

SUPPLEMENTARY MATERIAL

SUPPLEMENTARY MATERIALS S1: BACKGROUND ON PERU

Peru is one of 17 mega-diverse countries hosting high concentrations of endemic species in “hot-spots” of biodiversity (Mittermeyer et al. 1999, Meyers et al. 2000). It hosts immense biodiversity on all levels ecosystems (94 of 108 global life zones according to the Holdridge scale), species (including 1847 bird and 523 mammal species registered in 2014), and genes (e.g. almost 3000 potato varieties, MINAM, 2011). Reflecting the strong cultural diversity including 72 ethnic groups and 14 ethnolingual families (MINAM 2011), Peru’s conservationists have developed very distinct narratives conceptualising biodiversity in sustainable development (Zinngrebe, 2016a). Peru signed the CBD in 1993. In the same year, a new constitution was adopted with article 68 indicating the protection of natural resources as a national objective. In 1990, the system of protected areas became a legal status and in 1993 the agency CONAM was created to manage it. The legal backbone of the protected area network was further strengthened with the general management plan for protected areas in 2001. After the service for protected areas (SERNANP) was created in 2008 the protected area network grew further to include 141 protected areas including national, regional and private areas, covering about 17,3% of the Peruvian territory in January 2020 (data from protected area service, www.SERNANP.gob.pe, accessed 11th of January 2020) making Peru a global frontrunner in implementing Aichi target 11. While terrestrial areas cover more than 22 million ha, marine areas only cover 403.749,3 ha.

At the same time, environmental competencies for governing natural resources and biodiversity outside of protected areas was decentralised into the ministries governing the productive sectors (Legal decree 757). After finalising the first National Biodiversity Strategy in 2001 (decreto supremo 102-2001-PCM), Peru has gone through significant institutional developments, including the creation of regional governments in 2002, the national protected area agency (SERNANP) and the Ministry for the Environment (MINAM) in 2008. After starting an extensive participatory process in 2010 with local and national workshops including governmental, non-governmental actors, academics and representatives of local and indigenous communities, MINAM adopted the updated NBSAP for the period 2014-2021 in November 2014 (MINAM, 2014). The first action plan from 2014-2018 was updated in 2018 with the second action plan for the period from 2018 to 2021 (MINAM, 2019). However, as acknowledges by Peru’s fifth report to the CBD, policies from other sectors continue to provide incentive structures favouring biodiversity threatening activities (MINAM, 2011). While most sectors have committed themselves to biodiversity conservation, the operationalization of implementing biodiversity objectives with concrete measures remains weak (Zinngrebe, 2018). Nevertheless, Peru is part of the mega-diverse countries emphasising their commitment to implementing the CBD strategic plan 2011-2020 and its Aichi targets (LMMC, 2018).

Literature

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SUPPLEMENTARY MATERIALS S2. DETAILED RESULTS

1. Reflecting different narratives in biodiversity reasoning

In its orientation, the Biodiversity Strategy takes up arguments from various narratives (see overview in Table S1). In the **conceptualisation of biodiversity**, the strategy emphasises that "biodiversity was an essential part of natural capital and historically the basis and preservation of 'our' development" (p. 8). The economic potential offered by Peru's biological diversity and its "comparative advantage" for the country's sustainable development is often stressed (p.27). Similar to the term "mega-diverse country", this expression refers to Peru's higher biological diversity compared to other countries. It is an economic competitive advantage in the international market. This economic view dominates the biodiversity strategy and has strong parallels to the narrative of *biodiversity capitalists* in conceptualizing the problem.

Table S1 - Analysis of the lines of argumentation of the biodiversity strategy along the dominant narratives in Peru (Zinngrebe, 2016a). The right-hand column lists the dominant narrative in the NBSAP for each of the biodiversity aspects.

Aspects	Central lines of argumentation	Occurring narratives
Conceptualisation of biodiversity	<ul style="list-style-type: none"> "Essential Part of Natural Capital" (p.8) Basis and stabilizer of development 	
Role of protected areas	Source of biodiversity-based ecosystem services	Capitalists
Biodiversity in relation to human life	Outside (separate consideration of biodiversity and society)	Protectionist, Capitalist
Participation and leadership roles	<ul style="list-style-type: none"> no identification of culprits, reference to illegal processes and climate change Significance of development potential, biodiversity for poorer social classes 	
Role of local population	Local resource users with cultural practices	Pragmatists (Traditionalists)
Political level that initiates change	International	Capitalists, Protectionists
Value system	<ul style="list-style-type: none"> High diversity of ecosystems, species and genes as Peru's potential cultural diversity – mainly linked to practices and the potential to produce economic benefits Strong economic potential 	
Knowledge and value systems	Scientific survey of species diversity for justifying political action	Protectionists
Substitutability of natural capital	Substitutable (for the benefit of development)	Capitalists
Political strategy	<ul style="list-style-type: none"> Creation of individual instruments, mainly at national level (e.g. protected areas, concessions) Voluntary valorisation mechanisms Isolated, more concrete measures (e.g. fisheries sector) Coordination in CONADIB 	
Dominant policy measure	Valorisation mechanisms	Capitalist, Pragmatist
Land-use Planning	Land use planning as a source of information	Capitalist

Protected areas are seen as areas of the country separate from human life in which the diversity of species must be protected according to the *Biodiversity Protectionist* perspective. The protected areas should also generate ecosystem services through tourism and “in situ” protection of biodiversity components. It is also striking that the integrated approach of the ecosystem approach is explicitly applied only to the management of protected areas.

The NBSAP also takes up the *Biodiversity Traditionalist* narrative by stating for instance that “cultural diversity shapes parts of biodiversity so that man integrates himself into ecosystems, creates living cultures and selectively uses resources and services through domestication and reproduction” (p. 33). It is emphasised that the manifold “resources of the sea and of flora and fauna have enabled the emergence and manifold establishment of cultures” (p. 33). However, this view only captures the economic reference that traditional practices established for sustainable use and consequently for the protection of biodiversity. In contrast, the identity-forming aspect, which links local cultures with nature in socio-ecological systems, is ignored. By looking at the argumentation in the NBSAP it becomes evident that the landscape concept of biodiversity emphasised by the *Biodiversity Localists* does not emerge. It focuses in particular on the competition of economic and demographic processes with the protection of biodiversity and the necessity of balancing processes. Approaching the conflict between different development processes and interests is strictly avoided. Instead, according to the *Biodiversity Pragmatist* Narratives, mainly illegal processes and the lack of institutionality are held responsible for the fact that “many of the threats to ‘our’ biodiversity have increased or changed, thereby reducing ‘our’ natural property in an accelerated manner” (p.15).

The strategy’s position on **participation and leadership** stresses the importance of participation by all stakeholder groups, especially indigenous and local communities. The local population is presented here as a “user of resources with cultural practices” (p.26), as argued in the narrative of Biodiversity Pragmatists. Local knowledge (*Traditionalists*, p.27) and the importance of the interest of use and the safeguarding of intellectual property (*Capitalists*, p.47) are emphasized here. The image of biodiversity protectionists, on the other hand, who speak of a necessity to take action against the ignorance of the local population, is not taken up. Also, the environmental protection practices rooted in culture are not mentioned by traditional or local populations (*Traditionalists*).

The political level to initiate change clearly points in a top-down direction. The national Biodiversity Policy is strongly framed as an implementation of the international Convention (CBD) and its Aichi targets (Supreme decree 009-2014-MINAM). Its justification is further linked to the national Constitution (article 68 stating the need of conserving biodiversity) and the law for biodiversity (law 26839) indicating the Environmental Ministry (MINAM) and other national organisations as principal agents for the implementation of biodiversity (pp. 14). The NBSAP primarily refers to value chains of biodiversity products and organic trade in a top-down perspective (p.15), corresponding to the capitalist narrative. While the potential of traditional practices for sustainable use is highlighted in

various sections (pp. 25), the national level is held responsible for exploring and supporting this potential, i.e. by linking local economic processes to value chains and markets. While the introduction has a strong focus on illegal processes, socio-ecological conflicts, deforestation and problematic fishing practices, no concrete processes or actors are held responsible for a change in behaviour.

Several **value systems** are considered by the NBSAP, however with distinct roles. Both ecological and cultural plurality is assessed as having “great potential” and leads to “global recognition as a megadiverse nation” (p. 9). The knowledge system for analysing the representation of biodiversity primarily biological-scientific categories, such as endemic species, genetic variability and the occurrence of “life zones” and ecosystem categories (pp. 22) reflecting the *Protectionists narrative*. When assessing the value and potential of biodiversity however, the strategy uses primarily economic value categories, such as ecosystem services, “economic potential for sustainable development” and natural capital (p.33). This points to a clear dominance of the biodiversity capitalist narrative. But cultural diversity and its practices also have a positive value, albeit with economic potential. In this context, sustainability is defined as follows: “Biodiversity is a capability to ensure the improvement of the quality of life of present and future generations” (Vision of the Strategy, p.42). Since the economic potential for quality of life is often mentioned and no ecological limits and target values are defined, this can be defined as a soft concept of sustainability that allows natural capital to be substituted by other forms of capital.

The primary **political strategy** in the NBSAP focuses primarily on the development of individual instruments and capacities, which corresponds to the *Biodiversity Pragmatist Narrative*. New strategies” such as “valuation of ecosystem services”, “positioning of sustainable enterprises”, “promotion of community forest management” or “financing of forest protection projects” are named as such (pp.15). As additional measures to the traditional protection mechanisms of nature reserves, these mechanisms usually have economic approaches, as demanded by the *Biodiversity Capitalist Narrative*. The strategy applied “seeks to reduce the loss and decline of biodiversity and to increase the possibilities for sustainable use and equitable and even distribution” (p.8). The idea of spatial coordination and land use planning are linked to the CBD concept of the “ecosystem approach” (p.43). However only in the marine context, planning is linked to the/a management plan and extraction rates (p.26). In the terrestrial context, land-use planning is mainly seen as an analytical process of identifying potentials (activity 106, p. 60). It is evident that planning and coordinating instruments are not mentioned in this context.

2. Targetting causes and underlying causes of biodiversity loss

The results of Table S2 show that most of the causes are both identified as threats in the introduction of the strategy, as well as picked up by its targets. Likewise, activities to support connectivity (NA8) are regarded as a measure to address fragmentation, likewise training (NA74) a measure to address the lack thereof.

Table S2 Addressing the causes of biodiversity loss. The first two columns display categories of causes for biodiversity loss, and the number of regions the cause had been identified in by Zinngrebe (2016b). The table further indicates a quote corresponding to the threat in the NBSAP's introduction. In the last column it refers to the strategic objectives (OE as in the Spanish abbreviation), objective (O) and targets (T) of the Strategy to 2021, activities of the 2014-2021 action plan (A) and "new" activities of the 2019-2021 action plan (NA) that directly relate to the threat.

	Causes of loss [numbers of regions with respective cause]	Addressed as a problem in biodiversity strategy (Chapters 1-3)	OE/O/T/A/NA
Environmental changes	Loss of ecosystems [9]	Ecosystems in danger (marine areas p.26, Amazon areas p.30)	OE1 – A62
	Deforestation [8]	150,000 ha/year (p.30)	O7 + A40
	Land degradation [6]		OE3, A62, NA3
	Fragmentation [5]		NA8
	Water shortage [5]		NA12
	Poisoned Ecosystems [12]		
	Climate Change [6]	Effects of climate change (p.15,)	A34
Economic land use change	Land Transformation [11]	"Land transformation as a consequence of the development of monocultures, illicit cultivation and shifting agriculture" (p.30)	OE3, A75
	Extractive processes [11]	Illegal Mining, "Strong pressure on resources due to high Mineral Prices" (p.30)	A76, NA4
	Resource looting [12]	"since the 1960s, fishing has entirely an extractive character"	A60, A61
	Agricultural expansion [6]	Deforestation in Amazon region due to agricultural expansion (p. 30)	
	Inappropriate use [14]	(not explicitly mentioned)	
	Fertilization & pest control [5]	Random use of agrochemicals, little control	A 81
	Illegal activities [10]	Cultivation of prohibited plants, illegal extraction and distribution of species, illegal logging	A66, 76
	Exotic, invasive species [6]	Danger from Invasive Alien Species , Genetically modified organisms banned with moratorium, subsequently targeted production of "yields from modern biotechnology" (p.31)	A86, NA67
Human expansion	Urbanisation [5]		
	Migration and demographic growth [7]		
	Problematic implementation of infrastructure projects [5]	"improve the effectiveness of prevention, mitigation and impact control through the adoption of good practice" (p.28)	
Ignorance and ignorance	No recognition of traditional knowledge and practices [5]	"Indigenous peoples & local communities are guardians of biodiversity knowledge and technology and of, which are an essential element of Peruvian culture" (p.33).	OE5-T5, 12, A132-134 etc.
	General ignorance [9]	"Improving public awareness of the value of biodiversity" (p.28)	T6, 11, NA94, NA51
	Lack of consideration of economic values [4]	"Production nature conservation", direct income, "valorisation of native species" (p.27) Ecosystem services (p.33)	OE4, O4, NA85, NA33, NA34
	Not included in school curricula [4]	"Need to communicate the potential of biodiversity in media and education" (p.28)	A58, NA50, NA52
	Lack of scientific research [4]	"Negative trends in training of taxonomists and gene experts" (p.28)	T10, T11, NA30, NA84
Political structures and capacities	Lack of policy enforcement [7]	"stronger control measures against illegal activities (p.9)	T1, 2, 8 A9, NA70
	Lack of training [8]	"Integration of nature conservation into training, creation of further training programmes (p. 28)	A12, NA74
	Lack of political and economic structures [7]	Foundation MINAM , SERFOR, SERNANP - Institutions need improved access to human and financial resources (p.28)	OE4, T9, A9, 11, 17,
	Legislative loopholes [5]		T5- A 8,
	Lack of financial support [5]	need to "improve the accessibility of human and financial resources"	A9, A15, NA33, 34
	No political will [5]		
	Lack of coherence and fragmentation of policies [7]	"intersectoral, participatory nature conservation", "more than SINANPE [nature conservation system] necessary" (p.25)	OE6, T13, A3, A5, A8
	Inappropriate policies [6]	e.g.: extractive orientation of the fishery (p. 26),	

There are however some exceptions. One group of exceptions are related to the pollution of ecosystems, water issues, extractive industrial processes (apart from those caused by small informal and illegal mining), all of which can be related to mining processes. Another group, including land degradation, fragmentation, inappropriate use, agricultural expansion and urbanisation, as well as migration can all related to the large scale demographic developments, which is particularly visible in the biodiverse Amazon region covering roughly two-thirds of the country's superficial area. The last group relates to political and institutional problems related to i.a. political will and inappropriate policies.

As the second part of this evaluation analyses to what extent the NBSAP's activities are targeted at further evaluations, specific policy outputs, social outcomes and ecological impacts (see Table S3). It becomes apparent that the distribution of activities in both action plans is fairly similar. The results indicate a strong dominance of activities in the first category **Evaluation and Planning** including 53% of the activities in the first action plan and 55% in the second. They include 18% (17% in the new action plan) activities aiming at the conduction of studies or evaluations. The new action plan puts an even stronger emphasis on the organisation and provision of existing information in registries (27%) than the old one (13%). By contrast, the first action plan aims at further planning processes and guidelines (22%) than the first one (11%).

The Policy Output dimension comprises 20% of the planned activities (21% of the new activities - NA). They include strengthening monitoring (Activity 50), improved monitoring, e.g. with regard to the use of fertilisers and pesticides (use of genetically modified organisms – GMOs), the implementation of the Nagoya Protocol in legislation (56), or developing an updated legal framework for access and distribution of benefits from genetic resources and traditional knowledge (NA43). Other measures focus on knowledge sharing and protection (132, 141), economic valuation mechanisms (36, 42, NA33), the promotion of sustainable use (e.g. 14, 43, 46) and the stimulation of voluntary initiatives (58, 78, 82).

In general, sectors, regional and local governments are called upon to develop their own conservation measures (e.g. 9, 17, 90). It remains uncertain, what specific targets or changes in current biodiversity trends the envisioned instruments are meant to impact. Instead, activities and targets are almost exclusively aimed at creating new capacities and initiating new processes (3.9% of activities are assigned to the category "Development of political control instruments"). Instead of guiding the implementation of existing nature conservation mechanisms, such as protected areas, concessions for nature conservation or forestry concessions, activities generally call for strengthening the network of in situ and ex-situ conservation mechanisms (NA25), and developing legal frameworks and mechanisms to manage restoration activities (NA54) and to govern fishing activities (NA92).

The group of activities aiming at a Social Outcome consists of 27% of the first action plan and 24% in the second. The term "implementation in progress" (98,

120) or "progress in implementation" (15, 98, 121) is used here without indicating a specific result that is supposed to be achieved.

Table S3 Categorisation of objectives and activities. The 147 actions of the first action plan and the 94 activities of the second were divided into the categories Evaluation, Output, Outcome and Impact (column 1) and more specific sub-categories (see column 2). The objectives of the biodiversity strategy were assigned to this classification (column 3). Column 4 (and 6) indicate the number of actions appearing in the two action plans in each of the categories; column 5 and 7 display their proportion in relation to the total number of 147 / 94 activities.

	Category of activity	Strategic Objectives (OE) and Targets	Activities			
			Action Plan 2014-18		Action Plan 2019-21	
			#	%	#	%
Evaluation and Planning	Study, Evaluation	Target 11 - More knowledge about biodiversity and its geographical distribution	26	18%	16	17%
	Protocol, Guide, Proposal, Plan		33	22%	10	11%
	Registries, systematised knowledge, maps	Target 10 - Scientific knowledge, innovation and technological development have increased	19	13%	26	27%
	Total Evaluation		78	53%	52	55%
Policy Output	Capacity building	OE4- Strengthening the capacities of the three levels of government Target 9 - Effective capacities	1	1%	2	2%
	Modality for exchange, communication and knowledge transfer	Target 12 - Protection of traditional and technical knowledge on biodiversity OE5 - Improving Knowledge for Sustainable Use of Biodiversity Target 6 - 20% Increased awareness among the population of the value of biodiversity	14	10%	9	10%
	Development of political steering instruments	Target 4 - valorisation, strengthening organic companies Target 5 - To establish a legal framework for access and equitable sharing of the proceeds of their use.	13	9%	8	9%
	Total Policy Output		28	20%	19	21%
Social Outcome	Implementation of programmes and projects in nature conservation	Target 2 - Implementation of protection plans for 15 threatened species, Objective 3 - Implementation of protection programmes (in situ and ex situ) Subtarget 8 - Increasing the effectiveness of control, supervision and enforcement of biodiversity [regulation] by 30% in 2018 [...]	15	10%	7	7%
	Control mechanisms should be "implemented"	Target 1 - "Effective management 17% terrestrial and 10% of marine area"	9	6%	4	4%
	Training for political or other actors in biodiversity governance	OE6 - Strengthening cooperation between political sectors and the population Target 13 - Strengthening cooperation structures	8	5%	3	3%
	Started implementation	OE2- "Higher share of biodiversity in development and even distribution of benefits"	9	6%	9	10%
	Goals for the desired change of behaviour	OE3 - reducing direct and indirect pressure on biodiversity		0%		
	Total Social Outcome		41	27%	23	24%
Total Ecological Impact		OE1 -"Improving the status of biodiversity". Target 7 - Reduce deforestation by 7%.		0%		0%
	Total		147	100%	94	100%

Likewise in the second action plan, activities aimed at “starting the implementation of the coastal management plan” (New Activity- NA5), or “by 2020 the action plan for invasive exotic species is approved and implementation will have started” (NA67). The Strategy’s Strategic Objective 1 aims at “effective protection of 17% of the country’s terrestrial area” indicating a direct linkage to Aichi target 11 of the CBD’s strategic plan. At the time the strategy was published however, over 17% of the area was already in protected areas (although the target does not specifically refer to protected areas). Being “effectively protected” would further require specific quality criteria, or if possible a quantifiable indicator for monitoring in order to be assessable. Similarly, sub-target aims at increasing the effectiveness of control, supervision and enforcement of biodiversity [regulation] by 30% in 2018. In both cases the term “effectiveness” is not qualified and an envisioned change in behaviour is not specified.

The only objective aiming at an **Ecological Impacts** is to reduce deforestation by 5% (Target 7). However, no activity or measure for implementation is linked to this target. The target aiming at the protection of threatened species measures success with the indicator “number of conservation plans for species developed” instead of using the indicator for threatened species and their risk level (see www.iucnredlist.org).

3. Linking objectives and targets to existing institutional structures

The analysis reveals that the action plan contains activities with reference to principle biodiversity instruments in the sectors (see Table S4). For the sectors Energy and Mining, Transport and Communication as well as for large scale agricultural projects (e.g. large palm oil plantations), Environmental Impact Assessments (EIAs) are the central instrument for considering biodiversity in the project approval processes. The first action plan calls for a study to provide insights on what environmental impacts need to be considered (A73), but does not indicate a specific aspired performance at this stage, nor do they directly link the outcomes of the study to EIAs as a mechanism. The second action plan only aims at identifying threats associated with the degradation of ecosystems (NA58).

Control mechanisms of forestry instruments (A35, A40, NA57) or commercial fishery (A87, NA4, NA65) shall be strengthened, while indicating neither a baseline, nor a best practice reference. Evaluation and compensation mechanisms for ecosystem services shall generally be financed in the field of forestry (34, 35, 36, 37). Small scale extraction of timber, fishery, mining or agricultural expansion and encroachment are not approached.

Guidance for the Economy and finance sector indicates that conservation projects shall be financed and that biodiversity and ecosystem services shall be considered at the national level, however, again without giving and indication about the envisioned best practice performance. The value of biodiversity is to be integrated into the awareness of resource users and into political processes through valuation mechanisms. Concrete activities include, for example, or their integration into national cost-benefit analyses for households and the allocation of budgets (43).

Table S4. Principle biodiversity instruments of key sectors (as identified by Zinngrebe, 2018) and references to activities in the 2014-2018 action plan (A) and the 2019-2021 action plan (NA).

	Ministry for Agriculture (MINAGRI)	Forestry Service (SERFOR)	Ministry for Economy and Finance (MEF)	Ministry for Energy and Mining (MINEM)	Ministry for Transport and Communication (MTC)	Ministry for Production (and Fishery) (PRODUCE)
Main Instruments	EIAs for large projects, ex-situ conservation of crop-varieties	Concessions for forestry and agroforestry systems	Appraisal of ecosystem services in Cost-Benefit-assessments of public spending	EIAs for large projects	EIA for infrastructure projects	Best practice rules, extraction quotas for large fishery, added value replacing quantity
Corresponding Activities in the Action plan 2014-2018	By 2016, a mechanism for the supervision of Genetic resources is functional (A50) See A73 in MTC)	By 2016, implementation of the National Forestry and Wildlife Plan has been strengthened (A35) Investments into forestry are strengthened (A40)	By 2016 budget programmes are adjusted to support in-situ conservation activities (A16) By 2016, values for biodiversity and ecosystem services are considered in national accounting (A42)	By 2015, there is a guide for best practices and cooperate practices for companies for working in mining, gas and others. (A70). See A73 in MTC)	By 2016, there is a study on principle causes of ecosystem degradation with proposals for avoiding, reducing or mitigating environmental impacts. (A73)	By 2016, the fishery planning Ordenamiento pesquero (A15) By 2016, mechanisms for controlling the commercialisation of hydrobiological resources have been strengthened (A87)
Corresponding Activities in the Action plan 2019-2021	By the end of the second half of 2019, a methodology for prioritizing important sites for agro-biodiversity conservation will be in place. (NA2) By mid-2020 there is a validated methodology for biodiversity conservation in areas for sustainable productive activities in the Amazon, Andean and/or coastal areas. (NA55)	By the end of the second half of 2020, the national forest and wildlife inventory, as well as permanent production forest inventory initiatives, had advanced and was being regularly updated. (NA3) At the end of the second half of 2021, the National Forestry and Wildlife Plan and a follow-up and monitoring mechanism were implemented. (NA57)	By the end of the second semester 2021, public and private investment initiatives have been identified and formulated for at least four (4) new biodiversity products with potential for the development of competitive bio-businesses, with emphasis on the BioTrade model in which initiatives undertaken by indigenous peoples, preferably indigenous women, are considered or prioritized. (NA37) At the end of the second semester of 2020, the Regional Governments prioritized for the process of articulation to the Budget Program 144 (Conservation and sustainable use of ecosystems for the provision of ecosystem services) have been trained. (NA74)	As of the first half of 2021, the main threats associated with the degradation of ecosystems have been defined and characterized, and the level of their impact on ecosystems has been determined. (NA58)	By the end of the second semester 2020, the implementation of the Integrated Coastal Zone Management Plan has begun. (NA 4) At the beginning of the first half of 2020, the procedures for controlling and monitoring the marketing of the main hydrobiological resources from aquaculture and the natural environment were updated. (NA65)	

Public and private investment shall be challenged to the sustainable use of biodiversity products (NA74). All these activities however do not indicate a specific change in behaviour or in perception (social outcome) nor are they linked to an aspired ecological impact. Other environmental policy instruments, such as protected areas, forestry concessions, Environmental Impact assessments etc. are not directly mentioned. Neither does the strategy or the action plans refer to policy strategies in other departments of the Ministry of the Environment (e.g. climate change, forest protection, spatial planning) or to biodiversity-relevant processes or documents in other sectors and political levels. An exception is the strategy for forests and climate change, which is supposed to be used particularly as monitoring mechanism (NA56).

Responsibilities for implementing the strategy are only vaguely defined. On the one hand, strategic objective 1 to implement Aichi target 11 (aiming at the "effective" management of 17%) corresponds exactly to the share of the national territory occupied by the nature reserves. On the other hand, the nature protection system SINANPE is not mentioned as a mechanism of the strategy. In order to implement this strategic objective and its activities three national ministries (MINAM – Environment, MINAGRI – Agriculture and Irrigation, PRODUCE – Industry and Fisheries), two subordinate authorities (SERNANP Nature Protection Agency, SERFOR Forestry Agency), three national research institutes (INIA – Agricultural Research, IIAP – Amazon, IMARPE – Fisheries) and all regional and local governments and universities are listed. To this end, an exchange of information should be strengthened (116), possible obstacles to governance identified annually (137) and responsibilities for marine coastal areas clarified (8). Roles and tasks within this general responsibility remain unclear.

Aside from direct references to sector instruments, the action plans point to collaboration both horizontally between sectors (Mainstreaming, horizontal integration) and vertically between political levels. To strengthened collaboration between governance actors, regional and local governments should report on their protective measures (A4) and create mechanisms for integrative management (A17, A145, NA4). The private sector is to be moved mainly through voluntary measures and through the formation of public and private alliances to take up biodiversity protection measures and projects (e.g. 7, 58, 82, 142, NA50, NA52, NA59). Especially, the first action plan calls for stronger collaboration, e.g.: "By 2015, there is an analysis of the institutional capacities on the three levels of government for managing and coordinating" (A94), or "By the end of the second half of 2017, a study will have been completed to incorporate the integrated management of biodiversity and associated ecosystem services into the various planning and land-use planning instruments" (A106). By contrast, the second action plan gives less weight to collaborative governance and focuses on training regional governments in the implementation of public biodiversity funds (NA73, NA74), developing a "registry of the successful initiatives of participatory governance" (NA93) and calls for the implementation and monitoring of single sectors, such as forestry (NA57) or fishery (NA60).

4. Targeted collaboration enables institutional learning processes

The participant lists indicate that Ministries generally participate and have even improved their participation in CONADIB sessions (see table 3 in the main article). Particularly the Ministries for Production (including Fishery), Mining and Energy and the forestry service participate frequently. By contrast, Agriculture, Transport and Communication and Economy and Finance participated less.

The analysis of the issues dealt with in CONADIB shows that a large part of the time (an overall of 43% of agenda items) is devoted to planning and reporting on the CBD (see Table 4 in the main article). These issues have particularly dominated the agenda in years the CBD hosts its Conference of the parties (indicated in dark grey shaded cells in Table 4).

An average of 25% of the agenda items were used to present studies or project experiences. Another 26% were dedicated to planning processes of further strategies, coordination activities and planning. Only 9% of the topics were devoted to coordinating the implementation processes and activities. As part of these implementation items, topics such as "Coordination of the programme for the event on Biodiversity Day" were discussed. In 2012 to give another example, all "implementation" agenda items were dedicated to developing a regulatory framework for biosecurity. Only recently, after the adoption of the Biodiversity Strategy, the "Implementation of a national monitoring system of environmental influences", the "Establishment of a digital platform for the exchange of information", the "Presentation of financing mechanisms for ecosystem services" or "forestry zoning" were also discussed here. In addition, there are thematic working groups and regional commissions for the exchange and coordination of activities.