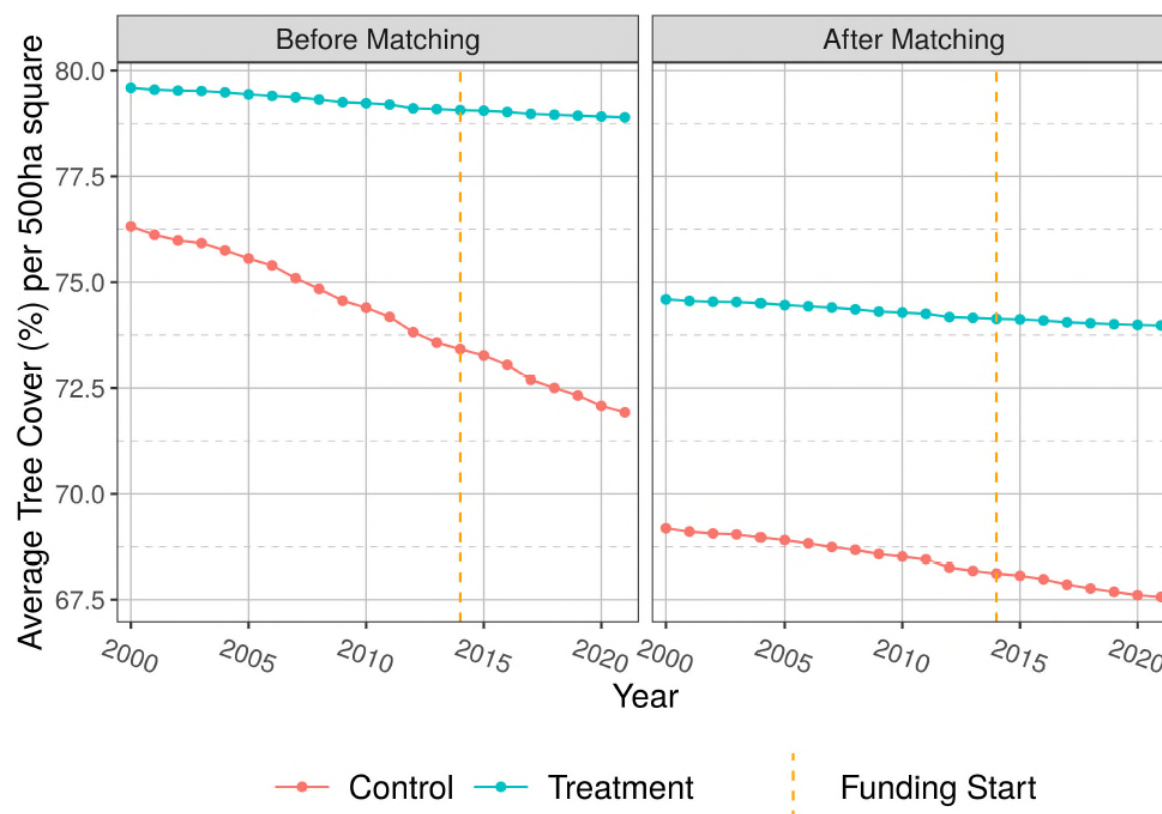
Figure 4 shows the development of the average afforestation rate on a 500 ha area between 2000 and 2022 for the protected areas promoted (treatment) and for areas outside protected areas (control) based on satellite data, provided by Global Forest Watch. The chart on the left in Figure 4 shows the deforestation trend for the total extent of supported protected areas promoted as well as for all forest areas outside the protected zones. The

¹³ Global forest watch. <https://www.globalforestwatch.org/dashboards/country/ECU/> (last accessed 29 February 2024).

¹⁴ [UNCCD Data Dashboard | Ecuador \(https://data.UNCCD.int/country-overview?country=ECU\)](https://data.UNCCD.int/country-overview?country=ECU), last accessed 19 February 2024]

figure shows that forest coverage has also declined in the promoted protected areas over the last 20 years, but to a significantly lesser extent than outside protected areas. In 2000, the average forest coverage rate in the 22 protected areas was around 79.5%, which corresponded to a forest area of around 1.94 million ha. The latest data only goes up to 2021. In this last observation year, forest area accounted for a proportion of around 78.9% on average, meaning around 1.932 million ha of the protected area were covered with forest. The annual deforestation rate in the protected areas promoted was an average of 0.047% of the forest area (2001–2009) in the years before the project appraisal (between 2001 and 2009). This figure stood at 0.04% for the implementation period 2010–2019 and 0.025% for the period 2019–2021. Indicator 2 is therefore achieved.

Figure 4: Deforestation trends inside and outside protected areas before and after the CEM process



Source: own representation (see Appendices for further explanatory notes).

However, since the designation of protected areas is not random, but the result of deliberate political decisions, there is the possibility that selection effects have arisen. These may be the cause of the different deforestation rates within and outside the protected areas.¹⁵ In fact, the different curves in Figure 4 illustrate that the deforestation rate in the unprotected areas was significantly higher than that in the protected areas before the investment measures carried out under the programme in 2014. A simple comparison between protected and unprotected areas therefore does not allow for reliable conclusions about the effectiveness of protected area management.

Statistical procedures can be used to address the selection bias described above. Here, protected areas are only compared with unprotected areas that are similar based on important deforestation parameters. An established procedure for identifying such a “statistical twin”, and thereby a suitable comparison group for the forest areas in the financed protected areas, is the Coarsened Exact Matching (CEM) procedure. CEM is also used in this EPE.¹⁶ For this purpose, Ecuador’s land area was first divided into small quadrates using geographic information systems (GIS) and analysed in terms of six characteristics – the forest area in 2000, the clay content of the soil,

¹⁵ For example, protected areas are often located in remote, sparsely populated regions or regions that have a lower agricultural use potential than other areas, and therefore tend to be subject to lower usage pressures.

¹⁶ The CEM procedure is based on Stefano M. Iacus, Gary King, and Giuseppe Porro, 2012. “Causal Inference Without Balance Checking: Coarsened Exact Matching.” *Political Analysis*, 20, 1, pp. 1–24.

the unevenness of the terrain (TRI), the area's average forest loss rate from 2001 to 2013, the altitude of the forest area and the travel time to the next city with more than 5000 inhabitants.¹⁷ Based on this analysis, areas outside the protected areas that are comparable with forest areas in the protected areas can be identified. The chart on the right in Figure 4 shows the results of the matching procedure. The significant displacements on the axes and the clear change in the curve for the unprotected areas compared to the left-hand chart result from the fact that areas inside and outside the protected areas that were not comparable with regard to one or more of the six selection characteristics were omitted by the procedure. Furthermore, it can be observed that the protected forest areas have a slightly lower deforestation trend (less steep curve) for the period after 2014 than the unprotected forest areas matched with them. Deforestation therefore progresses more slowly in protected areas than in unprotected areas with otherwise similar characteristics. Since, at the same time, the curves for protected and unprotected areas, but also for the period before 2014, still differ significantly despite matching procedures, a clear interpretation of the results with regard to the effectiveness of protected area management is unfortunately not possible even after CEM has been carried out.¹⁸ As an interim conclusion, deforestation progresses significantly more slowly in protected areas than in unprotected forest areas. However, a causal relationship between this result and the financed measures cannot be established due to the aforementioned limitations. However, from the perspective of the evaluation team, it appears plausible that the programme made a positive contribution to the conservation of natural resources and ecosystem functions through the expansion of the protected area system as well as the improvement achieved in the protected area system's management effectiveness and connectivity (see Effectiveness).

In addition to its main focus on the conservation of natural resources, the programme also aimed to reduce the poverty of the population within and outside the protected areas.¹⁹ Several programme activities indirectly or directly focussed on improving the possibility of generating income in sustainable ways. Indirect activities include the promotion of infrastructure and eco-tourism in the protected areas, which promote local tourism income through increased visitor numbers in the protected areas. The programme's financial contributions to the PPD implemented by UNDP in some parts of the project area in the amount of approximately EUR 1.3 million were of greater significance for the economic promotion of the local population. This was largely in parallel with the project implementation. PPD promoted environmentally sustainable, income-generating activities in direct cooperation with the local population in and around its peripheral zones and in the ecocorridors. According to UNDP, a total of 2,766 people, of whom 1,185 were women, were supported, e.g. in connection with the utilisation of non-wood products, sustainable tourism or sustainable coffee and cocoa production/marketing. There is no up-to-date data that provides quantitative conclusions on the development of the living conditions of the resident population.

As part of the evaluation, interviews were conducted with various local NGOs and park rangers. The discussions showed that the approaches presented are suitable for reducing the pressure on natural resources in the protected areas and, from an economic perspective, for increasing the income of the population.²⁰ In an overall view, it can be seen and plausibly derived that the intensive work of the PPD, the improved tourism potential in the emblematic protected areas due to the infrastructure and the increasing number of tourists up to the COVID-19 pandemic, have a positive effect on the economic situation. Precisely this combination of investment, technical support from the respective park administrations, use of the idea for bio-empresendimientos originating from the population groups themselves and the promotion of initiatives adapted to the protected areas (examples include a plant nursery in RE El Ángel, tourist guide association in RDFS Isla Corazón y Fragatas and women's groups for marketing tourism products in the Cotopáxi NP). However, the interviews also revealed that these effects, due to the consequences of the COVID-19 pandemic, which hit Ecuador particularly hard in a regional comparison, decreased from 2020. Recovery was delayed and is taking place slowly. Against the background of the above statements, it can be assumed that the programme had a positive impact on the population's income ratios. However,

¹⁷ These characteristics are among the most important factors influencing deforestation. For example, the travel time to the nearest city serves as an indicator for the forest area's accessibility. The ruggedness of the terrain affects the suitability of the area for mechanised timber harvesting and agriculture. Similarly, the soil's clay content and the altitude affect the agricultural usability of an area and thereby the risk of deforestation.

¹⁸ A root cause analysis has shown that the remaining differences after matching are mainly due to differences in average deforestation rates between 2001 and 2013. These were significantly higher in unprotected forest areas before the start of the implementation phase.

¹⁹ The programme has a poverty relevance label of 2. At the same time, improving living conditions was not explicitly part of the target system.

²⁰ One example of the promoted projects is a functioning plant nursery on the edge of RE El Ángel. It employs 15 people. The local population benefits from the plant nursery through affordable opportunities to use some trees grown here as land partitions. At the same time, the choice of tree species helps to improve the biodiversity in the area.

given the low expenditure on direct promotion of the local population, the income effects achieved are likely to be small. Beyond the direct effects, the programme generally contributed to improved recognition of the protected area system as such. By supporting a uniform image and uniform quality standards in all state protected areas, these are recognisable as a “brand”. The results of the programme also contributed to the establishment of an FC successor project with similar, albeit updated, principles.

Contribution to overarching (unintended) developmental changes

No unintended developmental changes were identified.

Rating summary: The evaluation of the overarching developmental impact is associated with greater uncertainty compared to the other evaluation criteria, as the data situation on the state and development of biodiversity in the promoted protected areas is insufficient and a causal relationship between the impacts and the measures cannot be established.

A large-scale scientific study from 2023 on the Ecuadorian Páramo found that protected areas in Ecuador actually have a positive effect on the biodiversity within them. This information aligns with selectively available project data as well as statements made by park managers and park rangers. However, meaningful data on the protected areas outside the Páramo is not available. In addition, the threat to biodiversity in Ecuador in general has worsened over the past two decades according to the IUCN Red List Index.

Deforestation in the protected areas could not be stopped. However, the average annual deforestation rates are slightly declining and significantly lower than rates for forest areas outside the protected area boundaries. This can be evaluated as a success. Overall, the data situation suggests that the promoted protected areas slow down the observed downturn in biodiversity in Ecuador, or even stop it in some cases, and therefore have positive effects.

Many measures successfully implemented as part of the programme via the PPD, but also beyond the PPD, also show an unquantifiable, positive trend with regard to increasing the income of the target population. However, this effect is low overall, was affected by the COVID-19 pandemic and has not yet recovered to the pre-coronavirus level. Overall, we rate the developmental impact as still successful, as it largely meets expectations.

Impact: 2

Sustainability *Capacities of participants and stakeholders*

As part of the EPE, the SNAP national protected area system, which was institutionally promoted by the programme, was regarded as a consolidated national institution within the framework of an overall concept for the protection of biodiversity in Ecuador: the basic tasks are defined and the structures created and supported in the course of the project measures continue to exist and fulfil their tasks within the scope of the existing possibilities. Unlike in many countries, the SNAP is directly integrated into the Ministry of the Environment MAATE.

The current administration of the MAATE was able to increase the speed and quality of in-house processes. Nevertheless, the Ministry is still far from being efficiently administered. A challenge – as in other institutions in the field of biodiversity – is the lack of adequately qualified staff, which is mainly due to the corresponding budget allocations. In 2021, a department for protected areas was established in the *Subsecretaría Patrimonio Natural*, which specifically contributes to improving the management of protected areas. This is seen by various sides as a right decision and reform processes have actually been advanced more effectively since then. However, there is no independent protected area authority with significant autonomy as of yet.²¹ This limits the possibility of efficiently implementing protected area management with specifically formulated goals and an independent budget on a continuous basis and with plannable resources. An example of this is the reduction in personnel in the protected areas since the coronavirus pandemic, which followed a general reduction in personnel in the MAATE. It is possible that with greater decision-making autonomy on the part of the protected area administration, the necessary cost-saving measures would have been different and less drastic for the local protection function.

Overall, however, there are permanent structures in the MAATE. The park management staff continues to have sufficient minimum qualifications and the “*Plan Estratégico Del Sistema Nacional De Áreas Protegidas del*

²¹ However, there are plans to create an independent protected area authority with certain degrees of autonomy.

Ecuador – 2022–2032” provides a solid framework for the further development of the protected area system. Moreover, the strategy can be seen as a credible indicator of continued commitment at national level to further actively support improved management of protected areas.

The municipal protected areas promoted under the programme continue to exist. Using the example of the AECM “La Bonita”, it was confirmed during the EPE that the implemented infrastructure is still in good condition and that self-financed maintenance measures are also being implemented on the park management building. However, the municipal financing contribution to the operation and maintenance of the AECM in 2023 (approx. EUR 60,000) was below the level of the year of the final inspection (EUR 88,000 in 2019). According to concurring statements by representatives of SNAP and the municipal park management, this is due to limited allocations to the budgets for municipal investment measures. A look at the development of the municipal investment budget of the canton of Sucumbíos, to which the local authority of La Bonita belongs, shows that investment funds tend to decrease between 2017 (close to EUR 3 million) and 2020 (approx. EUR 2.5 million), before increasing again since 2021 (approx. EUR 3.3 million) and 2022 (EUR 4.8 million). Funds for running costs over this period remained stable at EUR 580,000 to EUR 636,000 annually. The increase in the total budget of the municipality of La Bonita since 2021 has apparently not resulted in increasing allocations for AECM La Bonita since then. Consideration of the same figures in the budget for AECM Siete Iglesias yields comparable results. In summary, it can be stated that the municipal protected areas as an institution continue to exist and have a minimum level of political will to increase the attractiveness of the respective region for tourism in particular. The financial allocations are currently mainly limited to personnel, while funds available for the maintenance of infrastructure are limited.

The condition of the inspected infrastructure in the protected areas is still good overall, with the vehicles and motorbikes purchased, based on the sample, largely being in operation. Access to the park station in Sangay National Park is difficult due to the consequences of a volcanic eruption in 2019 and can only be reached by motorbike or on foot. At Reserva Ecológica El Ángel, the park building rehabilitated as part of the project measures was severely damaged by an earthquake and cannot be repaired. During the project visit as part of the EPE, a new building financed by Ecuadorian budget funds was under construction. The infrastructures represent an important and permanent element in the fulfilment of the tasks of protected area management in the SNAP. The maintenance of this function depends on the sustainable financing of the protected area system.

By funding and increasing the capital of the FAP, the programme has contributed to the financial sustainability of protected area management, as it has permanently ensured returns that support the coverage of operating and management costs of the protected areas.

Contribution to supporting sustainable capacities

Through the investment measures made in park infrastructure and equipment, the programme made a direct contribution to strengthening the physical infrastructure of the protected area system and improving the working conditions of the personnel there. With the implementation of the “Aula Verde” training programme, the programme has also contributed to the further qualification of the personnel responsible for protected area management. The programme also promoted the development of guidelines and manuals for the construction and maintenance of infrastructure and signage, including data sheets for estimating annual maintenance costs. These measures are intended to improve budget planning and fundraising, and thereby contribute to the financial sustainability of the SNAP. The guidelines and manuals, standardised design, equipment and processes for protected areas developed as part of the programme made a structural contribution to the design of the SNAP.

The programme promoted the institutionalisation of participatory cooperation between the protected area administration and the local population. This includes, for example, the measures promoted for delimiting protected areas, as they prevent avoid disputes between protected area management and the population over the exact boundaries of the protected areas. However, the main focus of the promotion for the local population was on financing new employment and income opportunities through the existing PPD. During the EPE, it became apparent that the sample of funded associations and cooperatives is still active and pursues business models that align with the basic idea of the sustainable use of the respective natural resources. However, it was not possible for the mission to develop a comprehensive, systematic picture because information provided by available statistics and reports was limited. The creation of the bio-emprendimientos has also strengthened the beneficiary population by contributing to the conservation purpose of the protected areas. In addition to promoting individual projects, the investment measures in tourism infrastructure within the protected areas have also improved the economic development opportunities for the neighbouring population. Provided that tourists continue to come to visit

the protected areas, it can be assumed at the present time that the structure created will be permanent. Overall, we therefore conclude that some sustainable structures have been created. A restrictive aspect was that the approach adopted for promotion of the local population – unlike what is now customary for biodiversity projects – was not holistic, but focused primarily on promoting income generation. On another critical note, with approximately EUR 1.3 million, both absolutely and relatively, only a small part of the funds directly went towards promotion of the local population.

Durability of effects over time

Ecuador has been in an economic crisis for several years, which was exacerbated by the outbreak of the COVID-19 pandemic. The downgrading of the country to “selective default” by international rating agencies, a sharp rise in unemployment as well as reallocations in the state budget are signs of the crisis. The economic problems are also detrimental to the conservation of natural resources and biodiversity, in particular in the form of lower budget allocations to the protected area system, personnel reductions in protected areas and, in general, less attention to these issues. This comes at the expense of the effectiveness of the protection and therefore undermines the impacts of the project. However, fewer protection efforts also come at the expense of social and economic development. This is because many of the country’s major cities (including the capital Quito) mainly source their drinking water from protected areas. A significant proportion of electricity is also generated from hydropower (from protected areas). In spring 2024, water and electricity were so scarce that they had to be rationed. This underlines the importance of the protected areas (particularly the Andean protected areas) for economic development.

Discussions with park rangers in protected areas visited, the inspection of logs and annual reports of the respective park administrations as well as the analysis of current reports on the effectiveness of protected area management show that the essential park management tasks are fulfilled. The programme has created structures based on national strategies and approaches through its contribution to the professionalisation of area management systems and also to the training of park managers at national level. The training efforts to date have also had a significant effect, particularly due to the consistency in the filling of the respective park management positions. However, it should be noted that the number of park rangers employed in the protected area system decreased from 733 to 621 between 2016 and 2021. The consequences of the COVID-19 pandemic in particular contributed to this. To date, the previous level has not been reached again, which tends to make it more difficult to fulfil the tasks. At the same time, it should be noted that the promoted organisational structures still exist both at civil society level and in the area of protected area management, as well as the financed infrastructure. However, if the reduction in personnel continues and tourism stagnates in the longer term, the sustainability risk would increase significantly.

Another general risk to the sustainability of the programme’s impacts is the increasing uncertainty in the country – particularly at present – and the resulting declining interest in functioning ecosystems, which are superimposed by direct personal threats. In addition, growing crime, particularly in the coastal region, caused by criminal drug gangs, limits the ability of state and non-state actors to act.

Secured financing of the SNAP is an important prerequisite for lasting effects in the medium to long term. Essentially, the current SNAP financing model is based on four pillars: (1) State allocations, (2) special programmes for investment measures, (3) the financing of operating costs from FAP income, and (4) contributions from international donors. The majority of government allocations have been constant since 2015, at between USD 8 and 9 million each. Adjustment for inflation, however, does not appear to be taking place. The vast majority of these funds are invested in personnel costs, with only 2% being used for other operating costs. In the years 2018 to 2022, investment measures in four protected areas (PN Yacurí, Podocarpus, RB Cerro-Plateado, RVS La Chiquita) were implemented annually with budget funds of approximately USD 500,000 via special programmes. The FAP serves as a sustainable financing instrument for Ecuador. The nature conservation fund’s assets invested on the capital market (currently approx. USD 39 million) continuously generate returns that can be used to partially cover the operating costs in the protected areas. In the period from 2015 (approx. USD 564,000) to 2021 (USD 3,081,000), the FAP tended to contribute increasing amounts to the operating costs of managed areas. The amounts vary from USD 20,000 to USD 241,000 per protected area. In discussions with representatives of the respective protected areas, it became clear that these contributions are of key importance for the fulfilment of the tasks by the protected area administration. They enable regular patrols, the implementation of non-substantial infrastructure repairs and the procurement of necessary basic materials. In view of Ecuador’s tense budgetary situation, the FAP and the continued commitment of international donors should continue to play an important role in the financing of the SNAP.

With a particular focus on biodiversity and climate, the Ecuadorian government is seeking and using international funds to fill budgetary gaps. International projects are used by the government to increase presence in rural areas and make support visible to the rural and indigenous population. Also in the case of substantial investments in the SNAP infrastructure, the Government of Ecuador continues to rely on contributions from international donors. For example, the contribution of international donors to strengthening the SNAP is expected to be around USD 170 million in the period from 2011 to 2027 according to the plan as at 2023. The conservation of Ecuador's unique biodiversity is a global public good, which is why international (partial) financing seems justified and expedient from a development policy perspective, also in the long term.

Rating summary: The following aspects were decisive for the overall evaluation of the project's sustainability:

1. Permanently existing and active national structures of protected area management embedded in the overall system, which will be further advanced. However, as in many countries, these structures are comparatively weak and have to constantly fight for budgets and personnel in an environment characterised by uncertainty and economic crisis.
2. The Funding Mechanism for Strengthening the Management of Protected Areas (FAP) makes a lasting and very important contribution to a minimum level of financing for operating and maintenance costs. For a higher level of performance of the protected areas, higher allocations from the state budget for investment measures and for personnel would be necessary.
3. The sustainability of the decentralised protected area systems is particularly threatened by the aforementioned aspects, especially since these systems are not supported by the FAP in operation either.

Overall, we rate the sustainability as moderately successful.

Sustainability: 3

Overall rating: 2

The programme evaluated here is well integrated into the national protected area system and has taken the needs of the target group and the partner ministry into account in a targeted manner. It benefited from cooperation with the Pequeñas Donaciones programme promoted by the UNDP in the area of cooperation and also in terms of beneficial impacts for the target group. The programme had a structural effect on Ecuador's entire protected area system, which can still be seen today. An earlier focus of the investment measures on a limited number of protected areas could have increased the significance at the level of individual protected areas. The programme was implemented over a long period of time spanning ten years. This was mainly due to political reasons beyond the scope of the project's influence. The delays led to higher implementation costs and therefore adversely affected efficiency. Insufficient data and methodological challenges limit the possibilities of sufficiently determining impacts and the programme's contribution to these. However, the available data suggests that a protective effect was achieved in the promoted protected areas and that the downturn in biodiversity within the protected areas was stopped or at least slowed down. Against the background of the existing challenges in the area of species protection in Ecuador and the comparatively limited project funds, the impacts achieved are in the expected range and generally persist to this day.

As with many biodiversity projects, the greatest sustainability risks lie in the area of financial sustainability. Through the capitalisation of the FAP, the programme contributed to a significant and lasting strengthening of a sub-area of sustainable financing. This will enable important maintenance investments and operating resources for the ongoing work in the protected areas of the national protected area system. However, the protected areas of territorial authorities cannot benefit from this mechanism and their financial resources are therefore fewer in comparison. Allocations are more dependent on the general political environment. Nevertheless, the affected municipalities have an economic interest in preservation, also against the background of the increasing tourist interest in their respective regions. They also demonstrate their will to ensure the durability of the protected areas through the provision of personnel and the necessary funds to maintain operations and maintenance. Overall, we rate the programme as successful.

Contributions to the Agenda 2030

Universal application, shared responsibility and accountability: Ecuador's ecosystems are of paramount importance not only for terrestrial and marine biodiversity, but also for income generation and food supply as well as for climate change mitigation and adaptation to climate change. The programme therefore contributes to the achievement of the 2030 Agenda – in particular to SDGs 13 (Climate action), 14 (Life below water) and 15 (Life on land) – as well as the goals of the United Nations Convention on Biological Diversity and the Kunming-Montreal Global Biodiversity Framework. It also made a small contribution to SDG 1 (No poverty) through the promotion of productive small projects in local communities. The programme's measures complement the measures of other international donors and are in line with Ecuador's national objectives. However, common reporting and monitoring systems are not used.

Interaction between economic, ecological and social development: The programme primarily promotes ecological development through protective measures. There is an interaction between the conservation of natural resources and social and economic development: preserving the ecosystem functions in the promoted protected areas and ecocorridors is necessary in the long term so that the local communities can continue to support themselves using natural resources. At the same time, sustainable management methods are essential to preserve natural resources. The promotion of productive, income-generating initiatives was able to contribute to improving support for the communities in tackling nature conservation issues. Sustainable conservation is only possible with the involvement of local communities.

There is no evidence of intended or unintended negative interactions between the three dimensions.

Inclusiveness/leave no one behind: In its design, the programme took into account the interests of the target group and aimed to compensate for any usage restrictions by promoting projects for the sustainable use of natural resources in biocorridors.

Project specific strengths/weaknesses and general conclusions/lessons learned

Strengths and weaknesses of the programme included in particular:

1. Strengths
 - Structural strengthening of the national protected area system through consistent orientation to the existing national framework
 - Iterative approach that allowed the programme to adjust to changing challenges during implementation.
 - Promotion of a sustainable financing mechanism for the Ecuadorian protected area system, which has made an important contribution to the continued operation and implementation of the protected area management plans.
2. Weaknesses
 - It has not been possible to provide a general increase in the funds available for the protected areas beyond the direct operation and maintenance via the project vehicle: the Ecuadorian government's contributions have tended to remain stable since the start of the programme as well as focus on the financing of personnel, and rarely contribute to the infrastructural strengthening of protected areas.
 - One challenge has been to monitor and track the impacts.

General conclusions and lessons learned:

- With sufficient capitalisation, protected area funds make an important contribution to the partial financing of running costs and thereby to strengthening the durability of the impacts. Not surprisingly, it is more difficult for protected areas at the level of subnational authorities to finance themselves sustainably. Against this background, however, the aspect of sustainable financing of such protected areas should be approached more systematically than in the present case.
- The programme shows that interim evaluations are a useful tool for making adjustments during the implementation phase that increase efficiency and effectiveness.
- When supporting protected area systems, FC programmes are often geared to the structural financing of the entire protected area system, even if it is clear from the outset that the funds

made available through the FC are not sufficient to adequately promote a wide range of protected areas on a broad basis. This approach can be detrimental to the efficiency of the investment measures.

- Lack of monitoring data on the state of biodiversity makes it difficult to prove the impact. Impact measurement indicators should also be representative of the entire promoted area.

Evaluation approach and methodology

Ex-post evaluation methodology

Ex post evaluations follow the approach of a rapid appraisal, i.e. a data-supported, qualitative contribution analysis resulting in an expert opinion. Effects are attributed to the project considering plausibilities, based on thorough analysis of documents, facts and impressions. This includes – if possible – the use of advanced technology (e.g. satellite imagery, online interviews, geocoding). There is a follow-up on possible conflicting information, attempting to eliminate inconsistencies and to base the rating on information that – to the extent possible – has been confirmed through different sources (triangulation).

Documents:

Internal project documents, secondary specialist literature, strategy papers, context, country and sector analyses, impact evaluations, comparable evaluations.

Data sources and tools for analysis:

Partner monitoring data, GPS data, satellite images from Global Forest Watch, scientific literature

Interview partners:

Project-executing agency, target group, implementation consultant, protected area administration personnel, other donors

The analysis of project effects is based on the theory of change defined at project appraisal and documented within the impact matrix, which may be updated for the purposes of the evaluation. The evaluation report argues which factors contributed to the observed effects and why – as well as the probable extent of the project's contribution (contribution analysis). The context of the project is taken into account concerning its influence on the results. The conclusions are put into perspective regarding the availability and accuracy of the available data. The framework of the evaluation is established by the evaluation conception.

This method provides a balance between cost and usefulness, generating evaluation findings with appropriate effort and expense. Also, it allows for a systematic success rating across the FC projects. Thus, an isolated ex post evaluation cannot fulfil the requirements of a scientific assessment in the sense of a strict causality analysis.

The following aspects caused limitations for the evaluation:

Limited data on the status of biodiversity throughout the protected area system and data on the income development of promoted budgets.

Rating methodology

Projects are rated on a six-point scale for each of the OECD DAC criteria. The scale is as follows:

- Level 1** very successful: result that clearly exceeds expectations
- Level 2** successful: fully in line with expectations and without any significant shortcomings
- Level 3** moderately successful: project falls short of expectations but the positive results dominate
- Level 4** moderately unsuccessful: significantly below expectations, with negative results dominating despite discernible positive results
- Level 5** unsuccessful: despite some positive partial results, the negative results clearly dominate
- Level 6** highly unsuccessful: the project has no impact or the situation has actually deteriorated

The overall rating on the six-point scale is compiled from a weighting of all six individual criteria as appropriate to the project in question. Rating levels 1-3 of the overall rating denote a “successful” project while rating levels 4-6 denote an “unsuccessful” project. It should be noted that a project can generally be considered developmentally “successful” only if the achievement of the project objective (“Effectiveness”), the impact on the overall objective (“Impact”) and the sustainability are rated at least “moderately successful” (level 3).

List of abbreviations:

AECM	Área Ecológica de Conservación Municipal
AGIP	Azienda Generale Italiana Petroleum
FI	Final inspection
GDP	Gross domestic product
BMZ	Federal Ministry for Economic Cooperation and Development
DAC	Development Assistance Committee
EUR	Euro
FAN	Fondo Ambiental Nacional
FAP	Fondo of Áreas Protegidas
FIAS	Fondo de Inversión Ambiental Sostenible
FC	Financial cooperation
FC E	FC evaluation
GEF	Global Environment Facility
HDI	Human Development Index
LUNDIN	LUNDIN Gold Inc.
MAATE	Ministerio del Ambiente, Agua and Transición Ecológica
MAE	Ecuador Ministry of the Environment
METT	Management Effectiveness Tracking Tool
NAE	Nationality Achuar del Ecuador
NGO	Non-governmental organisation
PANE	Patrimonio de Áreas Naturales del Estado
PA	Project appraisal
PAR	Project appraisal report
PPD	Programa de Pequeñas Donaciones
PSB	Programa Socio Bosque
PP	Project proposal
RE	Reserva Ecológica
SNAP	Sistema Nacional de Áreas Protegidas
TC	Technical cooperation
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNDP	United Nations Development Programme
USD	US dollar
WWF	World Wildlife Fund

The annex to this report is available upon request (german only).

About this publication

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