ACTO
Amazon Cooperation Treaty Organization

ITTO

Convenio sobre la Diversidad Biológica

BIODIVERSITY CONSERVATION IN AMAZON PRODUCTIVE FORESTS

ASSESSMENT OF THE ITTO/IUCN GUIDELINES IMPLEMENTATION IN THE MEMBER COUNTRIES OF ACTO

BOLIVIA BRAZIL COLOMBIA ECUADOR GUYANA PERU SURINAME VENEZUELA

BIODIVERSITY CONSERVATION IN
AMAZON PRODUCTIVE FORESTS
Assessment of the ITTO/IUCN Guidelines
Implementation in the Member Countries of ACTO

Permanent Secretariat- Amazon Cooperation Treaty Organization (PS / ACTO)

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BIODIVERSITY CONSERVATION IN AMAZON PRODUCTIVE FORESTS

ASSESSMENT OF THE ITTO/IUCN GUIDELINES IMPLEMENTATION IN THE MEMBER COUNTRIES OF ACTO

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1. PRESENTATION

Within the framework of the Joint ITTO/CBD Collaborative Initiative for Tropical Forest Biodiversity Conservation, signed on March 2, 2010 between the Secretariats of both institutions, the project "Building capacities of ACTO Member Countries in ecologically responsible forest management and biodiversity conservation in managed forests of the Amazon (ITTO/CBD/ACTO)," was implemented from June 2015 to March 2019, with the participation of the eight Member Countries of the Amazon Cooperation Treaty (ACTO).

The project´s implementation was aligned with the Forest sub-topic of its Amazonian Strategic Cooperation Agenda (ASCA), with the objective to establish a process to build and develop the necessary technical capacity to strengthen and implement forest management models and ecologically responsible practices, with a territorial management approach, to ensure forests conservation and their biodiversity, as the maintenance of the livelihoods of local and indigenous communities in the Amazon.

Consequently, three implementation phases were designed: Evaluation, Development and Consolidation. In the Evaluation phase, national diagnostics were conducted regarding the status of sustainable forest management and biodiversity conservation in each MC of ACTO.

This document presents under a regional approach the results of the evaluation phase regarding the degree of application of measures an actions for sustainable conservation and use of biodiversity in managed forests of the ACTO Member Countries under the implementation of the ITTO/IUCN (2009) guidelines.

It is worth mentioning that the results presented were the baseline for the identification of the training demands of the different actors of the Forest Sector and were used in the design of the curricular plan of the training modules implemented in the project´s Development Phase. Therefore, this document is not only useful for understanding the current status of biodiversity conservation in Amazonian productive forests, under the lens of the ITTO/IUCN Guidelines, but it is also a methodological reference for monitoring the necessary strengthening of capacities to achieve tangible biodiversity conservation in the Amazon forests of ACTO Member Countries.

This document may be an instrument to learn about the current state of biodiversity conservation in the Amazonian production forests under the lens of the ITTO / IUCN Guidelines, as well as a methodological reference to monitor progress in the capacity building of the different stakeholders involved in biodiversity conservation of the Amazonian forests.

María Alexandra Moreira
Secretary General – PS/ACTO

2. METHODOLOGY

2.1 STUDY LOCATION

The study was conducted in the eight MC of the Amazon Cooperation Treaty Organization (ACTO), in the Amazon Region of Bolivia, Brazil, Peru, Ecuador, Colombia, Venezuela, Guyana, and Suriname (Figure 1). Until 2015, the total forest area of the eight ACTO Member Countries was over 770 million hectares, approximately 20% of the total forest area in the world, and 92% of the total area of forests in South America (about 850 million hectares), of which more than half is in Brazil.

The forests located exclusively in the Amazonian biome should cover in 2015 approximately 544 million hectares, (that is 70% of the total area of the

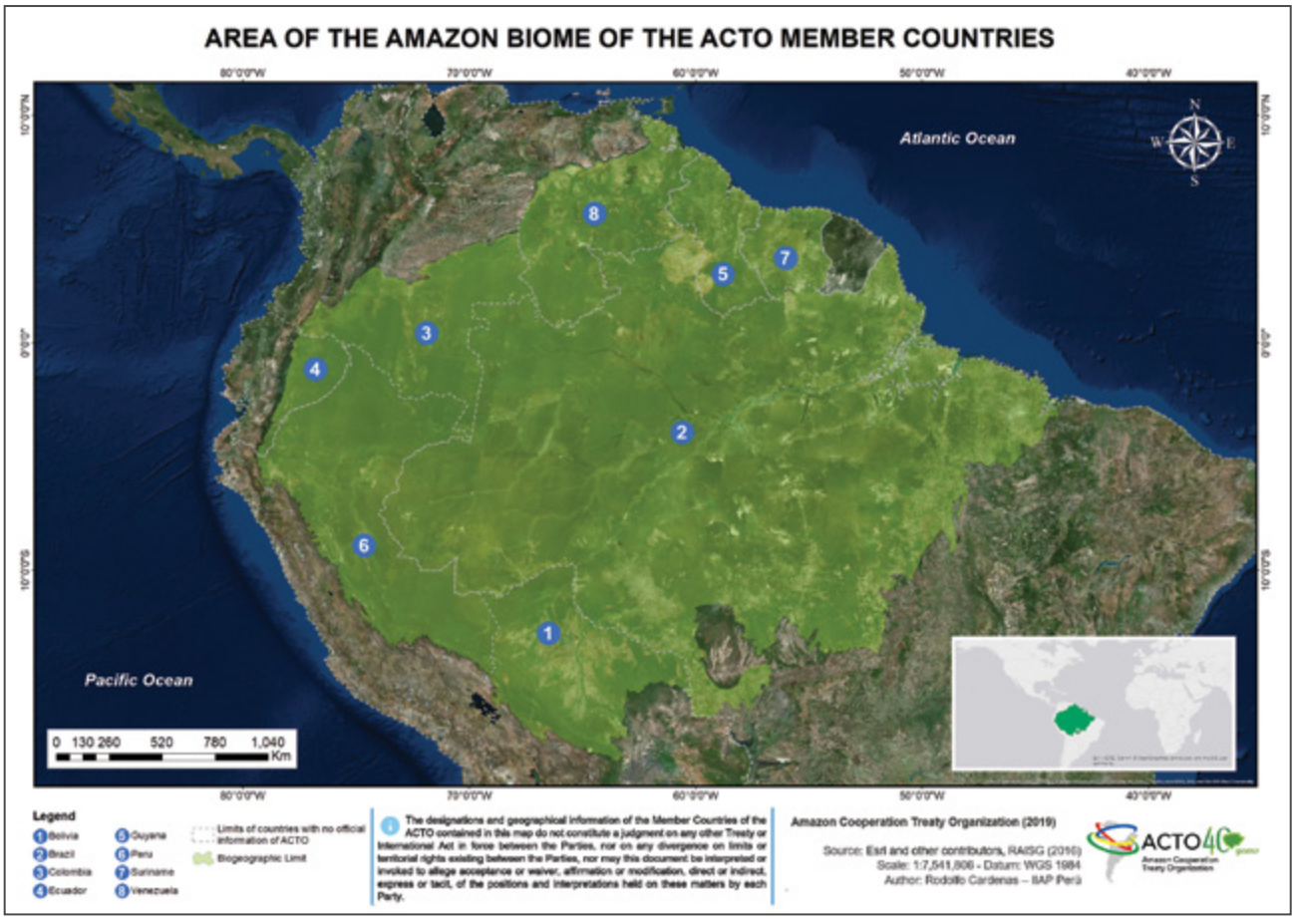


FIGURE 01. STUDY AREA, THE EIGHT ACTO MEMBER COUNTRIES.
Source: Natural Earth (2018); RALESG (2016).

forests of the MC), 63% of this area, approximately, located in Brazil, and 13 % in Peru. Peru owns the second largest extension of forests of the Amazon biome (Figure 02), according to the regional report on the Situation of the Forests of the Amazon (ACTO 2018).

2.2 DATA COLLECTION AND ANALYSIS

The research process comprised two phases: data collection, and analysis. The data collection phase was carried out by the project's eight national consultants (Table 01), in the context of the National Forest Assessments. In this

FIGURE 02. AMAZONIAN FOREST AREA OF THE ACTO MEMBER COUNTRIES IN 2015

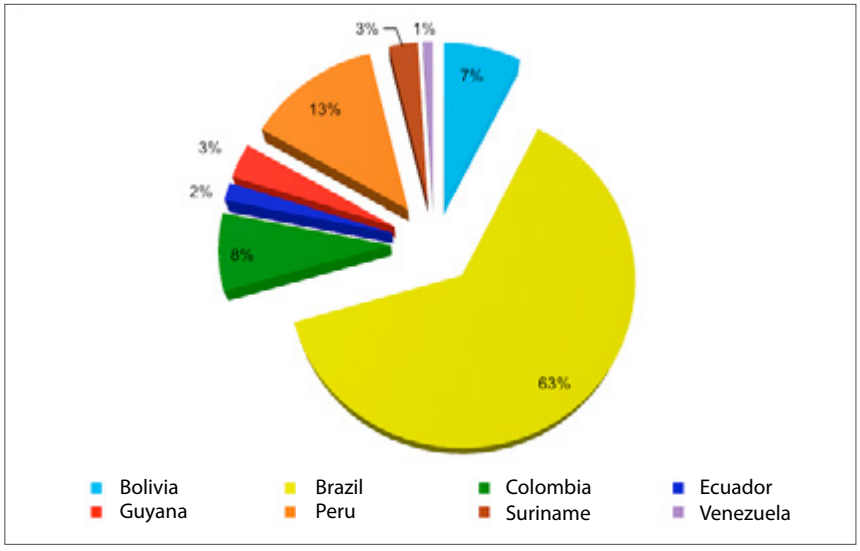


TABLE 01. TEAM OF NATIONAL CONSULTANTS AND FOCAL POINTS RESPONSIBLE FOR THE NATIONAL ASSESSMENTS OF ACTO MEMBER COUNTRIES.

Country	National Consultant	Focal Point of the Project
BOLIVIA	Pavel Campero Umaña	Ricardo Rojas Carola Buitron
BRAZIL	Sandra Regina da Costa	Carlos Eduardo Portella Sturm Cristina Alves
COLOMBIA	Ricardo Linares	Edgar Eduardo Mora Rodriguez
ECUADOR	Diego Oswaldo Mora Ramírez	Willan Leonardo Paccha Guamán
GUYANA	Godfrey Emerson Marshall	Anna Mohase
PERU	Cecilia Luque	Fabiola Rocio Nuñez Neyra Harol Gutierrez Peralta
SURINAME	Haidy Lepelblad	Rene Somopawiro Sarah Crabe
VENEZUELA	Ernesto Arends	Fidel F. Ferrer H. Routh Guillén

particular study, they were responsible for compiling, systematizing and analyzing the official information of the forest sector regarding the degree of implementation of the Guidelines for the Conservation and Sustainable Use of Biodiversity in Tropical Timber Producing Forests (ITTO / IUCN, 2009), taking as reference the political-legal framework as well as the technical regulations of forests of their respective countries.

In the analysis phase, the data of the individual, quantitative and qualitative analyses of each of the eight MC were included into a large matrix. The results interpretation was supported and enriched by the focal points and national forestry specialists of the Project Management Committees, who validated and supplemented the information through national workshops along with individual consultations.

TABLE 02. GROUPING OF ITTO/IUCN PRINCIPLES BY CATEGORY.

PRINCIPLES	Nbr. of Guidelines
STRATEGIC PRINCIPLES (National institutional and regulatory frameworks in accordance with international commitments)	
I. Sovereignty and societal choice	6
II. International Commitments	
III. Political commitment, policies and laws	
ENABLING PRINCIPLES (National institutional and regulatory frameworks in accordance with international commitments)	
IV. Land use and Spatial planning	14
V. Decentralization, forest tenure and natural resource access rights	
VI. Incentives	
VII. Knowledge, learning, technology transfer and capacity building	
OPERATING PRINCIPLES (National institutional and regulatory frameworks in accordance with international commitments)	
VIII. Managing tropical production forests at a landscape scale	26
IX. Biodiversity considerations at the forest management unit level	
X. Biodiversity conservation in planted forests	
XI. Maintaining functioning forest ecosystems	

The methodology used to carry out the quantitative analysis was developed by the Ecuadorian consultant, Ing. Diego Mora, which consisted in grouping the principles by type and scope of intervention of the guidelines (Table 02), along with the application of a matrix of assessment of the implementation degree of each of the 46 guidelines.

To assess the implementation degree of a Guideline, a score scale was applied, graded from 1 to 4, corresponding to four levels of implementation, described in Table 03. The score was determined based on the expert's criteria of the national consultant on the degree of inclusion of the guideline within the policies/legal instrument/regulations under analysis. The final assessment of the degree of implementation of each guideline was the result of the average value of the scores obtained. Additionally, the average assessment was obtained by principle and by group of principles.

The qualitative analysis followed a logical rationale structure constituted by the following elements was built: i) Principle; ii) Guideline; iii) Priority measures; and iv) Result (of the analysis) in sequential paragraphs where the evaluator expressed his expert´s opinion on the existence, compliance, and efficiency of national policies, legal instruments, and regulations implemented for sustainable forest management.

TABLE 03. ESTABLISHED SCORE FOR QUANTITATIVE ANALYSIS.

1	**BAD**, if the guidelines were covered or managed by the legal instrument within a range of 1 to 25%.
2	**REGULAR**, if the guidelines were covered or generated by the legal instrument within a range of 26 to 50%.
3	**GOOD**, if the guidelines were covered or managed by the legal instrument between 51 and 75%.
4	**OPTIMAL**, if the guidelines were covered or managed by the legal instrument from between to 100%.

3. RESULTS, ANALYSIS AND DISCUSSION

3.1 GENERAL DESCRIPTIONS OF THE PRINCIPLES AND GUIDELINES FOR BIODIVERSITY CONSERVATION IN THE TROPICAL PRODUCTION FORESTS

The ITTO/IUCN Guidelines gather in one document the specific necessary measures to improve biodiversity conservation of tropical production forests, to contribute to the conservation of what is probably the most valuable resource on the planet: the diversity of life. The Guidelines are aimed at fostering conservation and sustainable use of native species of animals and tropical production forest (ITTO/IUCN, 2009), and are designed to promote:

- A greater role for tropical production forests as landscapes components contributing to biodiversity conservation at different spatial scales;
- the equitable distribution of costs and benefits of conservation and sustainable use of biodiversity in tropical production forests;
- greater knowledge of the impacts of forest management on biodiversity;
- the adaptation of forest management practices at all spatial scales in favor of the conservation and sustainable use of biodiversity;
- better ecological processes in tropical production forests endowed with the presence of locally adapted biodiversity;
- best forest management practices at all spatial levels to guarantee the conservation and sustainable use of biodiversity.

The Guidelines are oriented to the different stakeholders related to forest management and biodiversity conservation, for the national planning and development of policies, during the stage of allocation of forests for conservation, production or conversion purposes, and during management planning and field application.

The Guidelines were designed to provide information and guidance to stakeholders at all levels (national, state or local), including leaders responsible for decisions making at business and community levels, and all those responsible for forests managing at local level.

The 46 Guidelines are distributed among the 11 principles, and for each Guideline, several priority measures exist that together, are the main guide for optimizing biodiversity conservation of tropical production forests.

Principles 1 to 8 are related to a series of issues that, in many cases, should be addressed by the leaders, authorities and those responsible for land management at the national and subnational levels.

Principle 9 contains specific recommendations for those responsible for forests management within the forest management unit. Principle 10 contains general and specific information on the biodiversity conservation in planted forests, and principle 11 deals with the role of biodiversity in the maintenance of forest functions.

The quantitative and qualitative analyzes of each of the forty-six Guidelines related to the Amazonian forest management and biodiversity conservation of the eight ACTO Member Countries are presented below.

3.1.1 ANALYSIS OF GUIDELINES ORGANIZED BY PRINCIPLES

The individual analysis of the implementation of the 46 ITTO/IUCN Guidelines in the ACTO Member Countries is presented below, organized based on its 11 guiding principles.

STRATEGIC PRINCIPLES

PRINCIPLE 1: Sovereignty and societal choice

THE RIGHTS TO AND RESPONSIBILITIES FOR BIODIVERSITY LIE PRIMARILY WITH THE STATES AND SOCIETIES WITHIN WHOSE TERRITORIES IT IS LOCATED. THEREFORE, THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY ARE A MATTER OF SOCIETAL CHOICE AND SHOULD REFLECT NATIONAL AND LOCAL GOALS.

GUIDELINE 1

National, regional and local biodiversity strategies, plans and regulations that are based on national and local priorities should be reflected in the management of tropical production forests.

In most countries, forest laws and regulations include provisions for conserving forest biodiversity. Almost all countries have legislation to protect biodiversity as well as national biodiversity action plans, other national-level and regional plans and strategies, and programs such as national forest programs that provide the context for measures to conserve biodiversity, although these rarely deal explicitly with biodiversity conservation in production forests. Forest agencies should be aware of the governmental commitments contained in these plans and strategies. Forest managers should ensure that their forest management plans conform to national laws and plans related to biodiversity conservation. In principle, biodiversity laws and plans should provide information on species and areas of conservation concern. In practice, however, this information is often unavailable at a sufficient level of detail to meet all the needs of forest planning. Detailed information might be available on emblematic species such as the orangutan or gorilla, but not on the full wealth of biodiversity in tropical production forests. Local biodiversity values are often overlooked in forest land allocation and planning. To the fullest extent possible, forest agencies, including conservation agencies, should make biodiversity information available during processes of forest land allocation. Local people often have excellent knowledge about biodiversity, as well as their own conservation priorities, and should be involved in processes of forest land allocation and management planning. Even when biodiversity strategies, plans and regulations exist they are rarely widely available. The knowledge embodied in these plans should be made much more accessible through the better use of printed and electronic media.

PRIORITY ACTIONS

RELEVANT GOVERNMENT AGENCIES SHOULD:

- Ensure that forest management plans comply with all national biodiversity laws and plans
- Ensure that the customary laws and practices of local communities are taken into consideration in land-use legislation and planning processes and prior to the designation of production forests
- Make biodiversity information widely available during processes of forest land allocation
- Use electronic and print media to make biodiversity plans, strategies and laws widely known

The quantitative analysis of the ACTO Member Countries presented a total of 174 legal instruments, laws and policies, with an overall average implementation degree of 2.95 for Guideline 1, corresponding to regular attention to the Guideline within the established score scale.

It can be verified in Chart 01 and Table 04, that four countries reached the degree of implementation 3, considered good. The highest average was presented by Guyana (3.50) and the lowest was presented by Colombia (2.66).

As shown in the following Table, Venezuela presented the largest number of legal instruments correlated with Guideline 1 (39), and the lowest number was presented by Brazil (9).

Regarding the need that in the management of tropical production forests, strategies, plans and laws of national, regional and local biodiversity be reflected, based on national and local priorities, all countries confirmed existing legal instruments regulating the sustainable use and biodiversity conservation, declaring its conservation and all its components of public interest.

Positive measures to protect the environment for the benefit of present and future generations are established by these legal instruments destined to prevent pollution and ecological degradation, promote conservation and guarantee sustainable development. They guide and regulate the sustainable use of forest resources for timber purposes and non-timber products and wildlife. However, not all countries have specific regulations for Forest Management Plans, as in the case of Guyana and Suriname.

According to the national assessments, the other countries possess laws for Forest Management of Tropical Production Forests reflecting, to a greater or lesser degree, the biodiversity strategies, plans, and regulations.

In **VENEZUELA**, for instance, the new environmental and forestry legal framework deals with biological diversity conservation as part of the

CHART 01 - IMPLEMENTATION DEGREE OF GUIDELINE 1 BY COUNTRY

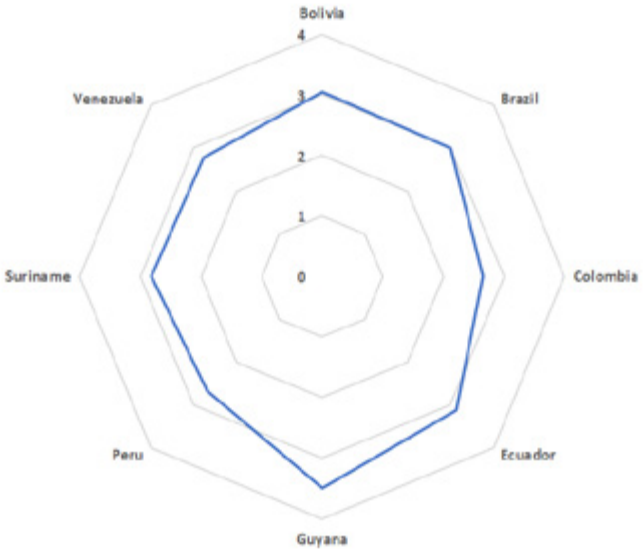


TABLE 04 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINES 1 BY COUNTRY.

	Management of tropical production forests should reflect national, regional and local biodiversity strategies, plans and laws based on national and local priorities.	Nbr. of Related Legal Instruments	Score (1 a 4)
P1D01	BOLIVIA	27	3,04
	BRAZIL	9	3,00
	COLOMBIA	30	2,66
	ECUADOR	15	3,13
	GUYANA	18	3,50
	PERU	19	2,68
	SURINAME	17	2,82
	VENEZUELA	39	2,77
	TOTAL	174	2,95

national sovereignty and establishes a co-responsibility of the State and society in its protection and sustainable use, including genetic resources and the intangible components of nature, and has the specific regulations for the Sustainable Forest Management Plans.

In **BOLIVIA**, there is a law regulating the overall Forest Management Plans (FMP). However, the technical laws focus mainly on the timber resource and business management, and even though technical standards have been developed for other forest users, the dependence relationship among communities and the entrepreneurs in the sector is common. Models for integrated and sustainable management are being developed in different regions of the country and for different forest users, capable of improving the lives of the population.

Forest Management Plans in **COLOMBIA** do not guarantee compliance with all national laws and plans on biodiversity. Some laws even seek the implementation of this Guideline, but this may not always occur in practice.

There are many laws in **ECUADOR** regulating Forest Management Plans in areas outside of conservation areas, establishing several rules for the exploitation and use of species to preserve biodiversity, such as minimum diameter, individual selection system, monitoring, post-harvest, among others.

In **PERU**, to access forest resources, the State grants licenses of public and/or private domain through the Forest Management Plan. This plan constitutes a dynamic and flexible tool for the implementation, monitoring, and control of forest management activities, aimed at achieving the sustainability of the ecosystem.

The Sustainable Forest Management Plans (SFMP) in progress in the Brazilian Amazon region, both in public and private forest areas, prioritize meeting the role of regulatory requirements and technical guidelines, adopting sustainable practices contributing to achieve the national goals assumed by Brazil as a signatory to the Convention on Biological Diversity - CBD.

GUIDELINE 2

Biodiversity goals and targets for tropical production forests should be developed with the involvement of all relevant stakeholders with particular attention to the needs and priorities of local communities.

National-level information on biodiversity is often inadequate for proper forest land allocation and planning and additional surveys are needed to fill information gaps. Surveys should be conducted to identify species, species' populations, and habitats that are rare, endangered, locally endemic, of special importance to local communities, or important for maintaining the composition and ecological functions of the forest. Ideally, such surveys would be conducted before areas are allocated for production forestry. Most countries have specialized organizations with competence in biodiversity, such as natural history museums, herbaria, university departments, and non-governmental research and conservation organizations. Forest agencies should take the lead in consulting these specialist groups and drawing on their knowledge. Forest agencies should also build links between such specialized groups and forest managers so that issues of particular biodiversity concern are taken into consideration in forest land allocation and management planning. Investments are needed to build national capacity for conducting field biodiversity surveys. National and international research organizations and non-governmental organizations (NGOs) could play greater roles as sources of biodiversity information. Inventories and mapping exercises should use participatory processes involving local stakeholders. Local knowledge and needs are often given insufficient attention in determining measures for biodiversity conservation. Special efforts are needed to include local concerns in priority-setting and decision-making processes for biodiversity conservation and sustainable use.

PRIORITY ACTIONS

RELEVANT GOVERNMENT AGENCIES AND OTHER STAKEHOLDERS SHOULD:

- Ensure that biodiversity conservation and sustainable use goals for production forests are included in national, regional and local strategies, plans and regulations
- Mobilize the capacity of conservation NGOs and specialized biodiversity institutions for biodiversity surveys
- Improve methods for consultation with and the participation of civil society, especially local communities, in setting biodiversity conservation and sustainable use goals, strategies and priorities
- Involve all groups with special knowledge of biodiversity in setting priorities
- Strengthen national capacity to conduct biodiversity inventories and prepare maps

The quantitative analysis of the ACTO Member Countries presented a total of 165 legal instruments, laws and other policies, with an overall average of implementation degree of 2.75 for the Guideline 2, corresponding to regular attention to the Guideline within the established score scale.

It can be verified in Chart 02 and Table 05, that two countries reached the degree of implementation 3, considered good. The highest average was presented by Guyana (3,33) and the lowest was presented by Colombia (1,90).

As shown in the following Table, Venezuela presented the largest number of legal instruments correlated with Guideline 2 (32), and the lowest number was presented by Brazil (8).

Under this Guideline, biodiversity goals and objectives for tropical production forests should be established with the participation of all stakeholders, with particular attention to the needs and priorities of local communities. The countries, except for **COLOMBIA**, reported that communities were consulted, valuing their opinions, using, for such, participative methodologies in specific meetings, assemblies and permanent councils.

Currently in **BOLIVIA**, the Flora and Fauna Management Plans are developed with participatory methodologies, focused on the needs of the communities, but these occur in parallel to Forest Management. It was informed that, with the new approach of integral and sustainable management, forest management models will allow the future exploitation and sustainable use of the forests' multiple products and services, the intan-

CHART 02 - IMPLEMENTATION DEGREE OF GUIDELINE 2 BY COUNTRY.

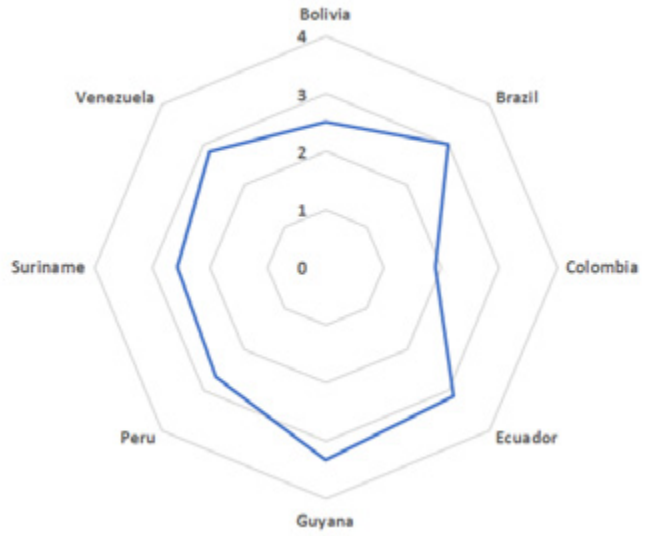


TABLE 05 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINES 2 BY COUNTRY.

	Biodiversity goals and objectives for tropical production forests should be set with the participation of all relevant stakeholders, paying special attention to the needs and priorities of local communities.	Nbr. of Related Legal Instruments	Score (1 a 4)
P1D02	BOLIVIA	27	2,52
	BRAZIL	08	3,00
	COLOMBIA	30	1,90
	ECUADOR	15	3,13
	GUYANA	18	3,33
	PERU	19	2,68
	SURINAME	16	2,56
	VENEZUELA	32	2,84
	TOTAL	165	2,75

gible uses and the knowledge and practices of local and ancestral management, allowing better forest managing.

The Constitution of **ECUADOR** establishes that the State must guarantee a sustainable model of environmental development, balanced and respectful of cultural diversity, preserver of biodiversity, in which any State decision or authorization that may affect the environment, should be consulted with the community. The State will value the opinion of the community. Regarding the areas susceptible to forest exploitation, the "Mesa Forestal del Napo" is cited as one of the State´s participation platforms. These platforms are jointly stimulated by the Ministry of Environment of Ecuador in strategic partnerships with NGOs and state governments, communities and representatives of the wood industry.

VENEZUELA mentions that more than 5,000 thousand people from all over the country, including communities, students, professors, researchers and officials participated in roundtables and workshops for the preparation of the National Strategy for the Conservation of Biological Diversity 2010-2020 (ENCDB) and its National Action Plan (PAN).

These were the results of a collective process, in which a strategic planning of local realities was carried out, taking advantage of the strengths of the country's different regions to achieve the management of biological diversity, thus guaranteeing national and the Peoples sovereignty, with the in-

clusion and empowerment of all Venezuelans, and promoting an endogenous and sustainable productive model. It was informed that annual meetings are held to evaluate the progress of this process.

In **GUYANA**, consultations held with the communities are frequently promoted by environmental NGOs providing technical assistance to preserve unique landscapes. Subsequently, this NGOs deliver the results of consultations to the Government to create and comply with biodiversity goals and targets.

In **SURINAM**, several legal policies and instruments where developed for biodiversity management during a participative process conducted with stakeholders, including the local communities, such as the National Biodiversity Strategy (2006); the National Biodiversity Action Plan (2013), and; the National Forests Policy (2003).

In **BRAZIL**, to produce and implement Sustainable Forest Management Plans of a community and/or family nature carried out in Conservation Units for sustainable use, the body responsible for the management of the units builds participatory processes among local communities and the manager through deliberative councils, in the case of Extractive Reserves and in Sustainable Development Reserves, and through advisory councils, specifically for National Forests. In the Conservation Units, the communities are responsible (owners) for the execution and monitoring of the Management Plans.

STRATEGIC PRINCIPLES

PRINCIPLE 2:
International Commitments

MANY COUNTRIES HAVE ENTERED INTO LEGALLY AND NON-LEGALLY BINDING INTERGOVERNMENTAL AGREEMENTS TO CONSERVE BIODIVERSITY, WITH IMPLICATIONS FOR ARRANGEMENTS FOR THE MANAGEMENT OF PRODUCTION FOREST LANDSCAPES WITHIN THEIR TERRITORIES. THE PRESENCE IN OR ADJACENT TO TROPICAL PRODUCTION FORESTS OF SPECIES, POPULATIONS OF SPECIES, AND SPECIES' ASSEMBLAGES THAT ARE SUBJECT TO INTERNATIONAL CONSERVATION AGREEMENTS MAY SIGNAL THE NEED FOR SPECIAL MANAGEMENT MEASURES.

GUIDELINE 3

International commitments for the conservation of genes, populations, species and assemblages of species or habitats should be reflected in the legal and regulatory frameworks guiding the allocation and use of land for production forestry.

Forest agencies should collaborate with other government and non-government bodies engaged in making and implementing international biodiversity-related commitments. Forest agencies should have biodiversity experts on their staff, or access to such experts, who can review texts of international conservation agreements to which the country is a signatory to determine their implications for forest management and to make recommendations on changes to the legal and regulatory frameworks. These specialized biodiversity staff should also take the lead in the implementation of many other aspects of these guidelines.

PRIORITY ACTIONS

RELEVANT GOVERNMENT AGENCIES SHOULD:

- Establish a participatory process to ensure that biodiversity conservation commitments made internationally are widely supported domestically
- Strongly encourage collaboration between responsible agencies in implementing international commitments
- Promote the adoption and dissemination of information on, and support the implementation of, relevant international biodiversity-related commitments
- Ensure that enough biodiversity expertise exists on staff, or that such expertise is readily available, to review conservation-related commitments made internationally
- Work closely with forest agencies to ensure that all national and international commitments are known to forest planners and operators
- Promote appropriate training activities to enhance the knowledge and skills of government agency staff responsible for the fulfilment of international agreements related to biodiversity conservation

The quantitative analysis of the ACTO Member Countries presented a total of 146 legal instrument, with an overall average implementation degree of 3,13 for Guideline 3, for the Amazonian region, corresponding to good attention to the Guideline within the established score scale.

It can be verified in Chart 03 and Table 06 that one of the countries, Brazil, reached a degree of implementation 4, considered Optimal, the highest average presented. The lowest was presented by Guyana.

As shown in the following Table, **BOLIVIA** presented the largest number of legal instruments correlated with Guideline 3 (33), and the lowest number was presented by Brazil (8).

With respect to international commitments for conservation being reflected in the legal and regulatory frameworks governing the allocation and use of land for forest production, all countries indicated that they participate in international agreements and that have been complying with and including in its policies and legal instruments.

CHART 03 - IMPLEMENTATION DEGREE OF GUIDELINE 3 BY COUNTRY.

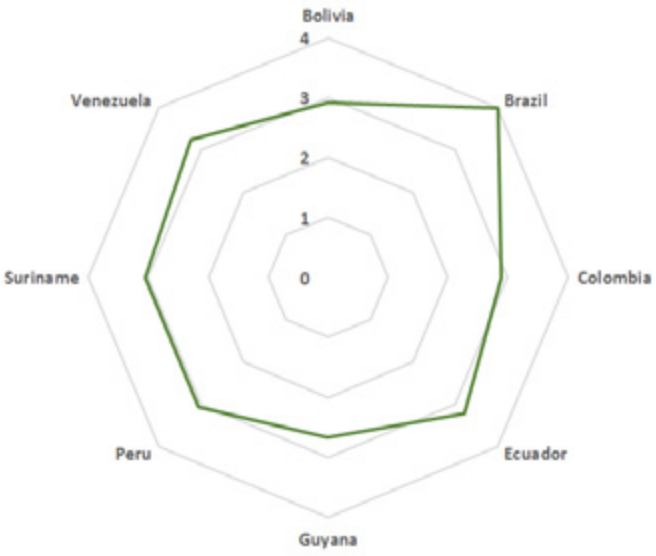


TABLE 06 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINES 3 BY COUNTRY.

	International commitments for gene conservation, populations, species and assemblages of species or habitats should be reflected in the legal and regulatory frameworks governing land allocation and use for forestry production.	Nbr. of Related Legal Instruments	Score (1 a 4)
P2D03	BOLIVIA	33	2,91
	BRAZIL	08	4,00
	COLOMBIA	30	2,90
	ECUADOR	09	3,22
	GUYANA	09	2,67
	PERU	19	3,05
	SURINAME	22	3,05
	VENEZUELA	16	3,25
	TOTAL	146	3,13

Bolivia quoted the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the International Convention 169 of the ILO concerning Indigenous and Tribal Peoples in Independent Countries, which are considered in the Forest Management Guidelines and the Program of Integral and Sustainable Management of Forests denominated "Nuestro Bosque" (Our Forest) and in the National Program of Biodiversity.

Some countries mentioned several agreements in force. **ECUADOR**, for instance, has 50 protected areas, under seven conservation categories (PANE), with 6 Biosphere reserves (UNESCO) and 18 RAMSAR sites.

According to the national assessment, **ECUADOR** signed in 1993 a Convention on Biological Diversity (CBD) where the parties must submit to the Conference of the Parties (COP) the reports on the actions carried out to implement the provisions of the said agreement and the effectiveness of fulfillment its objectives. In COP10, the Strategic Plan for the 2011-2020 period was adopted, which includes the Aichi Biodiversity Targets. In 2013, the National Biodiversity Strategy was prepared until 2030. Ecuador is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (CITES) since 1975.

SURINAME was another country that listed various international environmental agreements and conventions, as well as other legal agreements of which it is a part, these are: (i) Convention for the Protection of the World Cultural and Natural Heritage (UNESCO) of which it is a member since 1976 ; (ii) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed in 1980; (iii) Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (the Western Hemisphere Convention), signed in 1985; (iv) RAMSAR Convention on Wetlands (RAMSAR), signed in 1985; (vi) United Nations Convention on Biodiversity (UNCBD), signed in 1992, ratified in 1996 (vii) United Nations Framework Convention on Climate Change (UNFCCC), signed in 1992 and ratified in 1997, and; (vi) Member of the Amazon Cooperation Treaty Organization (ACTO) since 1978.

PERU is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and its National Forestry Law states that to approve and supervise the Management Plans with which they declared the use of species listed in the annexes of CITES, the CITES administrative authority, in coordination with the Regional Forest and Wildlife Authority, would analyze in loco what has been declared.

VENEZUELA mentioned its willingness to consider the international agreements already

signed as an integral part of its legal system. The Constitution establishes that international conventions and treaties have legality after their ratification by the Legislative Power. The Organic Law of Environment and the Biological Diversity Management Law indicates that, as part of its administration, the application, monitoring, and compliance with international treaties on biological diversity must be ensured. The country did not mention to which international agreements it is a signatory.

Likewise, **GUYANA** mentioned having protected areas and protected species through international commitments but did not specify which agreements. Also, difficulties due to the lack of a detailed inventory of the areas, to determine a better use of the land, and/or studies on the species were mentioned.

BRAZIL is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). It has species that are listed in ANNEXES I, II and III of the Convention on Biological Diversity - CBD, and there are regulations for the management of these species (Ex.: Swietenia macrophilla King., Aniba rosaeodora Ducke), the country is in the direction of sustainable use of forest resources and the biodiversity conservation.

In **BRAZIL**, in the last decades, efforts have been undertaken with the definition of parameters and technical guidelines for sustainable forest management, along with the setting of the 20 Brazilian targets for biodiversity conservation until 2020.

Some of the concerns are common to several countries that, despite of being signatories to various international agreements, they have difficulties to monitor and follow-up in the field during the execution of management activities. These concerns were mentioned by **COLOMBIA** and by **BRAZIL**.

Among the concerns mentioned by **BRAZIL** is the possible lack of financial investment and/or lack of specific public policies for the development of the forestry sector. In Brazil, the actions that aim at contributing to the genetic conservation of the populations, species, and habitats in SFMPs and the respective forest management areas - FMA, are specific.

The National Policy for the Integral Management of Biodiversity and its Ecosystem Services resumes international commitments and extends its application to other Brazilian laws and policies, nevertheless, in the Forest Management Units its implementation is practically null.

In **COLOMBIA** there are national, sometimes re-

gional, initiatives on participatory processes to ensure that internationally assumed biodiversity conservation commitments receive broad support at the national level. However, the adoption and dissemination of information on relevant international commitments related to biodiversity is lacking and its application needs to be supported.

It was also mentioned that in **COLOMBIA** there are few specialists in biodiversity, or easy access to these professionals who can examine international commitments related to conservation. Likewise, the number of appropriate training activities to increase the knowledge and technical skills of government personnel in charge of compliance with international conventions is low.

GUIDELINE 4

Special measures will often be required when species and populations that are internationally recognized as rare, threatened or endangered occur in or adjacent to forest management areas.

Many of the measures to conserve biodiversity in tropical production forests will incur costs or reduce the profits of the forest owner or manager. It therefore makes sense to focus conservation efforts on those species or habitats that are of greatest conservation value. When biodiversity subject to international agreements or otherwise known to be of high conservation importance occurs in production forests, special conservation measures should be taken.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

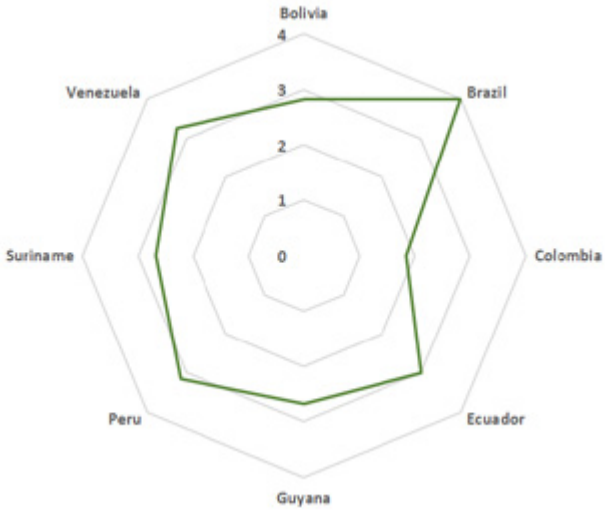
- As part of an overall effort to promote good forest conservation and monitoring practices, pay particular attention to the management of species or habitats that are internationally recognized as rare, threatened or endangered
- Consult with scientific and technical authorities on the species to be protected to identify appropriate conservation measures

The quantitative analysis of the ACTO Member Countries presented a total of 131 legal instruments, with an overall average implementation degree of 2,93 for guideline 4, for the Amazonian region, corresponding to regular attention to the Guideline within the established score scale.

However, it can be verified in Chart 04 and Table 07 that one of the countries, Brazil, reached a degree of implementation 4, considered optimal, the highest average presented. The lowest was presented by Colombia (1,86).

As shown in the following Table, Colombia presented the largest number of legal instruments correlated with Guideline 4 (30), and the lowest

CHART 04 - IMPLEMENTATION DEGREE OF GUIDELINE 4 BY COUNTRY.



number was presented by (6).

On the need for special measures, in cases where internationally recognized species or populations, rare, threatened or endangered species are present in forest management areas or adjacent areas, all countries, except Colombia, mentioned the efforts and measures adopted to promote good forest conservation, with adequate monitoring and control practices to safeguard these species.

In the case of **BOLIVIA**, the General Directorate of Biodiversity and Protected Areas oversees supervising and controlling, but there is still a need to disseminate and raise local awareness and sensitization about internationally recognized populations as rare, threatened or in danger of extinction. The Bolivian Forest Certification and Incentive System requires the monitoring of biodiversity in forest management activities.

ECUADOR reported on seven current and operational strategies, three strategies and three action plans in preparation for the safeguarding of

TABLE 07 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 4 BY COUNTRY.

	Special measures will often be needed in cases where internationally recognized species or populations such as rare, threatened or endangered species are present in forest management areas or adjacent areas.	Nbr. of Related Legal Instruments	Sccore (1 a 4)
P2D04	BOLIVIA	29	2,83
	BRAZIL	6	4,00
	COLOMBIA	30	1,86
	ECUADOR	10	3,00
	GUYANA	09	2,67
	PERU	19	3,16
	SURINAME	12	2,67
	VENEZUELA	16	3,25
	TOTAL	131	2,93

threatened species, in special, the strategy for the conservation of the wildlife species Tapirus bairdii, Panthera onca, and the flora species Swietenia macrophylla and Cedrela odorata that were prohibited from cutting. The Ministry of the Environment refrains from approving forestry plans and permits containing these species, until enough information is available on their state of conservation.

In **PERU**, by Supreme Decree, the categorization of endangered species of wild flora that are considered in the Forest Management Plans was approved, and the Forest and Wildlife Law states that for the approval and supervision of Management Plans with which they declared the Use of the listed species of the CITES appendices, the Cities administrative authority in coordination with the Regional Forestry and Wildlife Authority analyze In loco what has been declared, and thus proceed with licensing or not.

In **VENEZUELA**, the objectives of the Convention on Biological Diversity are presented transversally in the Forest Law. Regarding the areas for forest production, this Law establishes that sustainable management must be carried out to protect biological diversity and maintain the structure and functions of forest ecosystems for the benefit of current and future generations.

The National Strategy for the Conservation of

Biological Diversity of **VENEZUELA** (ENCDB), includes Management and International Policy as transversal axis, and the national government has been promoting the participation of organizations and social movements in international meetings, with the aim of strengthening a common agenda and a way to integrate peoples into life defense.

In **GUYANA**, the species included in the CITES annexes must be listed in the Environmental and Social Impact Assessment Reports for forest concession areas. However, it indicates that greater efforts and work are needed to develop special measures for wider application within production forests.

SURINAME notes that all species of flora and fauna that are internationally considered threatened or in danger of extinction, such as CITES and IUCN, are nationally protected in all forests.

According to Brazil's assessment, there are several advances in the attention to this guideline. The federal government issued standards that must be fulfilled by the states. One example is the case of the species Swietenia macrophilla Forester King, where specific regulations on the Forest Management Plan were instituted, with specific rules for the licensing, exploration and monitoring of this species.

In addition, the Sustainable Forest Management

Plans in **BRAZIL** must present and submit for analysis the list of species for cutting (annual exploitation) and for maintenance within the annual production unit, in accordance with the specific normative instruction, which establishes,

1. the maintenance of at least 10% of the number of trees per species in the area of effective exploitation, which meet the selection criteria for cutting indicated in the SFMP, respecting the minimum maintenance limit of three trees per species per 100 hectares, and;

2. the maintenance of all the trees of the species whose abundance of individuals with DBH higher than the MCD is equal to, or less than, three trees per 100 hectares of the effective exploitation area of the APU ".

STRATEGIC PRINCIPLES

PRINCIPLE 3: Political commitment and laws

STRONG COMMITMENT FROM DECISION-MAKERS AND ADEQUATE NATIONAL POLICIES, LAWS AND REGULATIONS ARE NEEDED TO ENSURE THAT FOREST MANAGEMENT ADDRESSES BIODIVERSITY ISSUES AT THE SCALE OF THE FOREST MANAGEMENT UNIT AS WELL AS AT THE LANDSCAPE AND NATIONAL LEVELS.

GUIDELINE 5

The value of biodiversity as a vital component of ecosystems and a key element of local livelihoods should be demonstrated and communicated to all stakeholders, including decision-makers.

Awareness-raising at the national level and among political decision-makers is most effective if the broad array of biodiversity values and benefits can be demonstrated. Economic valuation studies that assess the comparative benefits of biodiversity conservation and sustainable use and the value of the full range of ecosystem services from tropical forests can be useful tools. In many tropical forests, local knowledge and use of the wide variety of species exists, although this is diminishing in relative importance as species disappear. Local forest users and beneficiaries are positioned to be among the best advocates for conservation. Awareness is best raised through stakeholder contact. Field trips and workshops which bring national decision-makers to the forest management unit level to meet with other stakeholders and view the forest have proven to be effective in raising awareness.

PRIORITY ACTIONS

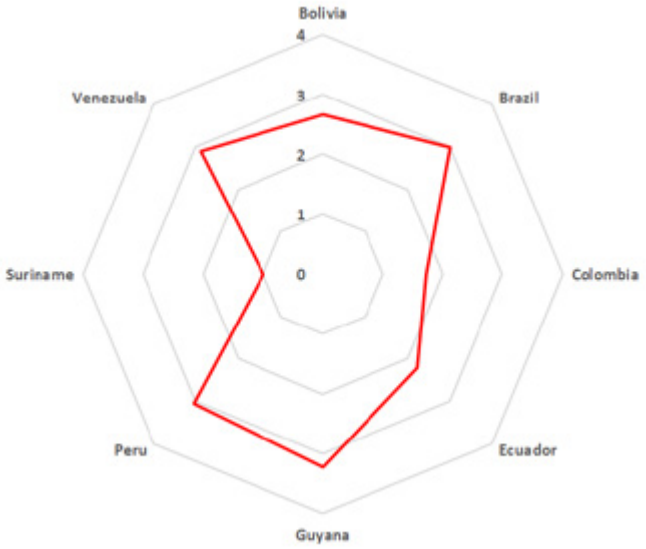
RELEVANT GOVERNMENT AGENCIES, CONSERVATION NGOS AND OTHER RELEVANT STAKEHOLDERS SHOULD:

- Use creative means to raise public and political awareness about biodiversity values, including providing opportunities for stakeholder gatherings and delivering information about the economic roles of biodiversity and tropical forests
- Ensure that local biodiversity values get adequate attention in valuation studies and decision-making processes
- Sensitize all stakeholders to the importance of biodiversity conservation and sustainable use

The quantitative analysis of the ACTO Member Countries presented a total of 166 legal instruments, with an overall average implementation degree of 2,47 for guideline 5, for the Amazonian region, corresponding to regular attention to the Guideline within the established score scale.

It can be verified in Chart 05 and Table 08 that three countries reached a degree of implementation 3, considered good, which is the highest average presented by Guyana (3,23), and the lowest was presented by Suriname (1,00).

CHART 05 - IMPLEMENTATION DEGREE OF GUIDELINE 5 BY COUNTRY.



As shown in the following Table, Colombia and Bolivia presented the largest number of legal instruments correlated with Guideline 5 (30), and the lowest number was presented by Brazil (9).

The countries expressed that, to a greater or lesser extent, all the relevant actors, including the leading sectors, are informed about the value of biodiversity as a vital component of ecosystems and a key element of local livelihoods.

In **BOLIVIA**, awareness and sensitization activities are carried out, mainly in the framework of projects and programs that are the operational instances. The Forest component in Bolivia's Social Economic Development Plan (2016-2020) acknowledges the value of Biodiversity. However, more consideration to this sector from the State is needed at federal level.

COLOMBIA indicated that creative actions are taken to increase public and political awareness of the values of biodiversity and tropical forests, such as promoting meetings with the different actors, nevertheless, not with all those that should really participate. Also, as informed, the local values of biodiversity receive insufficient attention in valuation studies and in decision-making processes and therefore awareness should be raised, to all relevant stakeholders, about the importance of conservation and sustainable use of biodiversity.

ECUADOR mentioned the profound changes related to the political and economic orientation of the country, since the 2008 Constitution, and that are framed in the National Plan for Good Living 2013-2017. This Plan seeks to guarantee the rights of natural heritage as a strategic public good whose nature is to promote environmental sustainability. The Ministry of Environment of Ecuador is directly linked to the Cabinet of Strategic Sectors, showing the constitutional provision of

TABLE 08 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 5 BY COUNTRY.

	The value of biodiversity as a vital component of ecosystems and a key element of local livelihoods should be shown and reported to all relevant actors, including the leading sectors.	Nbr. of Related Legal Instruments	Score (1 a 4)
P3D05	BOLIVIA	30	2,67
	BRAZIL	9	3,00
	COLOMBIA	30	1,72
	ECUADOR	18	2,22
	GUYANA	14	3,23
	PERU	19	3,05
	SURINAME	18	1,00
	VENEZUELA	28	2,89
	TOTAL	166	2,47

recognizing biodiversity and genetic heritage as part of the strategic sectors administered, regulated, controlled and managed by the State, using several mechanisms and instruments for that purpose.

Within the framework of the **PERUVIAN** National Forestry and Wildlife Policy, there are policies, norms, instruments and actions related to forest and wildlife heritage, to promote actions, at all three government levels, always aimed at obtaining sustainable development integrating the economic, social and environmental dimensions.

This policy is governed by the ecosystem approach and within the framework of the Convention on Biological Diversity, understood as a strategy for the integrated management of lands, waters and living resources, promoting equitable conservation and sustainable use by all, seeking to guarantee access opportunities to resources by all stakeholders, through comprehensive initiatives contributing to poverty eradication.

According to **VENEZUELA'S** national assessment, conservation and protection of the environment is a matter of concern, however, environmental policy has little effectiveness due to the lack of continuity of the development plans and sectoral legislative practice that prevented the integral treatment of the environment.

In the Constitution of Venezuela of 1999, environmental rights were recognized and incorporated for the first time, and protection of the environment and biological diversity was declared part of the constitutional principles, as well as the responsibility of the State and society to maintain an ecologically balanced environment, and sustainable development as a premise for the planning of the territory.

However, **PERU** and **VENEZUELA** did not indicate which are the means of dissemination and communication carried out to all the relevant actors.

In **GUYANA**, information on the value of biodiversity is widely available, however, according to the

examiner, this information is not considered by decision-makers when planning their field operations.

In **SURINAME**, there are some awareness programs, distribution of brochures and pamphlets related to the value of biodiversity for all stakeholders, including for decision-makers. In the wood cutting licenses, information promoting biodiversity conservation is included. Nevertheless, there is no comprehensive and structured national awareness program for the actors involved, indicating the importance of increasing and improving said actions.

In **BRAZIL**, since the Eco-92, the value and significance of forest ecosystems have been subject of studies, allowing the various segments of organized civil society, research institutions along with the Brazilian government, to insert debates and discussions on the value of the biodiversity conservation.

However, after 25 years of the ECO92, **BRAZIL** still faces many conflicts between the desire of the country to achieve its economic growth (of the productive sectors, the increase of the energy matrix and the highway network) and the principles to achieve sustainable development. It is not uncommon that an environmental policy, dedicated to conserving and protecting ecosystems and biodiversity, be seen by sectors traditionally understood as productive (industrial, agribusiness, mining, and energy sectors) as an obstacle to economic growth and development. country.

Some decisions of the federal government tend to go in the opposite direction of biodiversity conservation and sustainable use of forests. The reality is that Brazil still faces many challenges to reach an understanding regarding the effective valuation of its ecosystems and its biodiversity. However, the federal government devotes efforts to change this vision. One example is the implementation of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon - PPCDAM, despite the existing illegal deforestation, logging and predatory exploitation of non-timber forest products.

The **BRAZIL'S** national assessment concludes that the set of normative acts adopted at present is favorable to the conservation of forest biodiversity, meanwhile, it cannot be affirmed, categorically, that they are fully complied with.

GUIDELINE 6

Appropriate policies, laws and regulations should be developed and implemented to ensure that biodiversity interests are adequately addressed in the management of tropical production forests.

Policies, laws and regulations for production forests should reflect biodiversity conservation and sustainable use commitments and set clearly defined implementation targets. The process of policy development should include multi-stakeholder consultations. An effective system for monitoring the implementation of such policies, laws and regulations should be in place.

PRIORITY ACTIONS

GOVERNMENTS SHOULD:

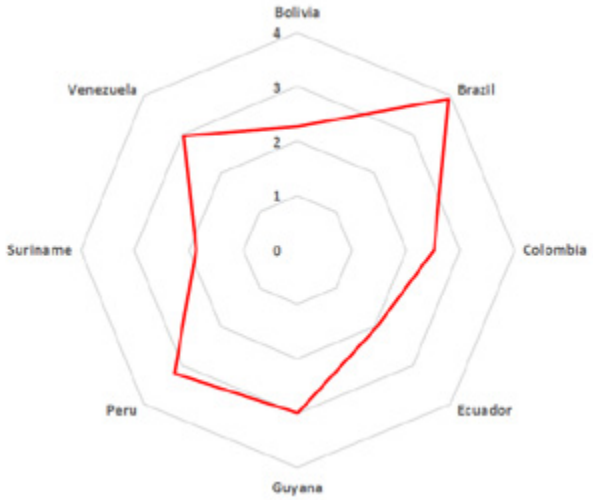
- Encourage multi-stakeholder involvement in the formulation of policies, laws and regulations related to production forests
- Ensure the effective implementation of policies, laws and regulations relating to biodiversity in production forests through such actions as providing adequate funding and staffing of key programs and units, seeking to diversify sources and sustain funding, reaching out to stakeholders in civil society and the private sector, and coordinating among all relevant agencies

CIVIL SOCIETY SHOULD:

- Play a major role in reviewing proposed changes in policies, laws and regulations and in monitoring their implementation
- Ensure that all relevant decision-makers are accountable for the implementation of conservation commitments relating to tropical production forests

The quantitative analysis of the ACTO Member Countries presented a total of 187 legal instruments, with an overall average implementation degree of 2,72 for guideline 6, for the Amazonian region, corresponding to regular attention to guideline within the established score scale.It can be verified in Chart 06 and Table 09 that three countries reached a degree of implementation 3, considered good, which is the highest average presented by Brazil (3,92), and the lowest was presented by Suriname (1,86).

CHART 06 - IMPLEMENTATION DEGREE OF GUIDELINE 6 BY COUNTRY.



As shown in the following Table, Colombia and Bolivia presented the largest number of legal instruments correlated with Guideline 6 (30), and the lowest number was presented by Suriname (14).

All the countries' national assessments indicated having adequate policies, laws and regulations, formulated and implemented ensuring that all biodiversity concerns are properly incorporated

TABLE 09 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 6 BY COUNTRY.

	Appropriate policies, laws and regulations should be formulated and implemented to ensure that biodiversity concerns are properly incorporated into the management of tropical production forests.	Nbr. of Related Legal Instruments	Score (1 a 4)
P3D06	BOLIVIA	30	2,27
	BRAZIL	26	3,92
	COLOMBIA	30	2,52
	ECUADOR	25	2,04
	GUYANA	16	3,00
	PERU	19	3,21
	SURINAME	14	1,86
	VENEZUELA	27	2,96
	TOTAL	187	2,72

into the management of tropical production forests, clearly highlighting some problems and necessary adjustments to achieve a high degree of implementation.

BOLIVIA has laws that allow the continuity of the regeneration capacity of the earth´s life components and systems but which are not implemented yet. However, Bolivia is in process of developing a comprehensive and sustainable management of forests taking into consideration biodiversity and the Bolivian System of Forest Certification and Incentives is in operation.

The **COLOMBIA'S** national assessment indicated that civil society still does not play an important role in the monitoring, examination and control of the existing policies, laws and regulations. Also, conservation objectives are not jointly established with all the stakeholders, hence, not paying attention to local communities needs and priorities. Likewise, the lack of participation incentives for the multiple stakeholders in the formulation of policies, laws, and regulations related to production forests was reported, and the application of these legal instruments to these forests is not assured. The report indicates that, to improve this situation, the government could allocate enough funds and personnel in programs and activities, incorporate stakeholders from civil society and the private sector, facilitating coordination among all the competent agencies.

The Constitution of **ECUADOR** declares of public interest the preservation of the environment, the conservation of ecosystems, biodiversity and the integrity of the country's genetic heritage, the prevention of environmental damage and the recovery of degraded natural spaces. Furthermore, there is a Forest Law that indicates the type of management and use for the diverse types of forests, such as public, private, private permanent production and other. The Ministry of the Environment determines the species that can be used, and which are prohibited.

PERU'S national assessment reported about the existing legal and political instruments related to conservation, protection, maintenance, improvement and sustainable use of forest heritage and wildlife. These instruments promote diversified and comprehensive use to ensure greater economic value and maintain forest areas, as well as promote the management of forest ecosystems with a landscape and adaptative criteria, ecosystem approach and respect for ecological and economic zoning and the current use of the land.

In **VENEZUELA**, the Plan Patria 2013-2019 states the preservation of life on the planet based on the harmonic interaction between man and nature. It guarantees the sustainable use and exploitation of natural resources, respecting the processes and cycles of nature. This Plan, also pretends to develop a comprehensive policy of conservation, sustainable use and scientific dissemination of biological diversity, promote the generation and social appropriation of knowledge, promote national and international actions for the conservation and sustainable management of biological diversity and forestry in a regional, continental and global framework oriented towards integration, sovereignty and well-being, as well as to preserve strategic conservation areas for present and future generations.

GUYANA'S national assessment indicated that, according to the size of the concession areas, the owners of the concessions are obliged to preserve a certain percentage of the production

area as biodiversity reserves. In addition, other gains are obtained through the application of principles and practices of reduced impact exploitation, as well as to adhere to the requirements of the Code of Practice.

In **SURINAME,** the Forest Management Laws and the Nature Conservation Law have the provisions to ensure that biodiversity issues are included in the management of tropical production forests. Likewise, it has specific regulations and guidelines for timber licenses and conditions for the forest concession. However, attention is drawn to the fact that due to the lack of capacities at all levels, the application of the laws is not adequate.

The policies, laws, and regulations of **BRAZIL,** aimed at sustainable forest management, seek to addressing principles for biodiversity conservation. Nevertheless, the Brazilian Amazon region needs to reconcile conservationist practices with forest management practices, because the demands and conditions for forest management to safeguard biodiversity are still poorly adopted or fulfilled. In the SFMPs approved and currently under execution, many with Forest Certification, the practices are conditioning and the failure to comply with these, can lead to the embargo and even the suspension of the SFMPs.

It can be affirmed that **BRAZIL** has progressed in the political and legal instruments to regulate the use of the forest resources of the Amazon region, however, there are concerns in relation to illegal logging, illegal deforestation, and burning practices contrasting throughout the legal framework. There is still a long journey, mainly in the sense of inhibiting and effectively adopting command and control mechanisms to contain illegal and predatory practices that compete unevenly with sustainable forest management activities, which causes many to abandon carrying out these mechanisms.

PRINCIPLE 4:
Land Use and spatial planning

ACHIEVING BIODIVERSITY OBJECTIVES IN PRODUCTION FORESTS REQUIRES THAT LAND ALLOCATION TO DIFFERENT SECTORS AND SPATIAL PLANNING WITHIN AND OUTSIDE THE FOREST SECTOR TAKE BIODIVERSITY OBJECTIVES INTO ACCOUNT. THIS, IN TURN, REQUIRES COLLABORATION BETWEEN SECTORAL INSTITUTIONS AT THE NATIONAL OR SUB-NATIONAL SCALE AND NEGOTIATION AMONG LOCAL LAND-USERS AT THE LANDSCAPE SCALE.

GUIDELINE 7

National land-use planning processes and forest and environmental laws should explicitly address issues of biodiversity conservation and sustainable use in forests at all spatial scales.

Land-use or spatial plans should comply with national biodiversity action plans or similar biodiversity conservation and sustainable use initiatives. Similarly, biodiversity conservation goals should be spelt out explicitly in the development of forest-related laws and regulations. Forests should be allocated to different uses in ways that optimize the provision of forest goods and functions at the landscape scale and that take into account the ecological needs of species whose conservation is desired. This requires good-quality forest maps and knowledge of the ecology of the species to be conserved. In the past, spatial planning has tended to overlook certain legitimate stakeholders, especially local and Indigenous peoples, who might be dependent on access to or the use of biodiversity resources. The application of traditional knowledge and consultation with local people should be part of the process of land allocation.

PRIORITY ACTIONS

RELEVANT GOVERNMENT AGENCIES SHOULD:

- Ensure that national biodiversity action plans or similar biodiversity conservation initiatives are reflected in land-use or spatial plans at all scales
- Ensure that there is a process, established in law or regulation, that is transparent and allows for full public participation in forest land allocations and captures local values, including those of Indigenous and forest-dwelling people

The quantitative analysis of the ACTO Member Countries presented a total of 161 legal instruments, with an overall average implementation degree of 3,02 for guideline 7, for the Amazonian region, corresponding to good attention to the Guideline within the established score scale.

It can be verified in Chart 07 and Table 10 that four countries reached a degree of implementation 3, considered Good, and the other four presented averages very close to 3, not having however a disparity in the values, being the highest average presented by Venezuela (3,19), and the lowest was presented by Brazil (2,80).

As shown in the following Table, Colombia presented the largest number of legal instruments correlated with Guideline 7 (30), and the lowest number was presented by Brazil (5).

CHART 07 - IMPLEMENTATION DEGREE OF GUIDELINE 7 BY COUNTRY.

All the national assessments indicated a clear approach to conservation and sustainable use of forest biodiversity issues in the national planning processes of land use planning and forest and environmental laws.

In **BOLIVIA**, there is the Comprehensive Planning System in which legal instruments, such as the Integral Territorial Development Plans were developed to address biodiversity issues. However, it is still necessary to create more awareness of the significance of biodiversity as fundamental in the development of the region.

COLOMBIA'S national assessment indicated that National Action Plans on biodiversity or other similar initiatives for the biodiversity conservation are not included in the existing Territorial Ordinance Plans.

The Organic Code of Territorial Organization, Autonomy and Decentralization (COOTAD) of **ECUADOR** affirms that, in order to safeguard the biodiversity of the Amazonian territory, the central government and the autonomous governments, simultaneously should adopt development policies and sustainable compensation measures to correct iniquities, establish and implement biosafety regulations and other measures necessary for the conservation, sustainable use and recovery of biodiversity and its components.

In **PERU**, the Forestry and Wildlife Law, describes the zoning and national forest management, noting that forest lands are delimited in a mandatory, technical and participatory manner. The results of forest zoning define the alternatives for the use of forest resources and wildlife.

TABLE 10 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 7 BY COUNTRY.

	National land-use planning processes and forest and environmental laws should explicitly address aspects of the conservation and sustainable use of forest biodiversity at all spatial levels.	Nbr. of Related Legal Instruments	Score (1 a 4)
P4D07	BOLIVIA	27	2,96
	BRAZIL	05	2,80
	COLOMBIA	30	2,86
	ECUADOR	27	2,96
	GUYANA	15	3,07
	PERU	19	3,16
	SURINAME	12	3,17
	VENEZUELA	26	3,19
	TOTAL	161	3,02

The planning must have a systemic approach and follow the Peruvian rules for ecological economic zoning, considering the current processes, planning and regional territorial management instruments, respecting the traditional uses and customs of the communal lands, dividing the forests into different categories according to their nature and suitability of forest use.

In **VENEZUELA**, the National Plan for Territorial Planning organizes the location of population, economic activities, and infrastructures, harmonizing criteria for economic growth, social development, security, defense and conservation of the environment. The plans include the zoning, such as those of ecological systems and the preservation of fragile ecosystems, along with the Genes Reservoir Protection Zones. This plan is built between the Ministry of Popular Power of Environment and the Ministry of Popular Power for Planning and Development along with other State institutions.

According to **SURINAME'S** national assessment, the spatial use of the natural forest is classified according to the Forest Management Law as, protected forest, which is mainly intended for soil protection for the maintenance of water regulation; Protected areas (natural forest reserves, natural parks), along with specially protected forests, mainly for the preservation of biodiversity; Production forest, intended mainly for the production of timber and non-timber forest products, and; forest of conversion, destined to other land uses.

However, in practice, there is still a lack of maps of forest and land use categories, leading to conflicts in the use of forest areas, in the allocation and management of forests, often making difficult the sustainable use and conservation of these areas in **SURINAME**.

BRAZIL has the National Law of Land tenure Regularization of the Legal Amazon. There is an important management tool called economic-ecological zoning (ZEE) consisting of a legal instrument from the National Environmental Policy used in the three spheres of the public power, through projects carried out in various working levels in the national territory.

In general terms, the ZEE aims at making sustainable development feasible based on the compatibility of socio-economic development with environmental protection. A diagnosis of the physical, socio-economic and legal-institutional means is performed, along with the establishment of exploratory scenarios for the proposal of legal and programmatic guidelines for each identified territorial unit, including actions aimed at mitigation or correction of environmental impacts damage occurred.

In 2010, the Brazilian federal government initiated a broad discussion process with stakeholders from the nine states of the Legal Amazon region along with the institutions of the Consortium ZEE Brazil that concluded in the need to move towards a sustainable development model, aimed at meeting social needs and environmental and economic requirements, and passing through an adjustment of the current productive matrix to include sustainability criteria through regulatory processes and economic instruments. In this sense, the Ecological-Economic Macrozonification (MacroZEE) of the Legal Amazon was undertaken.

The MacroZEE dialogues with the main initiatives that are transforming the Amazon and that have a strong political and social legitimacy, such as the Action Plan for the Prevention and Control of Deforestation in the Amazon (PPCDAm), Re-

gional Development Policies (PND), the National Plan on Climate Change (PNMC), the Territorial Citizenship Program, the Regional Development Plans, following the example of the Marajó, BR-163 and Xingú Plans, and the Legal Land Tenure Regulation Program - Terra Legal (Legal land), the Public Forest Management Law and the Community and Family Forest Management Program.

However, there is a consensus that the implementation of all MacroZEE plans and strategies will only be fully achieved if it is driven by a new set of political, economic and social forces, committed to the principles, criteria and practices of sustainability.

Currently, Brazil has an Environmental Rural Registry (CAR), which is one of the federal government's instruments to promote environmental regularization and encourage environmental recovery and maintenance of areas legally defined as mandatory within the rural property. It is a national scope instrument for the integration and management of environmental information of rural properties throughout the country. The information obtained by the CAR will support the design of future policies, programs, projects and activities of control, monitoring, environmental and economic planning, and combating illegal deforestation.

GUIDELINE 8

Inconsistent or contradictory land-use policies and laws at national and subnational levels that conflict with biodiversity conservation and sustainable use or do not support SFM in general should be identified, reviewed and modified.

The greatest threats to biodiversity in tropical production forests often come from outside the forest sector. Agricultural conversion and mineral exploitation are often undertaken with inadequate consideration of biodiversity conservation and other forest values.

PRIORITY ACTIONS

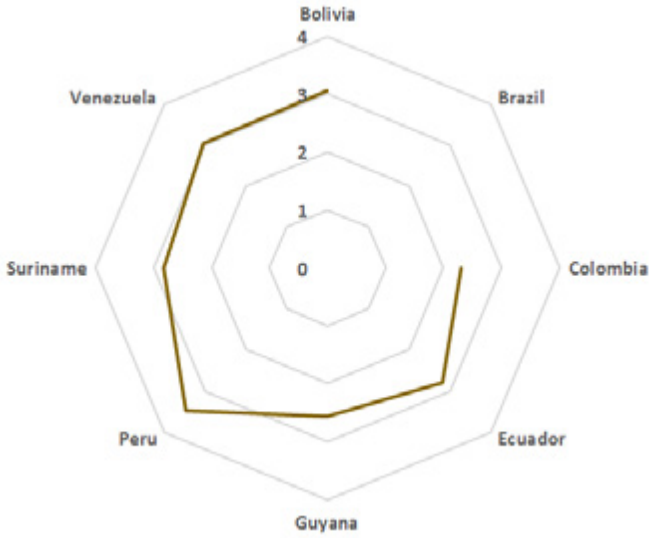
WHERE APPROPRIATE, RELEVANT GOVERNMENT AGENCIES SHOULD:

- Identify, review and modify policies, laws or subsidies outside the forest sector that are unfavorable to biodiversity conservation and SFM

The quantitative analysis of the ACTO Member Countries presented a total of 140 legal instruments, with an overall average implementation degree of 2,87 for guideline 8, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 08 and Table 11, that three countries reached a degree of implementation 3, considered Good, which is the highest average presented by Peru (3.47), and the worst result was presented by Brazil that has no legal instruments to attend this guideline.

CHART 08 - IMPLEMENTATION DEGREE OF GUIDELINE 8 BY COUNTRY.



As shown in the following Table, Colombia presented the largest number of legal instruments correlated with Guideline 8 (30), and Brazil has no legal instruments.

Most countries, **BOLIVIA**, **COLOMBIA, ECUADOR**, **VENEZUELA**, **GUYANA** and **BRAZIL**, did not indicate initiatives whose national and sub-national land use policies and laws need to be identified, revised and modified, as being inconsistent or contradictory, and contrary to the conservation and sustainable use of biodiversity, or do not support the process of sustainable forest planning and management.

The **PERUVIAN** national assessment indicated that standards that are inconsistent with the use and conservation of forest heritage and wildlife are being revised, Also, that environmental and social standards are applied in the projects and programs of public institutions, in order to avoid, minimize, restore, mitigate and compensate, when necessary, the impacts of forest resources and wildlife.

SURINAME has inconsistent or contradictory policies and laws at the national and subnational levels due to the absence of a land use map. In addition, it is possible to issue mining and timber concession for the same forest area, which often generates conflicts between the concessionaires, and above all, makes the protection and sustainable use of forests and biodiversity difficult. The national assessment indicated that inconsistent or contradictory land use policies and laws are identified, and some options are proposed for modification and/or elimination.

TABLE 11 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 8 BY COUNTRY.

	National and sub-national land use policies and laws should be identified, revised and modified when inconsistent or contradictory, standing in the way of conservation and sustainable use of biodiversity or that do not support the sustainable planning and management process in general.	Nbr. of Related Legal Instruments	Score (1 a 4)
P4D08	BOLIVIA	21	3,05
	BRAZIL		
	COLOMBIA	30	2,31
	ECUADOR	20	2,80
	GUYANA	14	2,57
	PERU	19	3,47
	SURINAME	12	2,83
	VENEZUELA	24	3,04
	TOTAL	140	2,87

GUYANA and **BRAZIL** are countries that have no initiatives for this Guideline. Some productive activities in conflict with the conservation and sustainable use of biodiversity were mentioned. In Guyana, gold mining versus logging is the main land use conflict. The attractive prices for gold in the world market, prove to be an important source of currency

With respect to contradictory policies and laws in Brazil, the national assessment observed many policies, programs and governmental actions aimed at subsidizing economic incentives, access to credit and investments for the implementation of productive actions of great environmental impact, involving the deforestation of extensive areas of native forests, such as the construction of hydroelectric plants, subsidized credits for agribusiness, and other major ventures. This often places economic growth as conflictive to the conservation and sustainable use of forest resources and biodiversity.

PRINCIPLE 5: Decentralization, forest tenure and natural resource access rights

DECENTRALIZED MANAGEMENT AND IMPROVED INSTITUTIONAL ARRANGEMENTS AND GOVERNANCE CAN ASSIST THE ACHIEVEMENT OF BIODIVERSITY CONSERVATION AND SUSTAINABLE USE GOALS IN TROPICAL PRODUCTION FORESTS BY IMPROVING BOTH THE LARGE-SCALE ALLOCATION OF LAND AND THE RESOURCE ACCESS AND LAND TENURE RIGHTS OF LOCAL PEOPLE.

GUIDELINE 9

Local communities should have the right to use biodiversity to meet their economic and cultural needs and should be involved in its management and protection. Clearly demarcated and defined tenure and resource use rights might benefit biodiversity by providing local people with incentives for conservation and sustainable use

Major initiatives in recent years to decentralize forest governance and give communities a greater role in forest management has increased the importance of small and medium-sized private and community forest enterprises. Local communities, forest managers and owners are more likely to maintain forests and therefore conserve biodiversity rights to use forest resources are secure. The interests of biodiversity conservation can often be promoted by clarifying and providing legal protection for the boundaries of local use areas and for access rights to timber, non-timber forest products (NTFPs), fish and other useful biodiversity. The lack of clarity on local rights and access often leads to "a tragedy of the commons" in which different stakeholders deplete resources for short-term benefits. Various forms of collaborative and joint forest management – under which forest agencies continue to have regulatory oversight to ensure that the public goods values of forests are conserved – have benefited biodiversity. Diverse forms of local management should be encouraged, with particular attention paid to their impacts on biodiversity conservation.

PRIORITY ACTIONS

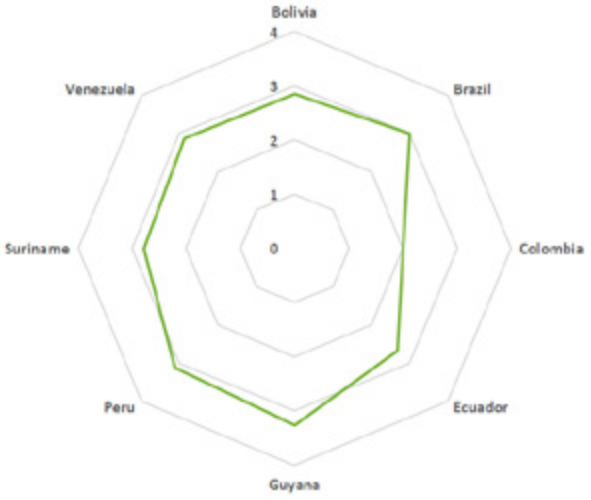
ALL STAKEHOLDERS SHOULD::

- Encourage the biodiversity conservation and the sharing of benefits derived from its use

GOVERNMENTS SHOULD:

- Involve local people in the creation, design, negotiation and implementation of legal forest governance mechanisms
- Encourage and regulate community and small-scale forestry, and collaborative and joint forest management agreements in ways that provide incentives to conserve biodiversity
- Encourage arrangements between communities and private enterprises that favour SFM and biodiversity conservation
- Provide safeguards for biodiversity in local forest management schemes

CHART 09. IMPLEMENTATION DEGREE OF GUIDELINE 9 BY COUNTRY.



The quantitative analysis of the ACTO Member Countries presented a total of 168 legal instruments, with an overall average implementation degree of 2,82 for guideline 9, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 09 and Table 12 that three countries reached a degree of implementation 3, considered Good, which is the highest average pre-

sented by Guyana (3,27), and the lowest was presented by Colombia (2,00).

As shown in the following Table, Ecuador presented the largest number of legal instruments correlated with Guideline 9 (34), and the lowest number was presented by Brazil (6).

With regard to the right of local communities to use biodiversity to meet their economic and cultural needs, and to participate in their management and protection, most countries indicated having initiatives and legal instruments and policies for this purpose.

However, not all countries offer many incentives to local populations leading to the promotion of biodiversity conservation, its sustainable use and the distribution of the benefits from its use, nor are there binding mechanisms that guarantee the participation of the local population in the creation, design, negotiation and application of legal mechanisms of forest governance, as is the case of **COLOMBIA,** which indicated that the incentives for this purpose are incipient.

In **BOLIVIA**, there is a law that promotes the necessary conditions for the use and exploitation of the components of the "Mother Earth" within the framework of sustainable lives systems that fully develop the social, ecological, cultural and economic issues. In addition, Law 1700 develops several instruments that allow communities to conduct forest management and take advantage of biodiversity, as well as allows communities to meet their economic and cultural needs.

COLOMBIA reported, however, about the ini-

TABLE 12. NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 9 BY COUNTRY.

	Local communities should have the right to use biodiversity to meet their economic and cultural needs and should participate in its management and protection. With a clear delimitation and definition of tenure rights and use of the resource, biodiversity could benefit from incentives to local populations for their conservation and sustainable use.	Nbr. of Related Legal Instruments	Score (1 a 4)
P5D09	BOLIVIA	26	2,85
	BRAZIL	6	3,00
	COLOMBIA	29	2,00
	ECUADOR	34	2,68
	GUYANA	11	3,27
	PERU	19	3,11
	SURINAME	19	2,79
	VENEZUELA	24	2,88
	TOTAL	168	2,82

tiatives to stimulate and regulate community and small-scale forestry activities, as well as joint and cooperative forest management agreements, to offer incentives for biodiversity conservation, even if they are incipient. The Ministry of Environment and Sustainable Development is working towards promoting agreements between communities and private companies in benefit of sustainable forest management and biodiversity conservation practices. However, there are still no actions favorable to biodiversity in local forest management systems.

ECUADOR reported about legal instruments establishing the State´s duty to regulate and encourage the participation of individuals, communities, peoples and nationalities in biodiversity conservation and sustainable use, as well as in the fair and equitable distribution of the benefits derived of genetic resources, and recognition of the traditional use and exploitation of wildlife species for subsistence reasons, or for medicinal cultural practices.

As shown in the national assessment of **PERU**, there are laws that regulate forest use, and its proper implementation guarantees the reduction of environmental impact and the increase of the efficiency of the products obtained, contributing to the food security of vulnerable populations.

Likewise, in **VENEZUELA** there is a law that determines that diversity management includes the fair and equitable participation of all social sectors in the benefits derived from the sustainable use of the components of biological diversity.

Likewise, the Organic Law of the Indigenous Peoples and Communities of Venezuela develops the constitutional precepts based on their rights to the exploitation and sustainable use, biodiversity administration and conservation within their habitat and lands, as well as the right to economic and social benefits for the development of their livelihoods when conducting exploitation activities of natural resources or developing projects in their ancestral territories.

In **GUYANA**, many indigenous groups have their own titled communal lands and the use of biodiversity is not restricted. In addition, any indigenous may collect and use forest goods in any part of the country's forests, including those maintained under state forest authorizations. In contrast, the other (rural) villages need the appropriate authorization to collect forest goods.

According to the Forest Management Law of **SURINAME**, community forests can be granted to communities established in the forest. This license grants the right to sustainable forest management, agriculture and collection of non-timber forest products.

It was reported that the Constitution does not foresee collective rights to land-use. However, the indigenous and quilombolas of **SURINAME** are claiming these rights. The government is accelerating the process to solve these high priority challenges related to the land possession that must be resolved to guarantee forest management and sustainable use, and forest and biodiversity conservation.

The federal government of **BRAZIL** has undertaken efforts to ensure the right of peoples, traditional communities and family farmers to the occupation and sustainable use of their territories, as a strategy to ensure the sustainable use of forest resources and the biodiversity conservation. To this end, public policies and support and promotion instruments are being implemented, such as:

1. creation of conservation units (CU) for sustainable use in the modalities of Extractive Reserve (RESEX) and Sustainable Development Reserve (SDR);

2. the creation of rural settlement projects such as Agroextractivist Settlement Project (PAEX), Forest Settlement Project (PAF), Sustainable Development Project (SDP);

3. implementation of the National Policy to Promote the Chains of Sociobiodiversity Products;

4. implementation of the Federal Program for Community and Family Forestry Management

5. National Plan of Agroecology and Organic Production - PLANAPO of the National Plan for the Strengthening of Extractive Communities - PLANAFE;

6. Minimum Price Guarantee Policy for Sociobiodiversity Products - PGPM.

However, even in this scenario, access to biodiversity by Peoples, Traditional Communities and Family Farmers (PCTAF), for economic/commercial purposes, is still a challenge.

Despite the policies, programs and Action Plans to promote the sustainable use of biodiversity, there is a lack of specific action (public policy) to support the creation of capacities and, mainly, to include actions focused on sustainable forest management and production of forest timber and non-timber products within the technical assistance and rural extension program - ATER, that is currently carried out in the Brazilian Amazon region.

Another challenge for these populations and for the government agencies responsible for controlling these activities is the attention to current regulatory frameworks requirements related to the access to forest resources by peoples, traditional communities and family farmers, as there are many regulatory barriers to access biodiversity products in accordance with current regulations, phytosanitary requirements for the production and commercialization of food derived from Non-timber Forest Products.

According to State government agencies and those responsible for the licensing of sustainable timber and non-timber forest management activities in Brazil, there are still gaps in the legal framework concerning the forest management procedures for biodiversity products with commercial purpose by the peoples, traditional communities and family farmers.

GUIDELINE 10

Arrangements regarding forest ownership and use at the landscape scale should be favourable for the conservation of forest biodiversity.

Forest areas are commonly subject to a variety of ownership or management regimes, but the interests of biodiversity conservation are best served if the entire forest landscape is managed in a coordinated manner. Ideally, forest agencies should maintain an overview of the entire forest estate and coordinate the actions of different forest users to ensure the continuity of habitats. This is best done with adequate knowledge of the forest stakeholders and their land ownership and forest use.

PRIORITY ACTIONS

GOVERNMENTS SHOULD:

- Promote the clear demarcation of forest ownership and biodiversity-favourable access rights for local people

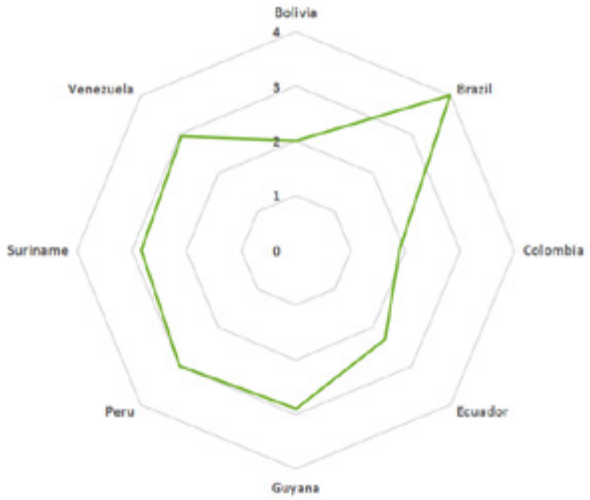
FOREST AGENCIES AND OTHER RELEVANT STAKEHOLDERS SHOULD:

- Maintain databases on forest ownership and use at a landscape scale
- Devise and implement mechanisms to help coordinate the actions of forest owners, users and managers across landscapes to best ensure the maintenance of enough high-quality connected habitat for species, populations of species, and species assemblages of conservation interest

The quantitative analysis of the ACTO Member Countries presented a total of 135 legal instruments, with an overall average implementation degree of 2,73 for guideline 10, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 10 and Table 13, that Brazil reached a degree of implementation 4, considered optimal, which is the highest average presented, and the lowest was presented by

CHART 10 - IMPLEMENTATION DEGREE OF GUIDELINE 10 BY COUNTRY.



Colombia (1,89).

As shown in the following Table, Colombia presented the largest number of legal instruments correlated with Guideline 10 (29), and the lowest number was presented by Brazil (6).

With respect to the fact that the provisions related to forest ownership and use at the landscape level should be favorable to the conservation of forest biodiversity, **BOLIVIA** informed that having instruments for forest utilization and is implementing their integrated and sustainable management. The promotion of conservation and sustainable use of forest resources was also mentioned. However, in practice, more efforts are needed to ensure the full consolidation of this approach and inclusion in the ownership provisions.

In **COLOMBIA**, there are initiatives to promote the delimitation of forest properties, however, in practice, access rights for the local population that are favorable to biodiversity are not properly regulated.

The legislation of the Ministry of the Environment of **ECUADOR** states that all activities related to the possession, conservation, use, protection and management of forest lands in their various use categories are subject to the law and can only be exploited in strict compliance with the environmental principles established in the constitution. The State shall participate in the benefits and use of these resources, for a value that will not be lower to that of the exploitation companies, and will ensure that the mechanisms of production, consumption, and use natural resources preserve and recover the natural cycles of and allow living conditions with dignity.

VENEZUELA'S national assessment shows that the democratization of the access and use of the

TABLE 13 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 10 BY COUNTRY.

	Provisions related to the ownership and use of the forest at the landscape level should be favorable to the conservation of forest biodiversity.	Nbr. of Related Legal Instruments	Score (1 a 4)
P5D10	BOLIVIA	21	2,00
	BRAZIL	6	4,00
	COLOMBIA	29	1,89
	ECUADOR	20	2,30
	GUYANA	9	2,89
	PERU	19	3,00
	SURINAME	11	2,82
	VENEZUELA	20	2,95
	TOTAL	135	2,73

multiple goods and benefits derived from forest ecosystems are covered in the Forests Law. The State promotes community forest management in Forest Reserves, in which the communities who have the right to remain in the locality, have access to the direct benefits of the sustainable exploitation and use of the forest heritage, through co-management and self-management agreements, fulfilling community initiatives, such as the socially owned enterprises and productive networks for the sustainable management of forests and forest production chains.

In **GUYANA**, forest ownership and use provisions apply to legal land-titling, as well as within protected areas, as indigenous peoples benefit from traditional rights to harvest within these areas, and these peoples are by nature very conservative in the use of forest goods and services, which is favorable to biodiversity conservation.

SURINAME referred to the rights granted to tribal communities, such as the right to timber cutting. Forest areas can be designated as community forests, which are not subject to concession fees. Regarding the private sector, the different licenses (wood and mining) granted by the government contain specific conditions to contribute to the conservation of forest biodiversity.

The national assessment of **BRAZIL** mentioned the existence of several legal instruments related to landscape forests ownership and use being favorable to forest biodiversity conservation. The Native Vegetation Protection Law of Brazil provides that all rural property must maintain an area with native vegetation cover, by way of Legal Reserve (without prejudice to the application of the rules related to permanent preservation areas). These areas should be measured in percentages according to the location of the property, such as 80% in the Legal Amazon, 35% in the Brazilian Cerrado biome and 20% in the general fields area. In Brazil, one can observe that the Laws in force favor the conservation of remnants of native vegetation in the Amazon in all rural properties, where the allocation of the Legal Reserve integrated to the permanent preservation areas, favor the conservation of timber areas. The existence of contiguous areas in rural properties and in conservation areas (such as Conservation Units and Indigenous Lands) seek to build forest mosaics in the landscape, which has been a guideline in the implementation actions of the Rural Environmental Registry and Environmental Regularization Programs, without prejudice to other efforts to create environmental protected areas.

PRINCIPLE 6: Incentives

SOCIETY AT LARGE BENEFITS FROM BIODIVERSITY CONSERVATION, BUT THE COSTS OF CONSERVATION FALL MAINLY ON LOCAL FOREST OWNERS AND MANAGERS. INCENTIVES WILL OFTEN BE REQUIRED TO ENCOURAGE FOREST OWNERS AND MANAGERS TO TAKE SPECIAL MEASURES FOR BIODIVERSITY CONSERVATION AND SUSTAINABLE USE.

GUIDELINE 11

Managers of tropical production forests should be compensated for the incremental costs of biodiversity conservation measures

Payments for the ecosystem services provided by forests can provide forest owners and managers with incentives for conserving biodiversity in tropical production forests.

PRIORITY ACTIONS

GOVERNMENTS SHOULD::

- Review international experiences in the use of innovative mechanisms to pay forest owners and managers for the ecosystem services their forests provide and the effects of such mechanisms on the biodiversity conservation
- Support pilot schemes to introduce payments for ecosystem services in tropical production forests
- Consider the introduction of such schemes on a wider scale

ALL RELEVANT STAKEHOLDERS SHOULD:

- Encourage potential donors and consumers of ecosystem services to contribute to such schemes

The quantitative analysis of the ACTO Member Countries presented a total of 89 legal instruments, with an overall average implementation degree of 2,26 for guideline 11, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

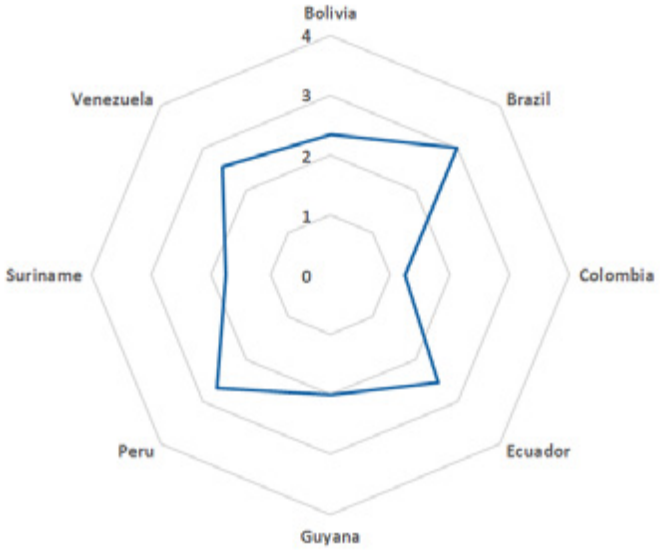
It can be verified in Chart 11 and Table 14, that Brazil reached a degree of implementation 3, considered good, which was the highest average (3,0), and the lowest was presented by Colombia (1,24).

As shown in the following Table, Colombia presented the largest number of legal instruments correlated with Guideline 11 (25), and the lowest number was presented by Brazil and Guyana (1).

In relation to the implementation of mechanisms to compensate those responsible for the management of tropical production forests, due to the incremental costs of actions aimed at conserving biodiversity, most of the countries said that they do adopt some instruments to benefit some forest producers, but there are still no compensation mechanisms in the countries.

BOLIVIA opposes to compensation mechanisms. It is contrary to the commercialization of the environmental functions and natural processes of the earth's components and life systems since

CHART 11 - IMPLEMENTATION DEGREE OF GUIDELINE 11 BY COUNTRY.



these are not considered merchandise, but rather a gift. However, promotion mechanisms are developed for producers.

In **COLOMBIA**, the government and some NGOs analyzed international experiences that use innovative payment mechanisms for forest owners and forest managers for the ecosystem services they provide. However, these mechanisms have not been implemented yet.

There are incentives in **ECUADOR** to exempt tribute payments for areas with forests or natural vegetation or cultivated with timber species or with forest training that meet established standards.

Likewise, the national evaluation of Ecuador indicated that there are laws and regulations that establish incentives and funding lines for Sustainable Forest Management and reforestation areas, in public or private areas, devoted to forestry activities promoting the preservation of a healthy environment and social and economic development, and executed by government agencies, private companies, peasant organizations, individuals, and public entities, through projects financed with national and/or foreign funds.

At present, with the implementation of the REDD+ Action Plan, incentives are given to those producers in Ecuador, mainly communities and small producers, who make the transition to sustainable production systems, thus reducing deforestation.

The Forest and Wildlife Law of **PERU** indicates that those responsible for the management of tropical production forests must be compensated for the incremental costs of actions aimed at conserving biodiversity and indicates in which situations there may be payments or not for envi-

TABLE 14 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 11 BY COUNTRY.

	Those responsible for the management of tropical production forests should be compensated for by the incremental costs of the actions aimed at biodiversity conservation.	Nbr. of Related Legal Instruments	Score (1 a 4)
P6D11	BOLIVIA	20	2,35
	BRAZIL	1	3,00
	COLOMBIA	25	1,24
	ECUADOR	13	2,54
	GUYANA	1	2,00
	PERU	6	2,67
	SURINAME	12	1,75
	VENEZUELA	11	2,55
	TOTAL	89	2,26

ronmental services. However, it was not reported if it is already done in practice.

In **VENEZUELA**, the Biological Diversity management law contemplates that individuals and legal entities, indigenous peoples and communities and organized communities may have access to economic, fiscal, financial, technological, social and educational incentives when formulating, executing or participating in plans, programs, projects or activities oriented to the conservation, sustainable use and recovery of biological biodiversity. The incentives include preferential credits or partial or total exemptions from taxes, fees, and contributions.

GUYANA and **SURINAME** informed not having any legislation or other administrative mechanisms to compensate those responsible for the management of tropical production forests for the incremental costs of the actions aimed at conserving biodiversity.

In **BRAZIL**, Sustainable Forest Management Plans executed in private properties located in the Amazon region are not benefited by any compensation mechanism when the adoption of good practices.

In forest concession areas in Brazil SFMPs are benefited with bonuses when adopting biodiversity conservation practices and measures. These bonuses are set by legal instruments that establish parameters, procedures, and rules for concession contracts of federal and/or state public forests. Through the bonuses, a discount on the payment to the government is given to the concessionaire, which is foreseen in a contract when meeting the established criteria.

GUIDELINE 12

Independent voluntary forest certification should be recognized as a way of encouraging biodiversity conservation in production forests

Forest certification is a voluntary process by which the planning and implementation of on-the ground forestry operations are audited by a qualified, independent third party against a predetermined standard designed to ensure that operations are environmentally sustainable and socially acceptable. Forest operations found to conform to the standard are issued a certificate, which can then be used to demonstrate the legality and sustainability of their wood products. In 2008, no more than 5% of forests in ITTO producer countries were certified. Interest in certification is strong, however, as consumers continue to express interest in the sources of the products they buy, and the methods used in their production. During the testing of a draft of these guidelines it was found that in almost all instances where forest managers were taking measures to conserve biodiversity, they were motivated by their desire to attain forest certification in order to access high-value markets for their timber products. A disincentive to certification is the cost of achieving the necessary management standards and the difficulties involved in creating a framework for appropriately engaging all stakeholders. Certification will only provide an incentive for biodiversity conservation and sustainable use if it continues to help guarantee access to high-value markets or if consumers are willing to pay premium prices for certified timber. This can be achieved by encouraging contact and communication between producers and consumers to promote trade in timber and timber products from forests where biodiversity conservation measures are in place. A number of networks have been set up by timber harvesting, processing and marketing companies with help from international conservation NGOs to support this process. One of the problems limiting the spread of biodiversity-friendly forest management has been that those companies and agencies that have been most transparent in their operations have sometimes received the most criticism, while those that have been more secretive or have resisted the presence of outside environmental specialists have often escaped such public scrutiny. There is a great need for more transparent, learning-oriented processes that do not discourage or penalize the reporting of failures. Monitoring systems need to be applied to the activities of all stakeholders. Government agencies and NGOs need to be held accountable to the same extent as timber companies.

PRIORITY ACTIONS

ALL RELEVANT STAKEHOLDERS SHOULD:

- Promote increased emphasis on biodiversity conservation in certification processes
- Ensure that forest owners and managers benefit from forest certification
- Facilitate certification by participating in the development of standards and related participatory processes, providing objective information on all available and appropriate schemes, building local capacity to certify, and identifying resources for technical support and financing
- Promote greater transparency in forest management practices

The quantitative analysis of the ACTO Member Countries presented a total of 96 legal instruments, with an overall average implementation degree of 2,77 for guideline 12, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 12 and Table 15, that five countries reached a degree of implementation 3, considered good, which is the highest average presented by Suriname (3,67), and the lowest was presented by Colombia (1,16).

As shown in the following Table, Colombia presented the largest number of legal instruments correlated with Guideline 12 (25), and the lowest number was presented by Peru and Guyana (4).

All the countries participating in the study recognize the voluntary and independent forest certification as a way to promoting biodiversity conservation in production forests, although there are some difficulties for practical implementation, mainly related to the costs of obtaining them.

BOLIVIA has developed its own, voluntary, certification system (Bolivian System of Forest Certification and Incentives -SBCBi-) that allows the implementation of a traceability and monitoring system as well as the development of local capacities for certification, identifying resources for technical support and financing, among others. Anyone that adheres to the system can participate in the government's purchase.

COLOMBIA wishes to enhance biodiversity conservation during the certification processes, however, certified natural forests are scarce. It is not clear yet whether the owners of the forests and responsible for forest management benefit from certification. There are some forest certification initiatives from the WWF, which are formulating parameters, objective information on the available and appropriate systems, developing capacities

CHART 12 - IMPLEMENTATION DEGREE OF GUIDELINE 12 BY COUNTRY.

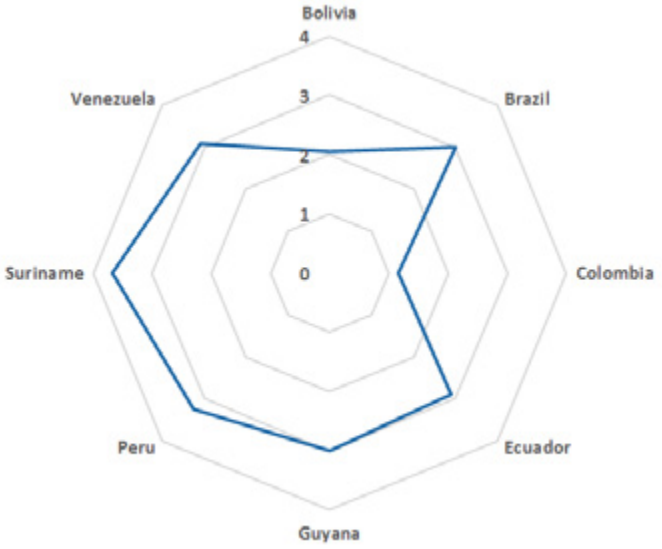


TABLE 15 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 12 BY COUNTRY.

	Voluntary and independent forest certification should be recognized to promote the biodiversity conservation in production forests.	Nbr. of Related Legal Instruments	Score (1 a 4)
P6D12	BOLIVIA	21	2,005
	BRAZIL	11	3,00
	COLOMBIA	25	1,16
	ECUADOR	11	2,91
	GUYANA	4	3,00
	PERU	4	3,25
	SURINAME	9	3,67
	VENEZUELA	11	3,09
	TOTAL	96	2,77

and identifying resources for technical support and financing.

In **ECUADOR,** a private non-profit organization named National Working Group on Voluntary Forest Certification (CEFOVE), recognized since 2002 by the Ministry of the Environment, brings together several of the main stakeholders in the forest sector committed to good forest management and forest certification under the Forest Stewardship Council (FSC) system, to guarantee the environmental, social and economic sustainability of forestry operations.

Moreover, in the procurement processes of public bodies legal instruments and mechanisms are required to prove the timber´s legal origin. Currently, the implementation of the National Traceability System is underway and the national REDD+ strategy seeks to incorporate certifications to the dendé and non-wood forest products.

In **PERU**, the Forest Management Laws encourage the adoption of certification or another recognized system or the development of good practices in forest management contributing to sustainability. In return, a discount on harvesting rights is granted, as well as specialized technical assistance, management technical assistance and support for access to financing of forestry activities by financial entities, international organizations, among others.

The Forest Service of **PERU** (SERFOR) encourages forest certification promoting sustainable forest management and the legality of harvesting and facilitates the entry of forest products into national and international niche markets. Certifications are, forest management certification, chain of custody certification, controlled wood certification, among others.

GUYANA informed about three local companies that successfully chose the Forest Certification, one with the FSC and two with the Rainforest Alliance. Guyana also informed that the administrative framework of the concession and the Code of Good Practices for Forest Operations are sufficiently robust and well structured so that local loggers can easily transit for forest certification mechanisms.

The government of **SURINAME** applies national laws. It was reported that if the exploitation activities are carried out in accordance with the Forest Management Law, the difference to obtain an independent voluntary certification will be minimal. This mechanism is considered an agreement, which may be required, between the producer and the buyer of wood products.

SURINAME currently has five timber concessionaires with valid FSC certificates and a total of 428,954 ha. The companies are periodically audited for the observation of the conformities and non-conformities and must be adapted to all criteria to maintain certification.

There are several certification systems in Brazil. The most popular certifications are the Forest Stewardship Council International - FSC and the Program for the Endorsement of Forest Certification Schemes - PEFC. The main SFMP certifications in Brazil were carried out by the FSC, from 1995.

In 2002, the Brazilian Forestry Certification Program - CEFLOR, internationally recognized by the Program for the Endorsement of Forest Certification Schemes - PEFC, was initiated. The CEFLOR's main challenge is to raise awareness among forestry sector entrepreneurs about the importance of certification. In addition, it seeks to encourage and create mechanisms for small and medium for-

est producers to certify and disseminate chain of custody certification.

Until the last update, in November 2016, Brazil had 64 chains of custody certifications for forest origin products and 25 certifications of forest management by CEFLOR, totaling 2,904,195.76 hectares of planted forests. According to the FSC, Brazil has 6,298,242 million hectares certified in the forest management modality and involves 113 management operations, between areas of native and planted forests. In the chain of custody mode, Brazil has approximately 1,024 certificates. The country is the 7th in the total ranking of the FSC system.

According to the national evaluation, in Brazil, the political, legal and regulatory instruments do not require forest certification. Its adoption is voluntary, altering the legal requirements that must be met by the executor of the approved forest management plan. But what is perceived over the last few years is that the forestry producer, by addressing the legal conditions for the execution of forest management plans, manages to meet the requirements for obtaining forest certification, therefore this is a consequence of good management.

DIRECTRIZ 13

Where they do not distort international trade, subsidies and credits should be made available to offset the costs of biodiversity conservation in tropical production forests. Subsidies and credits that favour deforestation or forest degradation should be identified and progressively eliminated.

Some land-use policies, laws, subsidies and credit schemes encourage activities that are harmful to biodiversity, such as the conversion of forest to non-forest uses. Such policies, laws, subsidies and credit schemes should be revised.

PRIORITY ACTIONS

GOVERNMENTS SHOULD:

- Where appropriate to specific country situations, identify and eliminate subsidies and credit schemes that benefit non-forest uses of forest lands
- Create mechanisms for the exemption or reduction of taxes for forests managed in ways that promote biodiversity conservation and sustainable use
- Ensure that subsidy and credit schemes consider the value of the forest biodiversity that might be lost as a result of such schemes

BANKS, CREDIT FACILITIES AND MULTILATERAL FINANCIAL INSTITUTIONS SHOULD:

- Take biodiversity conservation values into account in financial analyses of forest-related investments
- Create special credit programs with simplified rules to encourage biodiversity conservation in forest management projects

ITTO MEMBERS SHOULD:

- Considerar la posibilidad de proporcionar fondos a través de la OIMT para ayudar a cubrir el costo de la conservación y utilización sostenible de la biodiversidad en los bosques tropicales de producción.

The quantitative analysis of the ACTO Member Countries presented a total of 95 legal instruments, with an overall average implementation degree of 2,37 for guideline 13, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 13 and Table 16, that three countries reached a degree of implementation 3, considered good, which is the highest average presented by Ecuador (3,35), and the worst result was presented by Brazil, that has no legal instrument to attend this Guideline, therefore, there was no quantitative score for the analysis of this Guideline.

As shown in the following Table, Ecuador presented the largest number of legal instruments correlated with Guideline 13 (26), and Brazil has no legal instrument related to the implementation of this Guideline.

CHART 13 - IMPLEMENTATION DEGREE OF GUIDELINE 13 BY COUNTRY.

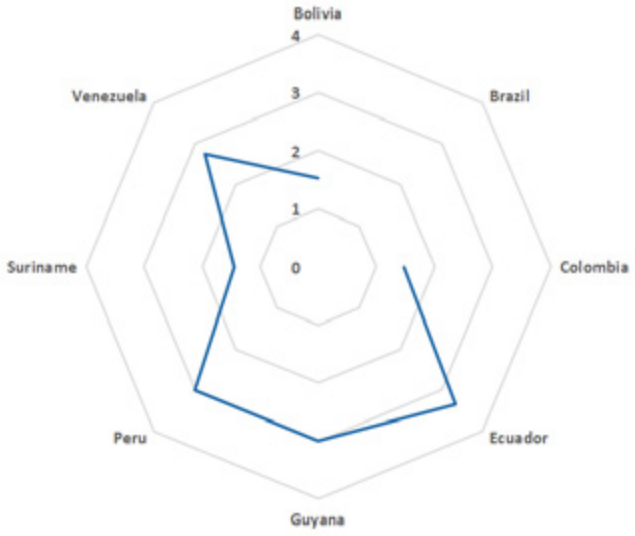


TABLE 16 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 13 BY COUNTRY.

	As long as they do not distort international trade, subsidies and credits should be offered to compensate the costs of conserving biodiversity in tropical production forests. Subsidies and credits that favor deforestation or forest degradation should be identified to eliminate them progressively.	N° de Instrumentos Jurídicos relacionados	Puntuación (1 a 4)
P6D13	BOLIVIA	19	1,53
	BRAZIL	-	-
	COLOMBIA	25	1,48
	ECUADOR	26	3,35
	GUYANA	1	3,00
	PERU	5	3,00
	SURINAME	11	1,47
	VENEZUELA	8	2,75
	TOTAL	95	2,37

This guideline suggests two types of actions. Subsidies and credits to compensate biodiversity conservation costs in tropical production forests, and, at the same time subsidies and credits favoring deforestation or forest degradation that must be identified eliminated progressively.

BOLIVIA affirmed once more that is against the commercialization of environmental functions and natural processes of the earth's components and life systems. Also pointed out that there are no actions to guarantee that credit and subsidy systems take into consideration the value of forest biodiversity, which could be lost as a result of its application. However, a regulation was prepared for credit operations for the forestry sector.

According to **COLOMBIA's** assessment, there are no laws or actions to identify and eliminate subsidies and credit systems that favor deforestation or the degradation of forest areas. Banks and credit institutions do not own and/or take into consideration biodiversity conservation values in their financial analyzes of forest-related investments, nor are there special credit programs with simplified rules to stimulate conservation within forest management projects.

Therefore, in **COLOMBIA**, there are proposals for incentives for the exemption or reduction of taxes for forests that are managed to promote the conservation and sustainable use of biodiversity. However, these were not adopted and regulated.

In the operational field, the **ECUADORIAN** State, through the national environmental authority, established the Socio Bosque Program (2008) for the delivery of economic incentives for the conservation of fragile ecosystems (forests, "páramos" and mangroves). In this Program, natural persons with a land title (for forest cover, páramo, and other native vegetations) receive incentives according to the number of hectares conserved in their area, and there are rules for the types of payments. Legal persons with areas located within this category (for forest cover and other native vegetations, except páramo), also receive incentives according to the number of hectares conserved in their area, and there are rules for the types of payments.

In addition, with the implementation of the REDD + Action Plan, Ecuador seeks to identify the perverse subsidies that cause deforestation and to focus on the transition to sustainable productive systems with a landscape mosaic

approach, mainly in the Amazon region corresponding to Ecuador.

PERU indicated that there is a regulation providing that the forest can be delivered as collateral to obtain resources from the financial system or a capital market, since this concept of forest is made up of the set of trees, wood and forest sub-products as long as having a Forest Management Plan approved by the forest authority.

Likewise, in **PERU**, 176 native communities in nine departments have access to an incentive and technical assistance mechanism ensuring the conservation of approximately 1.8 million hectares of community forests, benefiting more than 15 thousand families. Thanks to this mechanism from the National Forest Conservation Programme for the Mitigation of Climate Change from the Ministry of Environment (MINAM), the communities develop sustainable productive activities contributing to greater economic value to their forests.

In **VENEZUELA**, legal mechanisms (Forest Law) regulate the payment for environmental services to organized communities involved in forest heritage conservation projects generating a collective benefit. Economic incentive payments were granted to finance restoration, conservation, and forest management support activities, with funding resources from the ordinary budgets of the Ministry of Popular Power for Ecosocialism and Waters (MINEA), but due to limited resources, it only worked for a while, that is, the incentives were not sustained in the long-term.

According to the evaluations, in **GUYANA**, **SURINAME**, and **BRAZIL** at present, there is no legislation or other official management mechanisms adopted by subsidies or credits to compensate costs with the biodiversity conservation in production forests.

There are also no initiatives by the Brazilian federal government to review credits and subsidies for degrading productive activities, such as agricultural activities, energy generation, and mining.

However, in **SURINAME**, there is foresight to develop initiatives within REDD + strategies, to discourage and/or eliminate deforestation and forest degradation.

GUIDELINE 14

Governments should make use of international payment/financial mechanisms to support and offset the incremental costs of conserving biodiversity values and use these as an incentive to encourage biodiversity conservation and sustainable use in tropical production forests.

The global community values forest biodiversity but the costs of its conservation often fall disproportionately on the poorest people. International financial arrangements of various forms already exist to help offset such costs, particularly in protected areas, and should be broadened to include tropical production forests.

PRIORITY ACTIONS

INTERNATIONAL DONORS, INVESTORS AND CONSUMERS SHOULD:

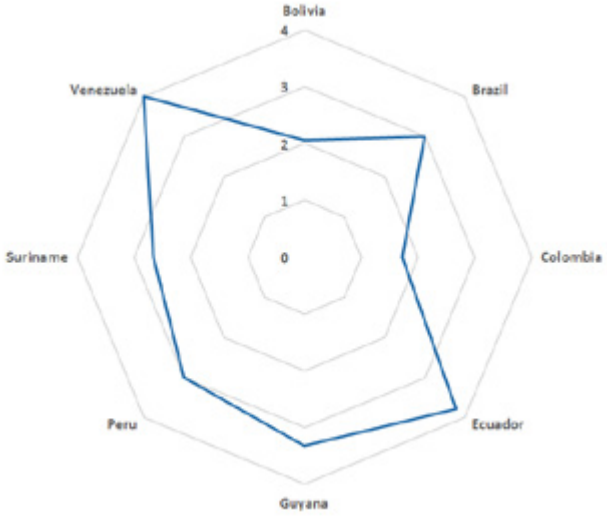
- Explore financial mechanisms to favour products sourced from forests in which biodiversity conservation measures are in place
- Explore mechanisms for making direct payments for the ecosystem services provided by tropical forests
- Provide financial support to assist managers of tropical production forests to meet the costs of surveys, monitoring and other measures needed for the biodiversity conservation

The quantitative analysis of the ACTO Member Countries presented a total of 76 legal instruments, with an overall average implementation degree of 2,95 for guideline 14, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 14 and Table 17, that Venezuela reached a degree of implementation 4, considered optimal, which is the highest average presented, and the lowest was presented by Colombia (1,72).

As shown in the following Table, Colombia presented the largest number of legal instruments correlated with Guideline 14 (25), and the lowest

CHART 14 - IMPLEMENTATION DEGREE OF GUIDELINE 14 BY COUNTRY.



number was presented by Peru, Venezuela and Brazil (2).

Most of the countries analyzed informed that their governments use international payment and financing mechanisms to cover and compensate for the increase in costs of preserving biodiversity values and use them to promote conservation and sustainable use of biodiversity tropical production forests.

However, **BOLIVIA** reiterated that it opposes to commercialization of biodiversity. **COLOMBIA** informed that there is no financial support to help those responsible for the management of tropical production forests to pay for surveys and inventories, follow-up activities and other necessary measures for biodiversity conservation. Also, in practice, consumers, investors, and international donors do not have systematic actions to investigate the establishment of financial mechanisms to make direct payments for ecosystem services provided by tropical forests.

ECUADOR expressed that is a world reference country in terms of international mechanisms of payment and financing for biodiversity conservation, since it has been receiving a non-reimbursable donation from the Green Climate Fund (GCF) for the territorial implementation of the REDD+ Action Plan, and the Global Environment Fund (GEF) for thematic areas destined to landscape conservation and restoration.

Currently, **ECUADOR** is in the preparatory phase the payment for results from its reference level

TABLE 17 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 14 BY COUNTRY.

	Governments should use international payment and financing mechanisms to cover and compensate the incremental costs of conserving biodiversity values and use these mechanisms as an incentive to promote biodiversity conservation and sustainable use in tropical production forests.	Nbr. of Related Legal Instruments	Score (1 a 4)
P6D14	BOLIVIA	17	2,06
	BRAZIL	2	3,00
	COLOMBIA	25	1,72
	ECUADOR	18	3,78
	GUYANA	4	3,33
	PERU	2	3,00
	SURINAME	6	2,67
	VENEZUELA	2	4,00
	TOTAL	76	2,95

of CO2 emissions due to the reduction of deforestation in the continental territory. The German Cooperation Fund (KFW) allocated an important financial resource for the implementation of the National Forestry Monitoring System, which will strengthen the actions undertaken. The Amazon Cooperation Treaty Organization (ACTO) will support these actions to implement the "Observation Rooms" and provide information from the changes in land use.

In **GUYANA** and **SURINAME**, no legislation or other international payment and financing mechanisms cover and compensate for biodiversity conservation of production forests.

However, in **SURINAME** the development of initiatives is foreseen, within the scope of the REDD+ strategies, to design and implement the stipulated payment mechanisms for Ecosystem Services for Sustainable Forest Management activities destined to biodiversity conservation.

BRAZIL has gradually initiated actions and programs in order to compensate for small actions that contribute to biodiversity conservation with some modalities of payment for environmental services. Despite some initiatives undertaken, there is still much to be done in the portion of the region corresponding to the Brazilian Amazon. The first progress was the creation of the Federal Program Bolsa Verde that in the first year served only families from the Brazilian Amazon region. In 2012 it was expanded through the entire country.

The Bolsa Verde is a financial instrument for income transferring to families living in extreme poverty, living in areas of relevance for environmental conservation (Extractive Reserve, National Forests, Sustainable Development Reserves, federal areas and Environmentally Differentiate Agrarian Reform Settlements, territories occupied by riparian, extractives, indigenous populations, quilombolas and other traditional communities, in addition to other rural areas defined by an Act of the Executive Power).

This program incentives the communities in the sustainable use of their home territories. It is an important step towards recognizing and compensating traditional communities and family farmers for the environmental services they provide to society.

In that sense, the government of the State of Amazonas in Brazil implemented the Bolsa Floresta program, which in the following four components, provides financial resources for families living in State Conservation Units:

1. Bolsa Floresta Familiar - direct payment to the representative of each family;

2. Bolsa Floresta Renda - resources paid for the generation of income from small investments in production keeping the forest standing;

3. Bolsa Floresta Social - resources allocated to education and health, and;

4. Bolsa Floresta Association - with planned investments in community-based organizations.

PRINCIPLE 7: Knowledge, learning, technology transfer and capacity building

LEARNING, EXPERIMENTATION, THE DISSEMINATION OF INFORMATION AND THE TRANSFER OF TECHNOLOGY ARE ALL IMPORTANT FOR THE CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY IN TROPICAL PRODUCTION FORESTS.

GUIDELINE 15

Relevant government agencies, forest managers, universities, research agencies and other organizations should collaborate in the development of systems for the collection, storage and processing of, and improved access to, existing and new data on biodiversity in tropical production forests.

One of the most significant findings of the national-level studies that accompanied the development of these guidelines is that there is a serious lack of good information on priority populations, species, habitats and other biodiversity values in countries with tropical production forests. However good the intentions of forest agencies and forest operators, the information that they need in order to adequately conserve biodiversity in tropical production forests is often lacking. In recent years the libraries and herbaria that, in the past, were maintained by forest agencies have often been neglected. There is a need to train more taxonomists and ecologists, to establish and maintain biodiversity databases, and to establish and better care for reference collections. Under appropriate conditions, and with the prior informed consent of the owners and users, traditional forest knowledge, and information on local needs and preferences, should be included in such databases.

PRIORITY ACTIONS

FOREST AGENCIES AND OTHER RELEVANT STAKEHOLDERS SHOULD:

- Train more ecologists, taxonomists and parataxonomists and provide them with career opportunities
- Establish, restore and maintain libraries and reference collections to support the biodiversity conservation efforts of forest agencies
- Improve the availability of information on biodiversity in tropical production forests
- Make existing information on the presence and distribution of biodiversity from regional zoning surveys, conservation management plans and forest management plans available in databases
- Train forest managers in biodiversity conservation and sustainable use practices

The quantitative analysis of the ACTO Member Countries presented a total of 100 legal instruments, with an overall average implementation degree of 2,67 for guideline 15, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 15 and Table 18, que Brazil reached a degree of implementation 4, considered optimal, which is the highest average presented, and the lowest was presented by Colombia (1,76).

As shown in the following Table, Bolivia presented the largest number of legal instruments correlated with Guideline 15 (23), and the lowest number was presented by Brazil y Ecuador (7).

As for the collaboration of different stakeholders (government, responsible for forest management, universities, research institutions, among others) in studies carried out on production forests and improving access to this information, the countries, in a greater or lesser degree, have been making efforts for such actions.

In **BOLIVIA**, for example, the General Directorate of Forest Management and Development (DGGDF) is developing the Forest Information and Monitoring System in coordination with several institutions. This system will allow the collection, storage, and processing of deforestation data, areas with Integrated and Sustainable Forest Management, areas of tree planting and/or reforestation, recovery of degraded areas and heat sources throughout the national territory. The information resulting from the Bolivian system will be reflected in the official annual report, which will be one of the tools for decision-making and evaluation related to the fulfillment

CHART 15 - IMPLEMENTATION DEGREE OF GUIDELINE 15 BY COUNTRY.

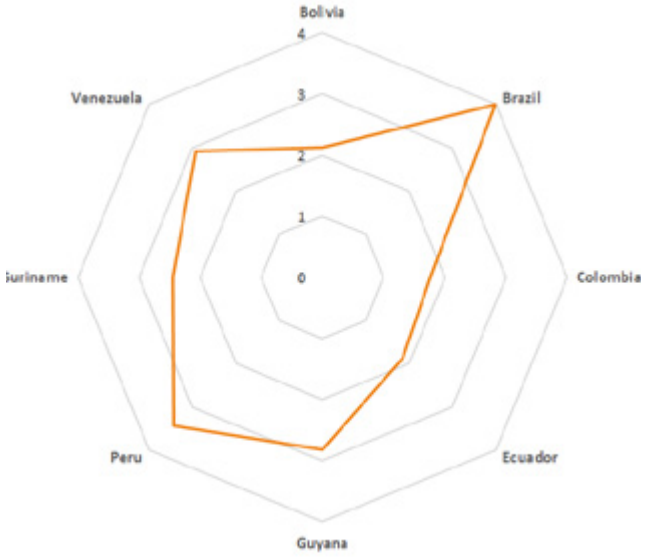


TABLE 18 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 15 BY COUNTRY.

	The relevant government agencies, those responsible for forest management, universities, research institutions, and other competent organizations should collaborate in the design of systems that allow data collection, storage, and processing, new and existing, on the biodiversity of tropical production forests, as well as to improve access to this information.	Nbr. of Related Legal Instruments	Score (1 a 4)
P6D15	BOLIVIA	23	2,13
	BRAZIL	7	4,00
	COLOMBIA	21	1,76
	ECUADOR	7	1,86
	GUYANA	12	2,82
	PERU	9	3,44
	SURINAME	9	2,44
	VENEZUELA	12	2,92
	TOTAL	100	2,67

with the program components goals.

According to **COLOMBIA's** assessment, forestry agencies and other relevant actors undertake very few specific actions to train more ecologists, taxonomists, and parataxonomists offering professional development opportunities. Also, its government undertakes incipient efforts to incorporate in the databases, existing information about the presence and distribution of biodiversity derived from regional zoning studies, conservation plans and forest management plans, as well as to train those responsible for forest management in conservation practices and sustainable use of biodiversity.

ECUADOR has some important experiences in studies and data collection. All citizens may have access to documented and cartographic information on the country's environmental issues. In 2006, the forest control system was initiated through -in field- verification of the programs and cutting plans approved by the Ministry of Environment (MAE), thus initiating the registration process and monitoring of sustainable forest harvesting, obtaining official statistics. A digital platform is available, for the management of monitoring, maintenance and environment preservation procedures and projects.

In addition, several studies related to its forests are being conducted such as the "First National Forest Assessment", in 2013, which resulted in the calculation of carbon stocks in different ecosystems and strata, and the supply of timber and non-timber forest resources, offering a broad base of information for decision-making guiding the sustainable forest management as a strategy for the conservation of Ecuadorian forest ecosystems.

Also, recently, the Study of Voids and Priorities of Conservation was conducted identifying priority areas based on the current state of biodiversity and its representativeness within the National System of Protected Areas of **ECUADOR** (SNAP).

The Ministry of Environment of **PERU** has reinforced the Forestry Program, which in turn has strengthened the information system on forest coverage and loss in the country, and some aspects related to the design of systems to collect, store and process data on tropical production forests and improvement in access to their changes and status.

Some interesting initiatives have been taking place in Peru with reference to data and information collection about forests and training, such as:

- The annual monitoring of changes in forest cover providing information on the Amazonian forest stock and loss of forest cover for the period 2001 – 2016, used by various

stakeholders, public and private, for the planning and measuring linked to the management of the forest ecosystem;

- Information accessible via the GEOBOSQUES platform, available to all citizens, since July 2016, related to the coverage and loss of tropical forests in the country, detailed by categories such as department, province, district, and territory;

- Deforestation early warning. As part of the services offered by GEOBOSQUES, a personalized service of deforestation early warning is implemented allowing each registered user in the platform, to receive every 7 days, a report about deforestation in the delimited area of interest, through his/her personal e-mail.

- Training for the adequate use of information to guarantee the good use and management of GEOBOSQUES, aimed at regional and local governments, civil society and indigenous organizations.

- Since 2016, the Forestry Program has been promoting a coordinated and joint effort with the regional governments of Loreto, San Martin, and Amazonas, and will continue progressively, carrying out planned interventions for the conservation of forests.

VENEZUELA informed that the Law on Biological Diversity Management and the Forestry Law establishes that all people have the right to access scientific, common and traditional knowledge about biodiversity and forest heritage, and demand that the results of studies and research related to biological diversity, forests and forest heritage be delivered to the National Environmental Authority.

The Biodiversity Center of the University of **GUYANA** is responsible for biodiversity research in that country. Currently, the Environmental Protection Agency (EPA) must approve any studies submitted related to biodiversity. The Ministry of Natural Resources (MNR) developed on-line systems for use, analysis and data exchange. The national evaluation warned that there is still much to be done in that sense, there is also a need to develop mechanisms to bring the attention of all stakeholders and support research on biodiversity conservation.

In **SURINAME**, the General Secretariat of Statistics produces a national biennial environmental study with the contribution of various stakeholders and organizations, for example:

- The Foundation for Forest Management and Production Control (SBB) annually produces statistics on the forest sector by providing information on wood logs production, timber exports, timber permits, etc.;

- The "geoportal" (www.gonini.org) of public access providing information such as maps, wood permits, forest cover, deforestation data. This information and the creation of the geoportal are obtained and developed with the collaboration of different forest stakeholders. It was mentioned that information on biodiversity will be included shortly in the geoportal, duly authorized by the data's owner;

- The Agricultural Research Center of Suriname (CELOS) and the Foundation for Forest Management and Production Control (SBB) are carrying out studies mainly about forestry. However, due to the lack of qualified personnel and insufficient financial resources, the number of studies is still small.

Suriname´s assessment mentioned about the training carried out to create the geoportal and for the types of services offered. Capacities should be reinforced in relevant government agencies, forest managers, universities, research agencies along with other organizations to implement this guideline.

In **BRAZIL**, universities, research institutions along with other competent organizations, integrate three Brazilian government initiatives dedicated to maintaining information systems from an on-line digital platform that has access to a database on Brazilian biodiversity and ecosystems, from different sources in the country and abroad. The main initiatives are:

- The digital platform Brazilian Biodiversity Information System - SiBBr is an initiative of the Ministry of Science, Technology, Innovation and Communications (MCTIC) with technical support from the United Nations Environment Program (UNEP) and financial support from the Global Fund for the Environment (GEF).

- The Biodiversity Portal is another initiative of the federal government, within the Ministry of the Environment (MMA) and the Chico Mendes Institute for the Conservation of Biodiversity (ICMBio) with support from the Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) as part of the Biodiversity Monitoring Project with Relevance for Climate at the Conservation Unit level. The Biodiversity Portal and the SiBBr are in integrated operation.

- The National Portal of Forest Management is linked to the National Information System for the Environment - SINIMA and the National System of Forest Information - SNIF, aimed at integrating and unifying information, to guarantee transparency and publicity on forest management in the country, as well as allowing the monitoring of programs and actions developed by public institutions responsible for forest management. In addition, the Portal will serve to plan, monitor, control and forest management by the agencies of the National Environment System - SISNAMA.

The state environmental organizations - OEMAS are committed to sharing their information on the Site, even though it is not yet fully operational. The database of the National Portal of Forest Management is in the maintenance and updating phase in accordance with the information of the Brazilian Forest Service (SFB) site. Even though the last two mentioned platforms are still in the structuring phase, it is already possible to have access to various information and data sources.

GUIDELINE
16

Governments, universities, research agencies and conservation NGOs should collaborate to produce manuals, guides and other material for communicating the underlying concepts, objectives and values of biodiversity in tropical production forests to forest managers and field personnel, key stakeholders and the media in language that is understandable, relevant and useful for all stakeholder groups

The field evaluation of a draft of these guidelines showed that many forest managers, timber companies and forest agency personnel do not fully understand the importance of biodiversity. The underlying concepts of biodiversity and the objectives of its conservation need to be communicated in ways that are comprehensible to and useful for each target group. Communication materials must be able to meet the varying needs of different target audiences. Greater use should be made of stakeholder consultations, radio, television, the press, the internet and other communication methods to raise awareness and exchange information on forest biodiversity issues. This should occur at the local, national and global levels and involve research and operational agencies. Many museums, herbaria and protected-area management facilities have good communication initiatives, but these often only target urban people. Communication efforts should also be directed towards the forest managers, timber companies and rural people whose day-to-day decisions directly affect biodiversity. Specialized agencies should provide locallanguage field guides, maps, species' checklists and other information to support biodiversity conservation measures in tropical production forests. The work of the World Bank and the GEF in funding the production of field guides for developing countries is commended and can serve as a model for other initiatives. It is important that, before finalization, all materials generated are subject to critical review by the target populations.

PRIORITY ACTIONS

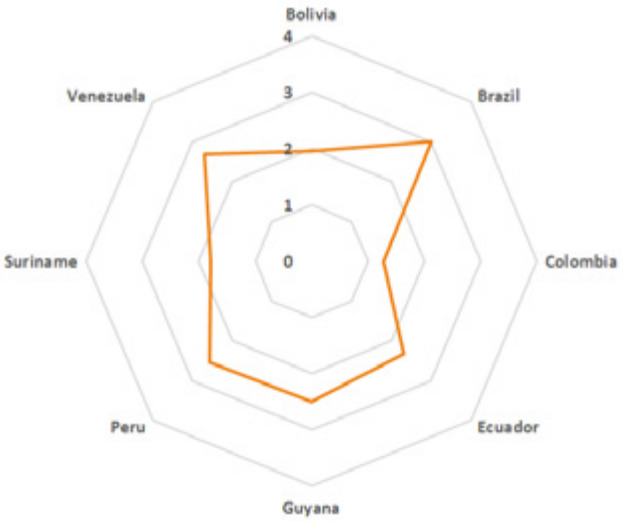
GOVERNMENT AGENCIES AND CONSERVATION NGOS SHOULD:

- Develop communication strategies emphasizing the importance of tropical production forests for the biodiversity conservation
- Produce user-friendly field manuals containing maps, lists of species, and information on the benefits of biodiversity conservation in tropical production forests and how best to support it
- Make use of modern print, electronic and visual media to communicate biodiversity concepts and priorities in easily understood terms
- Produce more educational, training and information materials in local languages to assist in effective communication with rural stakeholders

The quantitative analysis of the ACTO Member Countries presented a total of 93 legal instruments, with an overall average implementation degree of 2,27 for guideline 16, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.
It can be verified in Chart 16 and Table 19, that Brazil reached a degree of implementation 3, considered good, which is the highest average presented, and the lowest was presented by Colombia (1,29).

As shown in the following Table, Bolivia presented the largest number of legal instruments cor-

CHART 16 - IMPLEMENTATION DEGREE OF GUIDELINE 16 BY COUNTRY.



related with Guideline 16 (23), and the lowest number was presented by Brazil (4).

National analyzes indicated that governments, universities, research institutions, and conservation NGOs participate, in different degrees, in the production of manuals, guides, and other materials with the aim of communicating the fundamental concepts, objectives, and biodiversity values of the tropical production forests to the stakeholders involved in this process.

In **BOLIVIA**, the General Directorate of Forest Management and Development (DGGDF) and the General Directorate of Biodiversity and Protected Areas (DGBAP) within the scope of their projects and programs, as well as conservation NGOs, have prepared several booklets and manuals to disclosed, locally, the value of integral management and sustainable forests and biodiversity. However, Bolivia affirms that this information should reach all sectors, not only those within the area of influence of projects, programs, and NGOs.

COLOMBIAN agencies and conservationist NGOs have established communication strategies emphasizing the significance of tropical production forests for biodiversity conservation. Nevertheless, according to the national assessment, not all sectors of society, including the rural producers, are sufficiently reached. In Colombia there is no systematic production of manuals, maps inclusion, list of species on the benefits of biodiversity

TABLE 19 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 16 BY COUNTRY.

	Governments, universities, research institutions and conservation NGOs should collaborate to produce manuals, guides and other material with the purpose of communicating the fundamental concepts, objectives and values of the biodiversity of tropical production forests to those responsible for forest management, as well as to field staff, key stakeholders and the media, in a language that is understandable, relevant and useful for all interested groups.	Nbr. of Related Legal Instruments	Score (1 a 4)
P7D16	BOLIVIA	23	1,96
	BRAZIL	4	3,00
	COLOMBIA	21	1,26
	ECUADOR	6	2,33
	GUYANA	10	2,50
	PERU	11	2,55
	SURINAME	5	1,80
	VENEZUELA	13	2,69
	TOTAL	93	2,27

conservation, nor the use of different printed, electronic media to communicate these concepts.

ECUADOR considers that access to information is a complicated bureaucratic process, resulting in the inoperability of the information systems available. There is no socialization or training (mainly for indigenous communities with different mother tongues other than Spanish) for the management of official data. Another drawback that is cited is that the data collected by the NGOs are not always available to the stakeholders involved in forest management. These are isolated projects that are not part of a national research strategy.

Another problem found in **ECUADOR** is that the transfer of technology by the State is null in relation to biodiversity issues and the forestry sector, and the access to technology is mainly due to the "big" industries of the wood sector.

In the case of training and development of local capacities issues, in **ECUADOR** the Socio Bosque program is the only public program that institutionalized this activity including the active and planned participation of the owners for local and continuous monitoring of "conservation areas", in order to avoid infractions such as logging, hunting, and invasion.

The aforementioned program since 2015, in coordination with the Provincial Directorates of the Ministry of the Environment of Ecuador, has been promoting regional trainings for honorary inspectors (individual members) and community park keepers (collective members), through workshops and training courses, technical speeches, field practices and exchange of experiences.

In **PERU**, several initiatives are being developed for the dissemination of guides and manuals on forest management, including biodiversity conservation issues, such as the National Forest and Wildlife Service (SERFOR) that developed the Methodological Guide for Forest Zoning (GMZF). This Guide is a technical document containing the methodological framework for forest areas delimitation and the designation of forest zoning categories at the national level.

According to the **PERUVIAN** evaluation, also technical instruments have been developed among the different governmental actors, NGOs and universities. The Protocol for the Evaluation of Forest Resources is a document prepared within the scope of the Interinstitutional Convergence process. It contains a series of measures to standardize the evaluation criteria for timber forest resources, through technical procedures for the formulation,

approval, inspection, verification, supervision and control of Forest Management Plans.

The National Strategy for the Conservation of Biological Diversity (ENCDB) in **VENEZUELA** establishes as the first strategic line, information management allowing the free appropriation of knowledge by different stakeholders and that encourages decision-making by communities to conserve biological diversity.

To this end, the Information System on Biological Diversity (SVIDB) was developed, which is a technological platform for the systematization, socialization, and exchange of information and knowledge on the components of Venezuelan biological diversity. This system is managed by the Ministry of Popular Power for Ecosocialism and Waters (MINEA) and integrates information in three large sections, species, strategic areas for the conservation of biological diversity and national stakeholders.

In **GUYANA**, the Environmental Protection Agency (EPA) weekly publishes articles regarding several environmental issues including biodiversity for general information. In general, the serious and significant initiatives of the stakeholders interested in biodiversity issues are not so relevant, limited to occasional seminars and workshops. The evaluation expressed the wish that the new Department of the Environment could formally solve the collaboration issues.

In Suriname, the stakeholders interested in communicating the concepts and values of tropical production forest biodiversity were involved in the production of several documents such as practices for Sustainable Forest Management, Guidelines for managing community forests, as well as Guidelines for including stakeholders such as forest-based communities, indigenous peoples and quilombolas, along with Conservation International to implement, among others, the REDD + program.

Also, in Suriname, in 2004, a comprehensive awareness project was carried out by the Foundation for Forest Management and Production Control (SBB). The national assessment indicated the need to continue this awareness campaign to perceive the impacts of the actions. It was also pointed out that most of the documents and extension materials are in the official language (Dutch), so efforts have been made to translate these documents into the languages of the local people.

The **BRAZILIAN GOVERNMENT**, through the Ministry of the Environment (MMA), universities, research institutions and other conservation organizations (private and non-governmental), undertakes various actions to disseminate and promote biodiversity conservation practices. Information materials, manuals, explanatory material, advertising campaigns carried out on Brazilian TV networks about the importance of biodiversity conservation and the sustainable use of forest resources are produced using appropriate and relevant language for this purpose.

These actions are implemented to meet public policy guidelines in Brazil, such as the National Environmental Policy (NEP), the National Plan for Agroecology and Organic Production (PLANAPO), the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), as well as to serve to specific actions of public agencies promoting forest production like the Brazilian Forest Service, research and educational institutions such as the Brazilian Agricultural Research Corporation (EMBRAPA), the universities and the federal institutes of education.

GUIDELINE 17

Biodiversity conservation and sustainable use in the complex ecological, social and economic settings that frequently characterize tropical production forests require skills in adaptive management based on sound data and knowledge of forest conditions derived from monitoring and communication with all stakeholders.

The opportunities and options for conserving biodiversity in tropical production forests vary from place to place. Moreover, the best measures for conserving biodiversity might change over time as new knowledge is gained and as society's perceptions and needs evolve. Forest managers need to adapt biodiversity conservation management to local conditions and to changes over time. Incentives and rewards for field foresters should encourage locally sensitive solutions based on conservation outcomes rather than the rigid application of rules. In most situations this is only likely to happen if forest agencies and conservation organizations are proactive in collaborating with forest operators. In a number of countries, conservation NGOs have worked successfully with timber companies to achieve biodiversity conservation and sustainable use objectives. The potential commercial advantage provided by certification has often been an important incentive for the concessionaires to collaborate in these initiatives. Adaptive management also requires the collection and analysis of ecological, social and economic data over time and mechanisms to ensure that the knowledge gained from such monitoring is used to improve forest management.

PRIORITY ACTIONS

GOVERNMENT AGENCIES AND CONSERVATION NGOS SHOULD:

- Ensure that forest managers are trained and motivated to seek locally appropriate approaches to biodiversity conservation and sustainable use
- •Encourage collaboration between conservation NGOs and timber companies to adapt management practices to suit local conditions
- Ensure that appropriate monitoring systems are in place that will inform management practices over time

The quantitative analysis of the ACTO Member Countries presented a total of 124 legal instruments, with an overall average implementation degree of 2,78 for guideline 17, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 17 and Table 20, that four countries reached a degree of implementation 3, considered good, which is the highest average presented by Ecuador (3,73), and the lowest was presented by Colombia (1,57).

As shown in the following Table, Bolivia presented

CHART 17 - IMPLEMENTATION DEGREE OF GUIDELINE 17 BY COUNTRY.

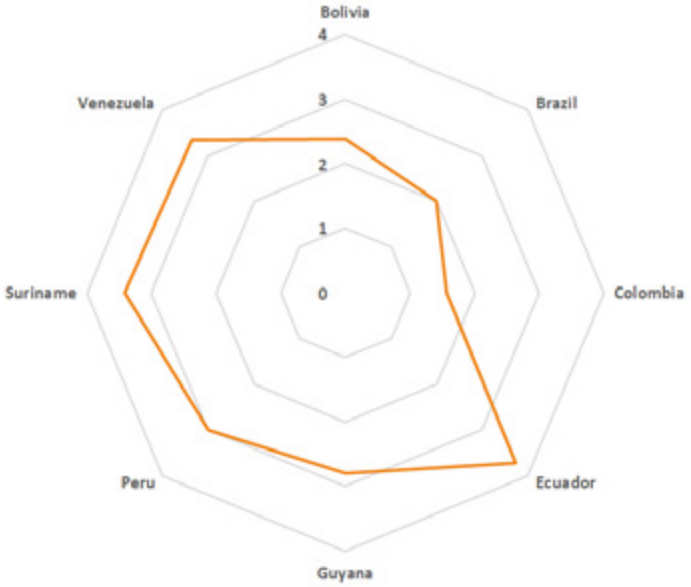


TABLE 20 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 17 BY COUNTRY.

	To ensure the conservation and sustainable use of biodiversity in the complex ecological, social and economic environment that often characterizes tropical production forests, adaptive management capabilities are needed, based on solid data and knowledge of the forest conditions, derived from monitoring processes and from communication with all stakeholders.	Nbr. of Related Legal Instruments	Score (1 a 4)
P7D17	BOLIVIA	26	2,38
	BRAZIL	3	2,00
	COLOMBIA	21	1,57
	ECUADOR	11	3,73
	GUYANA	10	2,80
	PERU	16	3,00
	SURINAME	17	3,41
	VENEZUELA	20	3,35
	TOTAL	124	2,78

the largest number of legal instruments correlated with Guideline 17 (26), and the lowest number was presented by el Brazil (3).

With regard to the need for adaptive management capabilities based on sound data and knowledge of forest conditions derived from the monitoring and communication process with all stakeholders, national assessments reported that government agencies and conservation NGOs are working with some initiatives for biodiversity in the complex ecological, social and economic environment that often characterizes tropical production forests.

To meet this guideline, **BOLIVIA** referred to the System of Forest Certification and Incentives. This system requires good forest management practices related to biodiversity, allowing its monitoring and producing solid knowledge. It will be integrated into the Forest Information and Monitoring System. Within the framework of Integrated and Sustainable Forest Management, both the Forest and Land Audit and Social Control Authority and the Ministry have worked on this certification system, which is more adapted to the real conditions of the communities.

According to **COLOMBIA's** assessment, there are some incipient initiatives from governmental bodies and conservation NGOs to ensure the training and motivation of forest managers in the search for appropriate to local reality biodiversity conservation and sustainable use approaches. Also, there

are initiatives seeking the collaboration among conservation NGOs and timber companies to adapt management practices to local conditions and/or ensure that adequate monitoring systems are in place to generate timely information for forest management practices.

The Organic Code of the Environment (COA) of Ecuador states that "The State must have permanently updated scientific and technical data on biodiversity and the environment." The National Environment Authority will collect and compile this data in conjunction with public, private and mixed higher education institutions and other government ministries to propose scientific research.

ECUADOR is currently in the design phase of the conceptual framework of the Second National Forest Assessment with a multipurpose approach, through the implementation of the project Integrated Management of Multiple-Use Landscapes and High Conservation Value for the Sustainable Development of the Ecuadorian Amazon. The main objective is to catalyze the transformation of land planning, management, and use, building a responsible governance and production framework, based on the landscape approach and optimizing ecosystem services and livelihoods.

Peru mentioned some initiatives that are underway in the country. The National Programs of Science, Technology and Technological Innovation Technological, Valuation of Biodiversity (VALBIO), Materials (ProMat), Environment (CINTyA), Basic Science (ATLAS), Biotechnology (PRONBIOTEC) and Information and Communication Technology (E-TIC) have been formulated within the framework of the National Strategic Plan for Science, Technology and Innovation for Competitiveness and Human Development 2006-2021, led by the National Council of Science, Technology and Technological Innovation (CONCYTEC).

Within the **PERUVIAN** Forest and Wildlife Law is declared the national interest in research, technological development, knowledge and monitoring improvement of the state of conservation of the forest heritage. This law highlights the need to prioritize, promote and stimulate the development of basic and applied research, the dissemination of research results and educational processes. In this context, in 2014, initiated the process of formulating the National Science, Technology and Innovation Timber Forest Program.

PERU is also reviewing, for approval, the Timber National Forestry Sector Program which expresses the commitment of the stakeholders linked to the theme to carry out actions to achieving established goals and targets. It also expresses the will to unite academic, sectoral and business, as well as financial and management efforts.

With the objective of improving knowledge about the state and evolution of forests in Venezuela, the Ministry of Popular Power for Ecosocialism and Waters (MINEA) is working in the National Forest Inventory (INF), which will allow to obtain statistical and cartographic detailed and continuous information, on the structural characteristics and diversity of the different forest types and degree of intervention, as well as to identify the main forest products. the Information System for the National Forest Inventory is being developed to manage the large volume of data and subsequently make it available to the public.

Likewise, the Ministry of Popular Power for Ecosocialism and Water (MINEA) of **VENEZUELA**, within the scope of the Sustainable Forest Management and Forest Conservation Project from the "Ecosocial" Perspective, will implement an Integrated Information System for Venezuela's Forests (SINIB) to evaluate and monitor the national forest. This system will supplement the National Forestry Inventory (INF) with geospatial, socioeconomic, and biodiversity information, including information on the distribution of flora, abundance, frequency of dominance and phytogeographic relationships, along with the development of tools to monitor carbon stocks and greenhouse gas emissions, as well as biodiversity associated with forests, involving local communities and stakeholders in participatory monitoring of forest cover. However, the current implementation of the mentioned initiatives in Venezuela's national assessment is not clear.

According to **GUYANA's** assessment, stakeholders implement reduced impact logging practices in natural production forests, as well as applying the environmental provisions of Code of Good Practices for Forest Operations to safeguard biodiversity values. Studies on Environmental and Social Impact Assessment (ESIA) seek to attract stakeholders to biodiversity issues, but these studies hardly provide detailed information that can be used by decision makers.

In **SURINAME**, the forestry sector capacity assessments and the National Capacity Self-Assessment (NCSA) are initiatives to strengthen capacities within the recommendations of the UN Convention on Biological Diversity (UNCBD). However, a structured training program has not yet been implemented since most of the times, the trainings carried out are specific, according to the purposes of the activities.

With respect to **BRAZIL,** in the last decades, the universities and institutions of knowledge and research linked to the government yielded a lot of information on sustainable forest management and the ecology of the forest formations. The decentralized units of the Brazilian Agricultural Research Corporation (EMBRAPA) in the states of Amazonas, Acre, Pará, Rondonia, and Amapá are constantly expanding and scientific knowledge related to forest ecosystems and the sustainable use of biodiversity is available. Other federal research institutions such as the Amazon Research Institute (INPA), the Emilio Goeldi Museum, and the universities of the states of the Legal Amazon are a reference in research on ecology and forest science.

GUIDELINE 18

The successful dissemination and uptake of innovative approaches to the conservation and sustainable use of biodiversity in tropical production forests requires alliances and partnerships between organizations with complementary knowledge and skills.

International conservation NGOs, research organizations, universities and timber companies have shown they can collaborate successfully to achieve conservation objectives. More such partnerships should be fostered between companies, universities, museums and forest agencies as an effective way of accessing and disseminating biodiversity knowledge and promoting conservation action on the ground. Universities and other educational institutions should encourage students and staff to participate in research, learning and dissemination in ways that help forest managers to better incorporate the outputs of conservation science into their forest management activities.

PRIORITY ACTIONS

CONSERVATION NGOS, RESEARCH INSTITUTIONS, UNIVERSITIES, TIMBER COMPANIES AND FOREST AGENCIES SHOULD:

- Foster greater collaboration between timber companies, technical agencies and research institutions
- Encourage education and research on biodiversity in tropical production forests

The quantitative analysis of the ACTO Member Countries presented a total of 85 legal instruments, with an overall average implementation degree of 2,51 for guideline 18, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 18 and Table 21, that Venezuela reached a degree of implementation 3, considered good, which is the highest average presented (3,09), and Brazil has no legal instrument, presenting the worst result.

As shown in the following Table, Bolivia and Colombia presented the largest number of legal instruments correlated with Guideline 18 (21), and in the Brazilian national assessment, there were no results of quantitative analysis or legal instruments, policies, and regulations related to this Guideline.

With reference to organizations alliances and partnerships having complementary skills and knowledge for the dissemination and effective adoption of innovative approaches to the conservation and sustainable use of biodiversity

CHART 18. IMPLEMENTATION DEGREE OF GUIDELINE 18 BY COUNTRY.

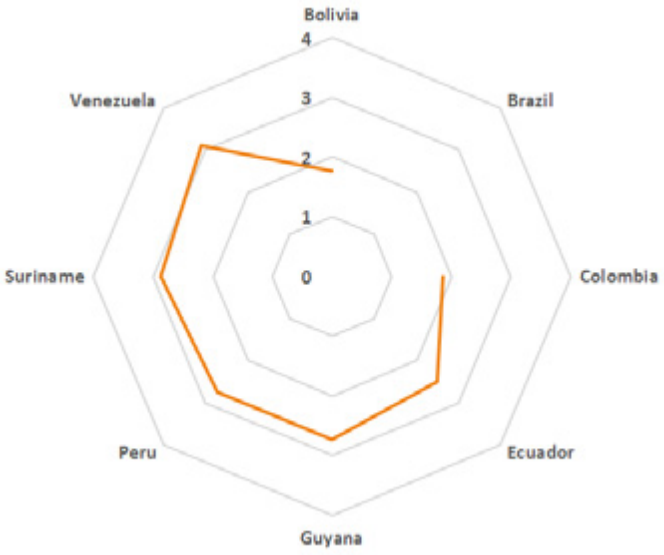


TABLE 21. NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 18 BY COUNTRY.

	For the dissemination and effective adoption of innovative approaches to the conservation and sustainable use of biodiversity in tropical production forests, alliances and partnerships among organizations with complementary skills and knowledge are needed.	Nbr. of Related Legal Instruments	Score (1 a 4)
P7D18	BOLIVIA	21	1,76
	BRAZIL	-	-
	COLOMBIA	21	1,86
	ECUADOR	4	2,50
	GUYANA	11	2,73
	PERU	9	2,73
	SURINAME	8	2,88
	VENEZUELA	11	3,09
	TOTAL	85	2,51

in tropical production forests, Bolivia reported that these and other issues are addressed by the Interinstitutional Platform of Forests in which central-level institutions involved in forests, projects and programs participate, and depending on the themes, private actors also participate creating a coordination and definition space for new forestry public policies.

The **COLOMBIA** assessment reports the efforts of some conservation NGOs, research institutions and universities to encourage greater collaboration between logging companies, technical entities, and research institutions. However, these actions are specific and have no impact. It also reports on several activities to promote education and research related to biodiversity of tropical forests, but almost none applied or oriented towards the tropical forest of production.

The Ministry of the Environment of **ECUADOR,** through the implementation of a national training and research plan, will encourage the involvement of specialized organizations, such as universities with forestry and related engineering faculties, in research and training (for individuals and public and private organizations) related to several topics such as sustainable forest management, forest inventories and forest assessment, forest certification processes, taxonomic and dendrological classification, among others.

PERU mentioned that some advances occurred through intersectoral and multi-level coordination resulting in the signing of interinstitutional cooperation agreements between the National Forest Conservation Program and eleven regional governments that are the main actors for forests conservation being responsible for the integral management of the respective territories.

The Ministry of Popular Power for Ecosocialism and Water (MINEA) in **VENEZUELA** is promoting several educational and communication strategies related to the significance of forests for biodiversity conservation, in conjunction with other government agencies, local governments, universities, NGOs and communities.

In addition, the National Education Program for the Conservation of Venezuelan Biological Diversity is permanently being implemented through which, the following national actions are being carried out: training for conservation, promotion of national debates, communication for critical awareness of biological diversity and formal education for conservation

In **GUYANA**, the Commission for Protected Areas, the Environmental Protection Agency (EPA), the Guyana Forestry Commission (GFC) and the Guyana Geology and Mine Commission within the biodiversity management sector have a good working relationship with some private institutions and civil society organizations, such as the Iwokrama International Center; the WWF - World Wildlife Fund-Guyana, along with Conservation International (Guyana) Inc.

In **SURINAME**, training activities are carried out in cooperation among the public sector and NGOs, such as the Suriname Agricultural Research Center (CELOS), Tropenbos International, and, ACT-Suriname, which operate in the area of conservation and biodiversity, and in activities related to Sustainable Forest Management.

BRAZIL's national assessment affirms that there is a space for dialogue and partnerships between government bodies (federal and state) and civil society organizations to promote actions aimed at the sustainable use of forest resources and biodiversity conservation.

In the **BRAZILIAN** Amazon, there is an interest that these actions take place within a network of partners. The challenge is to overcome the absence of structuring policies for the forestry sector. The cooperation relationship among different institutions is consolidated in the region fostering the dissemination and adoption of new technologies and practices for the sustainable use of forest resources. Some successful are mentioned:

1. The Brazilian Agricultural Research Corporation (EMBRAPA) together with the institutions responsible for technical assistance and forestry extension (EMATER), along with universities with their regional campi, by promoting field days to disseminate practices and technologies of Sustainable Forest Management;

2. universities with community forestry initiatives, such as the technical support of the Universidad Federal del Oeste Paraense (UFOPA) to the Mixed Cooperative of FLONA Tapajós (COOMFLONA) conducting forest management activities in the National Forest of Tapajós;

3. partnership between the Federal Institute of Education, Science and Technology of Pará (IFPA) with the International Institute of Education of Brazil (IEB) that is a non-governmental organization responsible for administering the community forest management module for the students of the forestry technician course;

4. partnership with the Federal University of Pará - UFPA that teaches botanical parataxonomy courses in other universities and technical courses in the region;

5. IBAMA institution with the actions of revision and inspection of SFMP that are of competence of the governmental environmental organisms in states such as Acre, Rondonia, Roraima, and Maranhão;

6. partnership between the Brazilian Forest Service company (SFB) with the Roberto Mariño Foundation, to disseminate SFM practices through training modules for villages, traditional communities, and family farmers.

In the last two decades, in **BRAZIL**, many types of research were developed to delineate new models of sustainable use of forest resources, and formal and non-formal educational actions in Sustainable Forest Management were supported with resources from international projects. However, actions to disseminate knowledge depend on constant financing, and the budget cuts suffered in recent years have led to a downturn or the cessation of these activities in many public institutions and NGOs.

GUIDELINE 19

Low-cost monitoring programs for biodiversity in tropical production forests that serve the needs of forest managers should be developed and conducted in ways that facilitate learning and adaptive management and that make information on achievements and failures widely available. Parataxonomists can provide valuable support to biodiversity assessment and monitoring.

Biodiversity monitoring in tropical production forests is an important element of both SFM and forest certification. Successful monitoring programs, however, are rare. The technical capacity to monitor any but the largest and most conspicuous animals is inadequate in most tropical forest countries. Biodiversity conservation monitoring is most effective when it involves all stakeholders, including local people as well as technical specialists. Developing the capacity to conduct effective monitoring is a long-term process; as information becomes available it should be used in the review of forest management operations and, where necessary, to modify such operations.

PRIORITY ACTIONS

GOVERNMENTS AND OTHER RELEVANT STAKEHOLDERS SHOULD:

- Encourage the development of improved methods for monitoring biodiversity in tropical production forests
- Involve concerned stakeholders in monitoring processes
- Explore alternative biodiversity mapping and monitoring methods, including participatory community-based approaches for mapping biodiversity of particular importance to local communities
- Provide long-term incentives and financial resources for biodiversity monitoring in tropical production forests

The quantitative analysis of the ACTO Member Countries presented a total of 84 legal instruments, with an overall average implementation degree of 2,41 for guideline 19, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 19 and Table 22, that two

countries reached a degree of implementation 3, considered good, which is the highest average presented by Peru (3,33), and the lowest was presented by Colombia (1,43).

As shown in the following Table, Bolivia presented the largest number of legal instruments correlated with Guideline 19 (22), and the lowest number was presented by Brazil (2).

With respect to the Monitoring Programs of biodiversity in tropical forests designed to meet the needs of forest managers, and implemented to facilitate learning and adaptive management, all countries indicated some actions carried out related to the subject, although this one is a very critical point in Forest Management activities.

Bolivia reported that the Bolivian System of Forest Certification and Incentives (SBCBI) allows biodiversity monitoring by local stakeholders, but it is a system that focuses only on areas where management plans are executed. There are projects that help to obtain the certification, through monitoring systems of biodiversity at local level. On the other hand, at the national level, no long-term financial resources are available for monitoring biodiversity in tropical production forests.

According to the national assessment, neither the Government of Colombia and other relevant stakeholders undertake specific actions in production forests to encourage the establishment of studies and better methods of monitoring biodiversity, nor offer financial resources and long-term incentives for monitoring biodiversity in tropical production forests.

The Ministry of Environment of Ecuador through the national technical bodies has been working on the establishment of an integrated digital platform named Forest Administration and Control System (SAF) in which the approved forestry plans and programs aimed at obtaining Mobilization of Forest Products Guides report on Sustainable Forest Management implementation by recording all the administrative and technical actions conducted within those plans.

CHART 19. IMPLEMENTATION DEGREE OF GUIDELINE 19 BY COUNTRY.

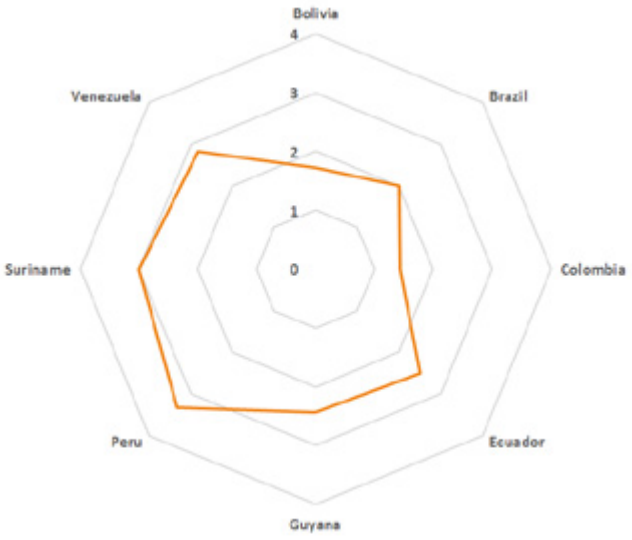


TABLE 22. NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 19 BY COUNTRY.

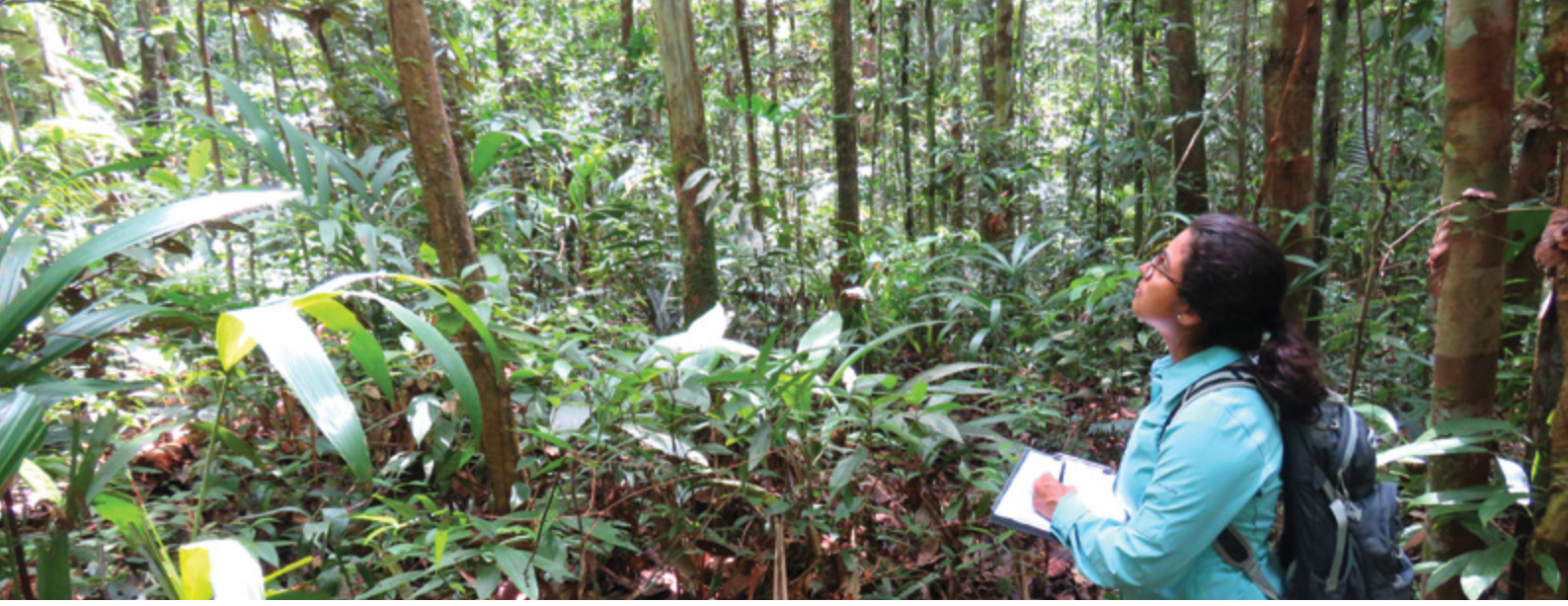
	Low-cost biodiversity monitoring programs for tropical productive forests should be designed to meet the needs of forest managers and should be implemented to facilitate learning and adaptive management and information on the achievements and failures should be widely disseminated. Parataxonomists can provide valuable support in biodiversity assessment and monitoring.	Nbr. of Related Legal Instruments	Score (1 a 4)
P7D19	BOLIVIA	22	1,73
	BRAZIL	2	2,00
	COLÔMBIA	21	1,43
	ECUADOR	8	2,50
	GUYANA	8	2,43
	PERU	3	3,33
	SURINAME	8	3,88
	VENEZUELA	12	2,83
	TOTAL	84	2,41

In **GUYANA**, the monitoring of production forests is limited to restricting any intervention within the areas, except those permitted for traditional uses of indigenous peoples. Many forest concessionaires have environmental management plans, but these, effectively indicate the non-intervention within 'biodiversity protected areas', except for research objectives approved by the Environmental Protection Agency (EPA).

SURINAME reported that in the monitoring of logging activities registration and tracking technologies and geographic systems are used to define the origin of products, since under the REDD+ Program a Community Measurement, Reporting and Verification System (MRV) will be established. Forest communities are being trained in the use of tablets and GPS in demarcated and mapped areas to track activities.

In the **BRAZILIAN AMAZONIAN** region, there are some initiatives devoted to disseminating sustainable forest management and practices based on training and capacity building. The Tropical Forest Institute (IFT) is one of the institutions acting strongly and committed to disseminating sustainable forest management, and training professionals who act in Sustainable Forest Management activities, such as monitoring.

Another quite representative initiative, in addition to those cited in Guideline 18, is the Florestabilidade Project from the Roberto Mariño Foundation in partnership with the Brazilian Forest Service, with a strong performance in learning processes for the



sustainable use of forest resources, through distance education modules, modules to train teachers in the public education network, extension agents and professionals from the Technical Assistance and Rural Extension - ATER, along with the dissemination in media such as TV, radio and digital media, about several experiences of Multiple Use Sustainable Forest Management.

In the scope of the National Plan of Agroecology and Organic Production (PLANAPO), the Brazilian Ministry of the Environment (MMA) has structured ATER activities to promote actions (i) for the sustainable use of forest resources; (ii) for food, water, and energy security (iii) for landscape conservation and Ecosystem Services, as well as (iv) for the development of teaching materials to assist extension workers in daily practices with peoples, traditional communities and farmer families.

GUIDELINE 20

More capacity for biodiversity conservation in tropical production forests is needed in technical agencies, planning departments and timber companies and among local forest owners and managers

In many countries with tropical production forests, human resource capacity in fields such as plant and animal taxonomy has declined; this decline must be reversed. The number and level of training of scientists with field competence in biodiversity surveying, mapping and monitoring is often inadequate for the task. Without significantly increased investments in training courses, technical guidelines and manuals, the background studies and surveys that must underpin the implementation of these guidelines will be impossible. Increased skills are needed in forest ecology, biodiversity management, and taxonomy. Training must be mainstreamed in university and technical forestry courses. Formal training and education should be complemented by practical experience – 'learning by doing'. Both public and private-sector forest managers should undertake, as a learning exercise, experimental biodiversity management in tropical production forests, by which the response of biodiversity to different types of management can be assessed. Technicians and researchers keen to develop their skills in biodiversity conservation should be offered the opportunity and incentive to attend courses, invest their time in field work, and share their experiences through networks of practitioners.

PRIORITY ACTIONS

GOVERNMENT AGENCIES, TIMBER COMPANIES AND CONSERVATION NGOS SHOULD:

- Provide training opportunities in taxonomy for forest management personnel who will work in tropical production forests
- Encourage trained staff to spend time surveying and monitoring biodiversity as part of their normal work
- Encourage the development of networks of field practitioners to share information on their experiences
- •Create mechanisms for the formal recognition and valuation of traditional knowledge, particularly related to the botanical identification and use of forest species
- Encourage the creation of specialized courses and training activities in tropical forest taxonomy, ecology and biodiversity management
- Encourage the transfer of knowledge and technology on biodiversity conservation methodologies and measures to producer countries

The quantitative analysis of the ACTO Member Countries presented a total of 93 legal instruments, with an overall average implementation degree of 2,18 for guideline 20, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 20 and Table 23, that Peru reached a degree of implementation 3, considered good, which is the highest average presented, and the lowest was presented by Brazil (1,00).

As shown in the following Table, Bolivia presented the largest number of legal instruments correlated with Guideline 20 (22), and the lowest number was presented by el Brazil (2).

Most countries reported on some initiatives to increase and improve technical capacity in planning/ management departments and timber companies, along with local forest owners for forest management and biodiversity conservation activities in tropical production forests.

The national assessments of **BOLIVIA** and **COLOMBIA** reported that their forestry companies do not provide training opportunities nor encourage trained personnel to devote themselves to the study and monitoring of biodiversity as part of their daily tasks.

CHART 20 - IMPLEMENTATION DEGREE OF GUIDELINE 20 BY COUNTRY.

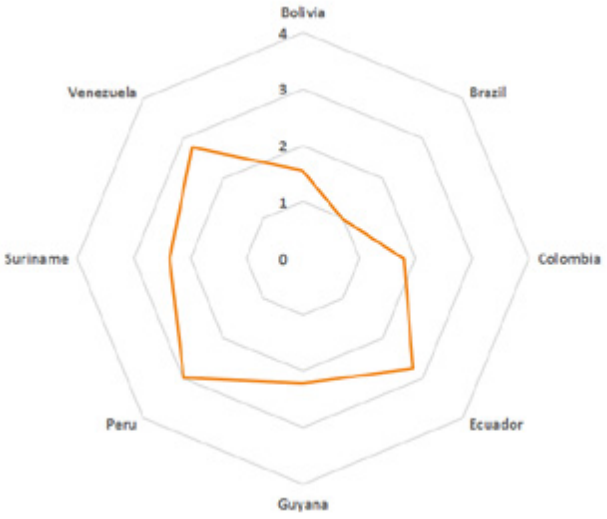


TABLE 23 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 20 BY COUNTRY.

	É necessária mais capacidade em instituições técnicas, departamentos de planejamento/ gerenciamento e nas empresas madeireiras, bem como entre os responsáveis pelo manejo e proprietários de florestas locais, para a conservação da biodiversidade em florestas tropicais de produção.	N° de Instrumentos Jurídicos relacionados	Pontuação (1 a 4)
P7D20	BOLÍVIA	22	1,55
	BRASIL	2	1,00
	COLÔMBIA	19	1,79
	EQUADOR	4	2,75
	GUIANA	10	2,22
	PERU	8	3,00
	SURINAME	14	2,36
	VENEZUELA	14	2,79
	TOTAL	93	2,18

However, the Forest and Land Audit and Social Control Authority (ABT) in Bolivia, along with forestry projects and programs, provide technical assistance to forest managers, preferably if they are interested in adopting Bolivian certification.

Forest management training in **PERU** is included in forest regulations in force at different levels as the State's obligation with indigenous peoples, directly or through their representative organizations. The performed tasks were:

1. Prioritize capacity-building in the development and implementation of the direct and comprehensive forest management, to expand and diversify opportunities for the management of forest resources and wildlife, and the generation of products with value added;

2. promote community forest management as part of social inclusion policies;

3. forestry and wildlife education with a gender and intercultural approach, and training in professional and technical excellence;

4. creation of national forestry and wildlife awareness;

5. the education and training of professionals and technicians from public administration and of rural and native communities, as well as private sector stakeholders related to the subject, to ensure equitable access to opportunities for technical and professional practice;

6. programs based on experiences linking schools to the conservation of forests and wildlife.

According to **PERU's** national assessment, these actions are currently in the development and implementation phase. However, there are limitations in strengthening planning and management areas in the regions.

Regarding the training in forest management and biological diversity, in **VENEZUELA**, several University institutions train professionals in several disciplines related to these areas. In addition, the Directorate General of Forest Patrimony (DGPF) and the General Directorate of Biological Diversity of MINEA offer courses and workshops, especially aimed at its professional and technical staff. However, the Venezuelan evaluation shows

the need to increase the number of professionals with additional skills, especially in the monitoring of biodiversity components of the of production forests, as well as of personnel working directly in the areas of forest management.

The results from **SURINAME's** assessments pointed out to capacity deficiencies. The training plans emphasize and detail the need to strengthen capacities at all levels, but no comprehensive training programs have yet been implemented. Eventual training activities were carried out and with very specific objectives within Sustainable Forest Management actions.

BRAZIL's national evaluation lists a number of institutions that are undertaking efforts to provide training on issues related to forest management, such as the federal Universities, federal education institutes (IFE) and agricultural family schools (EFA) or rural family houses (CFRs), which are institutions of secondary education (offering professional technical courses in forest management), as well as research institutions and non-governmental organizations. These institutions carry out training in low impact techniques, adoption of good management practices for non-timber forest products, collection, and production of seeds of native species, reforestation methods with native vegetation, the formation of parataxonomies (botanical identifiers) among many other subjects.

Both forest companies - forest producers - and those responsible for forest management seek to adopt recommended management practices. However, due to the lack of a specific structuring policy devoted to the Brazilian forestry sector, many producers are questioning the training costs for the adoption of low impact management practices and biodiversity conservation in the areas of forest management.

The evaluation also mentioned that **BRAZIL** has laws aimed at guaranteeing the promotion of traditional peoples and communities, and that authorizes the Federal Executive Power to institute support and incentive programs for the environmental conservation and to make foresight of financing for sustainable forest management practices on smallholdings or family farms.

However, according to the national assessment, improving the technical capacity of the Brazilian forestry sector, whether it is business or family community, requires increasing the scope of the National Rural Assistance and Extension Policy - PNATER.

Therefore, specific actions must be undertaken within the federal and state government to meet the training demands in the scope of forest management and biodiversity conservation, involving programs and actions from the official agencies of the Technical Assistance and Rural Extension (ATER). It is known that the official ATER in Brazil has suffered imposed budgetary constraints in addition to the existing gaps in the training and continuous improvement of ATER professionals.

All the above has affected the quality of the provision of the services, mainly those directed to the small family farmer. Parallel to the official ATER actions, due to budgetary constraints, non-governmental institutions that offer training in good forest management practices and reduced impact logging have faced financial difficulties to maintain their activities. Therefore, the current situation is of concern, because with the reduction of technical support from ATER official bodies in Brazil, and if the initiatives of organizations that act as multipliers of good management practices are interrupted, family community management will be the most harmed.

PRINCIPLE 8: Managing tropical production forests at a landscape scale

TROPICAL PRODUCTION FORESTS AND OTHER COMPONENTS OF THE LANDSCAPE HAVE COMPLEMENTARY BUT DIFFERING ROLES IN BIODIVERSITY CONSERVATION AND SUSTAINABLE USE.

GUIDELINE 21

The management of different types of production and plantation forest within the larger landscape has a major influence on biodiversity in that landscape.

It is important to ensure that land allocation and the planning of harvesting cycles and other silvicultural treatments result in patterns of forest cover that provide conditions suitable for biodiversity conservation

PRIORITY ACTIONS

LAND-PLANNING AND FOREST AGENCIES SHOULD:

- Plan the allocation of tropical production forest and the development of forest infrastructure at a landscape scale

FOREST MANAGERS SHOULD:

- Planificar las parcelas de aprovechamiento de manera que no se perturbe la continuidad de árboles maduros
- Retain natural unlogged refugia adjacent to or within harvesting blocks

The quantitative analysis of the ACTO Member Countries presented a total of 87 legal instruments, with an overall average implementation degree of 2,57 for guideline 21, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 21 and Table 24, that three countries reached a degree of implementation 3, considered good. which is the average

HART 21 - IMPLEMENTATION DEGREE OF GUIDELINE 21 BY COUNTRY.

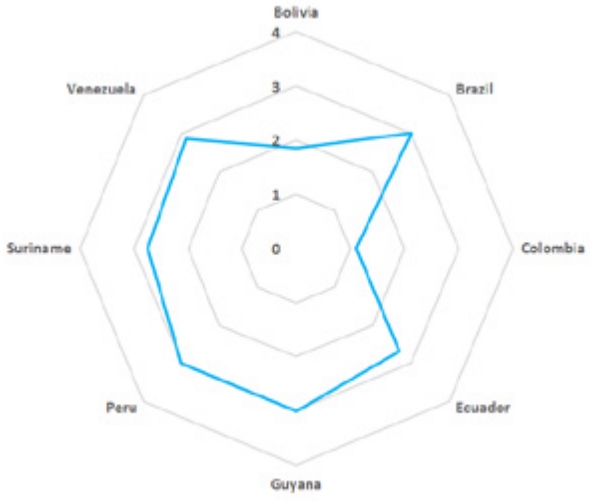


TABLE 24 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 21 BY COUNTRY.

	The management of the different types of production forests and plantations within the general landscape has an important influence on the biodiversity of that landscape.	Nbr. of Related Legal Instrumentss	Score (1 a 4)
P8D21	BOLIVIA	22	1,86
	BRAZIL	11	3,00
	COLOMBIA	9	1,11
	ECUADOR	13	2,69
	GUYANA	5	3,00
	PERU	4	3,00
	SURINAME	8	2,75
	VENEZUELA	15	2,87
	TOTAL	87	2,57

presented by Brazil, Guyana and Peru, and the lowest was presented by Colombia (1,11).

As shown in the following Table, Bolivia presented the largest number of legal instruments correlated with Guideline 21 (22), and the lowest number was presented by el Peru (4).

Most of the countries informed that different types of production and plantation forests are managed within the general landscape to positively influence their biodiversity. For example, Guyana reported on the efforts being carried out to prevent forest fragmentation. In Bolivia, harvest plots are planned to avoid disruption of the continuity of mature trees.

In the case of **COLOMBIA**, the forestry and land use organizations do not conduct specific actions to plan the designation of tropical forests for production along with the development of forest infrastructure at the landscape scale.

ECUADOR has a legal instrument that determines the preparation of a land use planning program, to enable the forest sector to define areas of productive forest use as well as conservation areas. This classification must observe social, economic and environmental interest.

In practice, in **ECUADOR**, the areas mapped and with a relative level of zoning belong to the National System of Protected Areas (SNAP), Protective Forests (BVP), Heritage State Forest (PFE) and Socio Bosque Program. These are wild areas that stand out for their protection, scientific, scenic, educational, tourist and recreational value, for their flora and fauna or because they constitute ecosystems contributing to the maintenance of environmental balance.

The Forestry Authority of **PERU**, in coordination with regional forestry stakeholders, establishes, promotes and implements actions at the national level to ensure the sustainable use, conservation

and protection of forest resources and flora and fauna through the ordering, delimitation of protection areas, identification of critical habitats, along with the elaboration of lists of categories of species by their state of conservation.

Likewise, **PERU** recognizes plantations as forest ecosystems formed from human intervention through the installation of one or more forest species, native or introduced, to produce timber or non-timber forest products, the protection, ecological recovery, recreation, environmental services provision, or combinations of the items previously mentioned. In this sense, partial aspects of conservation and management at the landscape level are collected, prioritizing forest-type landscapes. However, more emphasis is given to the components of biodiversity at smaller scales.

The assessment from Suriname mentions the existence of different legal instruments ruling the productive processes (forest management, mining, and agriculture) with a great influence on that landscape's biodiversity. It was pointed out that there are no commercially planted forests, with a total of approximately 7,000 ha of forests planted only for experimental and research purposes.

Ecological-Economic Zoning, at the regional and state level, is the main instrument for planning biodiversity conservation at the landscape level and leads to other conservation and development policies. In addition, the Federal government and the states have the autonomy to establish ecological corridors and mosaics between the different categories of conservation units and areas of relevant ecological interest regulated by the National System of Conservation Units - SNUC.

In the Amazon region, the Southern Amazon Mosaic encompasses the states of Amazonas, Rondonia and Mato Grosso, with an amplitude of 40 conservation units, enabling the interconnection among them.

GUIDELINE 22

The restoration of native vegetation on degraded sites should be planned to provide a diversity of successional vegetation types, increase the connectivity of forest patches, and allow the dispersal of plants and animals, thereby helping to ensure the viability of populations at landscape and forest management unit scales.

In many parts of the world, major initiatives are under way to restore degraded forests and forest lands. Much of this restoration work focuses on watershed protection or providing new sources of wood fibre. There are, however, many situations in which the carefully sited planting of native species can provide important biodiversity gains at a landscape scale. The fragmentation of forests that occurs when areas are cleared or logged can threaten many plant and animal species that are dependent on large, intact forests for their survival. Corridors and 'stepping stones' of natural forest located within non-forest or planted forest areas can facilitate the movement of forest species.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Incorporate biodiversity conservation goals in the planning of large-scale reforestation or forest landscape restoration activities
- Plant native species on degraded land to increase habitat and to provide opportunities for the movement of biodiversity between fragmented natural forest patches

CREATE CORRIDORS OF HABITAT BETWEEN FOREST PATCHES BY:

- Maintaining intact forest along streams and rivers
- Retaining canopy 'bridges' over roads and taking other measures to facilitate animal movement, such as building tunnels under roads
- Ensuring that roads do not impede water movement at stream crossings revegetating degraded land

The quantitative analysis of the ACTO Member Countries presented a total of 108 legal instruments, with an overall average implementation degree of 2,34 for guideline 22, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 22 and Table 25, that two countries reached a degree of implementation 3, considered good, which is the presented by Brazil and Venezuela, and the lowest was presented by Colombia (1,22).

As shown in the following Table, Bolivia presented the largest number of legal instruments correlated with Guideline 22 (24), and the lowest number was presented by Brazil (4).

All countries, except for Suriname, informed that they carry out actions to promote the restoration of native vegetation in degraded sites to provide a variety of types of successional vegetation, increasing the connectivity of forest fragments and allowing the dispersal of plants and animals, and thus helping to ensure the viability of the populations at the landscape and forest management unit scale.

BOLIVIA has the National Program of Forestation and Reforestation with a strategy that aims to increase forest cover by 4.5 million hectares

CHART 22 - IMPLEMENTATION DEGREE OF GUIDELINE 22 BY COUNTRY.

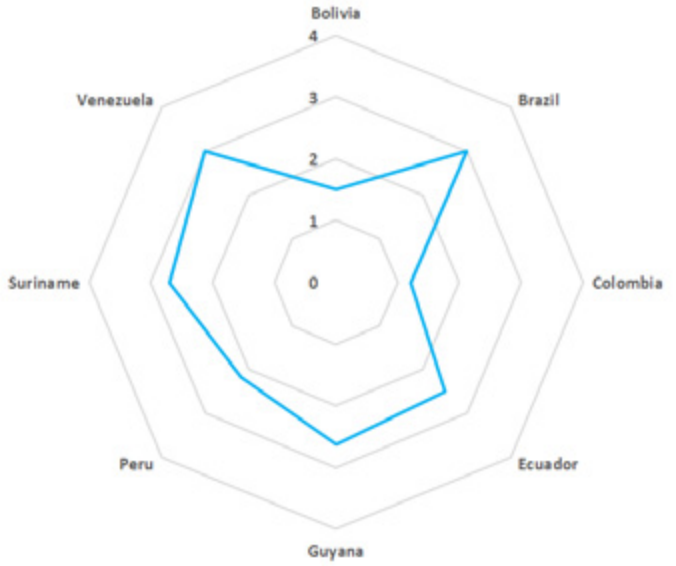


TABLE 25 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 22 BY COUNTRY.

	Recovery of native vegetation at degraded sites should be planned to provide a variety of successional vegetation types, increase the connectivity of forest fragments and allow the dispersal of plants and animals, thereby helping to ensure the viability of populations at landscape level and the forest management unit.	Nbr. of Related Legal Instruments	Score (1 a 4)
P8D22	BOLIVIA	24	1,50
	BRAZIL	4	3,00
	COLOMBIA	9	1,22
	ECUADOR	22	2,50
	GUYANA	8	2,63
	PERU	6	2,17
	SURINAME	13	2,69
	VENEZUELA	22	3,00
	TOTAL	108	2,34

until 2030. Important contributions are expected from this program for the maintenance of environmental functions, restoration of life zones and eradication of extreme poverty, in the field of integral and sustainable management of forests, contemplating the following types of plantations, such as environmental protection (native vegetation), urban forestry, agroforestry and silvopastoral systems and commercial plantations.

According to the national assessment of **COLOMBIA**, there is a tendency to plant native species on degraded lands to expand their habitat and offering opportunities to move biodiversity among natural forests fragments and create habitat corridors between them. However, those responsible for forest management only sometimes incorporate biodiversity conservation objectives in the planning of large-scale reforestation activities or forest landscape recovery, but more by as particular initiative than to comply with specific policies or standards.

In the case of reforestation for conservation, the **ECUADORIAN STATE** through the Ministry of Environment proposed intervening on 500,000 hectares during the period of 2014-2017, which is approximately 31% of the supply of areas available for reforestation throughout the country. The reforestation program for conservation purposes is currently going through a restructuring and creation of a financial model and management to give sustainability to the actions in the territory.

The evaluation of **PERU** mentioned that the current legislation recognizes the importance and regulates the process of restoration of native vegetation in degraded areas. Therefore, the Forest Service (SERFOR), in coordination with the Ministry of Environment (MINAM), has been working on the approval of the guidelines for the restoration of forest ecosystems and other ecosystems of wild vegetation.

The Peruvian Forest Service, within its respective competencies, and in coordination with the Regional Forest and Wildlife Authority (ARFFS), identifies degraded ecosystems in order to promote their restoration. So far, regional governments, local governments, producers, NGOs, and international cooperation participate in this process.

A map was prepared in which 1 million 265 thousand hectares were identified as priority sites for the restoration of degraded areas in five departments of Peru. Priority areas and restoration strategies were identified using the methodology for evaluation of restoration opportunities (ROAM), jointly prepared by the International Union for the Conservation of Nature (IUCN) and by the World Resources Institute (WRI). Both organizations have a forest landscape approach based on a comprehensive vision of land management according to activities and resources.

Restoration projects for degraded forest ecosystems in Peru can be developed through enabling titles and administrative acts, as part of the guidelines for environmental compensation, and as public and private initiatives (private companies, associations, academic entities, among others, within the scope of its policies, lines of action and particular interests).

VENEZUELA has the Law of Biological Diversity Management that establishes the rehabilitation and restoration of degraded ecosystems

as one of the priorities of in situ conservation. Likewise, the Forestry Law requires state entities to promote and encourage the increase of forest cover throughout the country, through programs and actions aimed at afforestation of land devoid of vegetation for protection purposes, forest reforestation in anthropogenic areas, along with the application of silvicultural conservationist techniques for the improvement of natural and planted forests.

Different strategies are being implemented to increase forest cover protecting biodiversity at the landscape scale. Among these strategies, the national assessment of Venezuela mentioned the plantations carried out on deforested or degraded lands, community reforestation projects, declaration of protection zones and proposals for ecological corridors.

Aimed at recovering mining areas in **GUYANA**, some experiments were carried out in which an exotic species (Acacia mangium) was initially planted in order to reestablish a vegetative cover. After a certain period, native species were also planted in the same place.

The Law of Protection of Native Vegetation in **BRAZIL** provides and regulates the procedures for the re-composition of native vegetation from instruments such as the Rural Environmental Registry (CAR) and the Environmental Regularization Program (PRA). This Program will be implemented by the Brazilian States and the Federal District. It is expected that, after the Rural Environmental Registry, those properties that have identified environmental liability relative to the areas of permanent preservation, legal reserve, and restricted use, may proceed to the environmental regularization by adhering to the environmental regularization programs of each state.

GUIDELINE 23 **Private and community forest owners need technical support to ensure that their activities are consistent with biodiversity conservation objectives.**

It would be unreasonable to expect owners of small areas of forest or managers of community forests to acquire sophisticated skills in biodiversity surveying, management or monitoring. Forest agencies should provide technical support and oversight to ensure that, to the greatest extent possible, small-scale private or community forest management contributes to biodiversity conservation. This will require staff that can assess the biodiversity values of large aggregate areas of small forest holdings and, where necessary, assist smallholders to adjust their forest management practices. Many managers of small forest areas work to short time horizons and might lack the long-term vision necessary to meet biodiversity conservation objectives. Forest agencies should provide oversight at the landscape scale to address these long-term needs.

PRIORITY ACTIONS

FOREST AND OTHER RELEVANT AGENCIES SHOULD:

- Understand the importance of many small forest holdings for biodiversity conservation at the landscape scale
- Ensure that the managers of small or community forests understand and respect long-term needs for biodiversity conservation
- Assist community forest owners and managers to support activities that are consistent with biodiversity conservation objectives.

The quantitative analysis of the ACTO Member Countries presented a total of 89 legal instruments, with an overall average implementation degree of 2,41 for guideline 23, for the Amazonian region, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 23 and Table 26, that two countries reached a degree of implementation 3, considered good, which is the highest

average presented por Venezuela (3,22), and the lowest was presented by Bolivia (1,41).

As shown in the following Table, Ecuador presented the largest number of legal instruments correlated with Guideline 23 (23), and the lowest number was presented por Suriname (5).

All countries evaluated, agree on the importance of providing technical assistance to private and

CHART 23 - IMPLEMENTATION DEGREE OF GUIDELINE 23 BY COUNTRY.

TABLE 26 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 23 BY COUNTRY.

	Owners of private and communal forests need technical support to ensure that their activities are compatible with biodiversity conservation objectives.	Nbr. of Related Legal Instruments	Score (1 a 4)
P8D23	BOLIVIA	22	1,41
	BRAZIL	9	2,00
	COLOMBIA	9	1,44
	ECUADOR	23	2,83
	GUYANA	6	2,67
	PERU	6	2,67
	SURINAME	5	3,00
	VENEZUELA	9	3,22
	TOTAL	89	2,41

community forest owners, to ensure that their activities are compatible with biodiversity conservation objectives. However, some countries reported that they face various difficulties for the effective use of these relevant actions.

The Forest and Land Audit and Social Control Authority of **BOLIVIA** (ABT), in addition to monitoring, it also provides technical assistance for adequate forest management. Forest producers and other relevant entities know the importance of biodiversity conservation at the landscape level, however, their practical actions are usually not concordant.

Often, those responsible for Bolivian forest management in small or community areas due to their ancestral knowledge, understand and respect the long-term biodiversity conservation needs, however, many times they are discouraged to put such premises into practice due to their real socioeconomic situation.

According to the evaluation of **COLOMBIA**, there is a very low level of assistance to support activities implementation compatible with the biodiversity conservation objectives of the community forest owners and of those responsible for their management.

The technical support to small owners offered by the National Environment Authority in **ECUADOR** was considered incipient by the national evaluation. In 2011, the Forestry Advisory Service began as a component of the National Forest Control System to provide free technical monitoring to small producers and indigenous communities in the of design forest harvesting plans and/or programs.

As reported, the greatest technical support is offered by the NGOs that operate in **ECUADOR**. However, this support is not a definitive solution because most of the time is given through the implementation of pilot projects, and once the project is concluded, no sustainable capacities are created. The most successful experiences were carried out through the HIVOS Foundation in the design of operational components of Sustainable Forest Management in Amazonian communities.

Some advances were mentioned in **PERU**, such as incentives for forest conservation, which include, economic incentives and technical assistance in direct coordination with regional governments to carry out activities and initiatives contributing to forest conservation.

At present, the National Forest Conservation Programme for Mitigation against Climate Change (Forest Program), of the Ministry of Environment (MINAM), increased to more than 180 the number of native communities affiliated to the incentive mechanism for conservation, covering approximately two million hectares of communal forests.

According to the **VENEZUELAN** Forestry Law, owners of forest areas with forest cover must conduct conservation and sustainable management activities in those forests. This Law provides for the implementation of incentive and technical support programs to achieve in these areas the sustainable management of forest heritage, which implies in the biodiversity conservation.

According to the **VENEZUELAN** evaluation, the MINEA's General Directorates of Forestry Heritage and Biological Diversity have trained personnel, both at the national level and state level, to carry out technical support and supervision activities to ensure that forest management is compatible with the biodiversity conservation. However, personnel and the necessary logistics are not enough to execute the activities.

GUYANA and **SURINAME** indicated the need to carry out continuous technical assistance training, only a limited amount of forest management activities was conducted for most communities.

The Technical Assistance and Rural Extension - ATER is carried out in the **BRAZILIAN AMAZON** with government contributions, at the federal and state level. Although the policy of ATER underwent significant reformulations in recent years to address the peculiarities of the different production systems and different groups of producers in the Amazon region, the demands for the sustainable production of forest management have not been fully addressed.

According to the national evaluation, among the many challenges about application of ATER in the Brazilian Amazon region (as described in guideline 20), there is the need to meet the demand for continuous training and improvement of the extension agent in forest management practices and biodiversity conservation.

The final actions of official government bodies are guided by the promotion and support for capacity-building, such as the Brazilian Forest Service, Universities, Federal Institutes of Education and the EMBRAPA.

A good example where it is possible to observe the performance of the official bodies of ATER, is the Institute for Sustainable Development of Agriculture and Forestry of the State of Amazonas IDAM, which was one of the pioneers to work with a rural extension agenda aimed at addressing the demand of producers in community and family forest management practices. However, unfortunately, this is not the case of all the states part of Brazil's Amazon region.

PRINCIPIO 9: Biodiversity considerations at the forest management unit level

EFFECTIVE FOREST MANAGEMENT, IN WHICH ECONOMIC, SOCIAL AND ENVIRONMENTAL OBJECTIVES ARE BALANCED IN ACCORDANCE WITH SOCIETAL NEEDS AND PRIORITIES, IS ESSENTIAL FOR SETTING AND ACHIEVING BIODIVERSITY CONSERVATION AND SUSTAINABLE USE GOALS.

GUIDELINE 24

Biodiversity should be given a prominent place at all stages of the preparation and implementation of forest management plans.

Forest-level planning is fundamental to success. Forest management plans, logging manuals, codes of conduct, reduced impact logging guidelines and other elements of SFM must all include explicit provisions for biodiversity conservation. It is vital that management planners and other legitimate stakeholders are able to access the best available information on species, populations of species, and habitats of conservation concern and on the impacts that different practices have on biodiversity conservation.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Define biodiversity goals at all stages of the preparation and implementation of forest management plans

RELEVANT GOVERNMENT AGENCIES AND RESEARCH INSTITUTIONS SHOULD:

- Ensure that technical information on biodiversity is available to forest management planners;
- Ensure that biodiversity conservation is dealt with explicitly in manuals, codes of conduct and guidelines related to the implementation of SFM

A total of 101 legal instruments were presented related in some way, to the preparation and execution of forest management and that should consider biodiversity as a primary factor in its stages. The overall average score obtained for guideline 24 in the Amazon region was 2.78 corresponding to the Guideline within the established score scale.

It can be verified in Chart 24 and Table 27, that five countries reached a degree of implementation 3, considered good, which is the highest

GRÁFICO 24 - GRAU DE IMPLEMENTAÇÃO DA DIRETRIZ 24, POR PAÍS.

TABLE 27 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 23 BY COUNTRY.

	Owners of private and communal forests need technical support to ensure that their activities are compatible with biodiversity conservation objectives.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D24	BOLIVIA	16	2,63
	BRAZIL	14	3,00
	COLOMBIA	10	1,60
	ECUADOR	13	3,31
	GUYANA	8	3,00
	PERU	15	2,67
	SURINAME	7	3,00
	VENEZUELA	18	3,06
	TOTAL	101	2,78

average presented by Ecuador (3,31), and the lowest was presented by Colombia (1,41).

As shown in the following Table, Venezuela presented the largest number of legal instruments correlated with Guideline 24 (18), and the lowest number was presented by Suriname (7).

The national assessment of the ACTO Member Countries demonstrated the efforts related to the implementation of legal mechanisms, regulations, and policies in which in all stages of forest management, from its planning, a comprehensive approach of biodiversity is required.

The main guarantee scheme of the comprehensive vision of biodiversity presented by the countries, mainly in the production forests, is the Forest Management Plan required by the forestry laws for the interventions that have as an objective the logging of the forests. Likewise, international agreements and forest certification were mentioned as mechanisms that help in the attention of this Guideline.

Forest Management Plans must consider the environmental issues established at the national level related to forestry exploitation activity and depend on the approval of the competent environmental authority. The basic parameters of the environmental component considered in the management plans related to biodiversity, contemplate conservation measures for soil, water, wildlife, and flora to avoid damages in the locality and environment.

The quality and feasibility of the comprehensive vision of biodiversity in the forestry exploitation actions depend directly on the quality and quantity of information on biodiversity available to those responsible for the management, research institutions, regulatory bodies and other stakeholders involved. Accordingly, it is essential to promote and strengthen mechanisms of research and control related to biodiversity.

Also, the countries mentioned in their national assessments that, although biodiversity occupies the first place in the planning and execution of forestry activities in their legal and regulatory mechanisms (with emphasis on the Management Plan), in the practice there is much to do to guarantee the attention of this

guideline. Therefore, (i) the biodiversity information available to the stakeholders should be of quality to be incorporated in the control mechanisms; (ii) biodiversity conservation goals should be more explicit in legal instruments; (iii) guarantee the application in the field of actions aimed at the biodiversity conservation, and; (iv) strengthening environmental and forestry authorities actions of the of control and regulation, incorporating conservation measures into the management plans and monitoring its implementation.

GUIDELINE 25 **All forest management activities affect biodiversity. Forest management must ensure that changes do not impact negatively on biodiversity features identified as having special value.**

Forest management inevitably causes changes in biodiversity. The objective of management is not to prevent change but rather to ensure that such change is within limits acceptable to legitimate stakeholders. The studies that occur during spatial planning (Principle 4) and in processes of consultation with local stakeholders (Principle 5) must identify those features of special concern which should be protected against unacceptable change.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Identify and monitor biodiversity values that should be protected against excessive change during forest management

The quantitative analysis of the ACTO Member Countries presented a total of 105 legal instruments dealing with the negative impacts caused by forest management to the components of biodiversity, mainly those that have a special identified value. The overall average of the score obtained for guideline 25 for the Amazonian region was 2.80 corresponding to the Guideline within the established score scale.

Four countries presented good attention to this Guideline (Peru, Ecuador, Brazil, and Suriname) and the other four countries (Venezuela, Guyana, Bolivia, and Colombia) regular attention. With respect to the number of instruments mentioned, the values varied from 7 (Suriname) to 20 (Venezuela and Brazil), as shown in the following Table.

Negative impact on special value biodiversity components must be avoided in forest interventions. The national assessments presented by ACTO Member Countries showed that the forest management of the countries involved, considers important issues of the components and importance

CHART 25 - IMPLEMENTATION DEGREE OF GUIDELINE 25 BY COUNTRY.

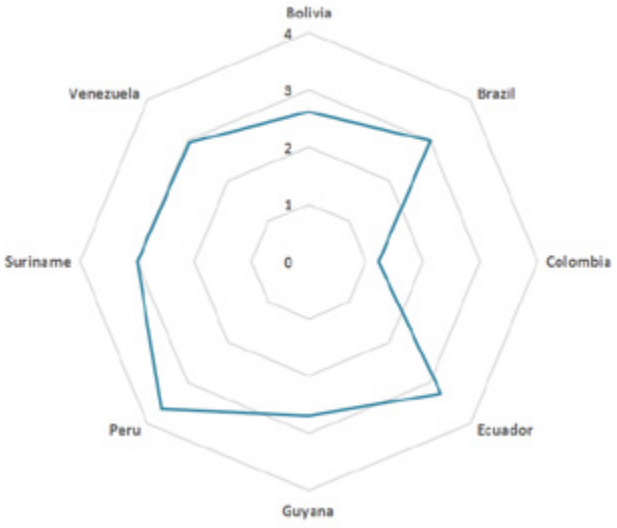


TABLE 28 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 25 BY COUNTRY.

	All forest management activities affect biodiversity. Forest management must ensure that changes do not have a negative impact on biodiversity components identified as having special value.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D25	BOLIVIA	13	2,62
	BRAZIL	20	3,00
	COLOMBIA	9	1,72
	ECUADOR	15	3,27
	GUYANA	10	2,70
	PERU	11	3,64
	SURINAME	7	3,00
	VENEZUELA	20	2,95
	TOTAL	105	2,80

of biodiversity in productive forestry activities, reflected in their main guiding and regulatory instruments.

The forest management plans, together with other guiding and regulatory mechanisms, must guarantee sustainable forest management including biodiversity issues, as well as act in the identification and control of biodiversity values.

To this end, it is necessary to ensure that knowledge about biodiversity is available to all the stakeholders involved, and to strengthen the actions providing more detailed and quality information, related to components and values of biodiversity.

All the countries mentioned that the basic actions for biodiversity conservation, mainly related to the protection and conservation of soil, water, local fauna, and flora, as well as forest management techniques, are contained in legal instruments and are part of the set of actions characterizing sustainable forest management.

However, according to the assessments more information and details about biodiversity components is needed concerning their values and the existing interrelation between them and, mainly, information on methodologies for identifying the areas that are considered as of special value for biodiversity conservation. This information should serve as inputs in the elaboration and adjustments of the control mechanisms, so possible changes of focus can be observed in the field.

Specifically, some important information was presented about guaranteeing that forest intervention changes do not affect the components and values of biodiversity. In this sense, **BOLIVIA** and **COLOMBIA** mentioned that those responsible for forest management not always perform the identifying or control of biodiversity values due to the lack or unavailability of information for those in charge forest management.

In **GUYANA**, the main strategies to guarantee the minimization or eradication of the negative impacts to the components of biodiversity are the Reduced Impact Techniques and the forestry training, which need to be further promoted and meet the specific demands of those responsible for forest management.

SURINAME mentions that the management plan highlights important actions for biodiversity conservation and that they depend on the approval of the local forestry authority, which determines the sustainable forest management considering biodiversity issues.

The assessment from **BRAZIL** also shows that the legal mechanisms dealing with forest management do not explicitly present the details of the conservation goals. However, the current technical standards establish technical criteria for sustainable forest management, seeking to ensure biodiversity conservation. One of the important tools to guarantee the applied conservation in Brazil was a demand for monitoring of forest management areas after exploitation (by means of permanent plotting), however, due to the increase in costs and operational demand, ceased to be mandatory and now is optional.

The analysis presented demonstrates the need to have more information and details about the components of biodiversity that must be insured, their values and the interrelation between them.

In addition, information is needed on the methodologies to identifying the areas that are considered of special value for the biodiversity conservation, with a landscape approach. This information should serve as inputs in the elaboration and adjustment of the control mechanisms so that possible changes in approach can be observed in the field.

GUIDELINE 26

Forest management plans should include information on the presence and conservation status of plants, animals and habitats of special conservation concern.

Adequate baseline information on the biodiversity resources of a forest and a process for monitoring changes in those baselines are both essential for effective biodiversity conservation in tropical production forests and must be provided for in forest management plans. Forest management plans must also be flexible enough so that management practices can be adapted to meet changing biodiversity objectives and to respond to changes in biodiversity detected through monitoring. During preparation of the forest management plan, biodiversity features of value to local communities, such as resin trees, sacred sites and medicinal plants, should be identified. The plan must include measures to ensure that forest management does not impact negatively on those local values. There is a risk that significant – and commercially valuable – genetic variation will be lost among tree species subject to heavy harvesting pressure; for example, individuals with the best form might be harvested preferentially. The setting aside of conservation areas would help mitigate this risk.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- When developing forest management plans, encourage collaboration with museums, herbaria, environmental agencies and conservation NGOs to assemble baseline information on biodiversity resources
- In the preparation of forest management plans, consult with local people/communities and ensure that their traditional knowledge of biodiversity is considered
- Incorporate baseline information on biodiversity and forest ecology in the forest management plan
- Ensure that forest management plans provide for biodiversity monitoring and that management will be responsive to the results of that monitoring

- Ensure that forest management plans include measures to protect local biodiversity values
- Ensure that forest management plans include provisions to address specific biodiversity issues such as genetic conservation areas for commercial tree species
- Ensure public disclosure of the biodiversity information used in the development of forest management plans

The quantitative analysis of the ACTO Member Countries presented a total of 97 legal instruments that must address, in some way, the need to include information on the presence and conservation status of plants, animals, and habitats that are of special interest for conservation. However, the overall average of the score obtained for guideline 26 for the Amazonian region was 2.71 corresponding to the Guideline within the established score scale.

As shown in the following Table, Venezuela presented the largest number of legal instruments correlated with Guideline 26, and the lowest number was presented by Suriname (5).

CHART 26 - IMPLEMENTATION DEGREE OF GUIDELINE 26 BY COUNTRY.

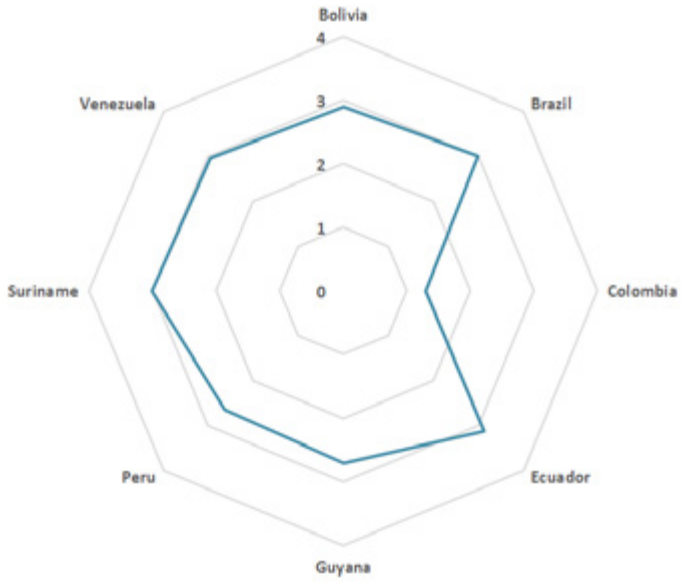


TABLE 29 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 26 BY COUNTRY.

	Forest management plans should include information on the presence and conservation status of plants, animals and habitats that are of special interest for conservation.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D26	BOLIVIA	10	2,90
	BRAZIL	13	3,00
	COLOMBIA	10	1,30
	ECUADOR	15	3,13
	GUYANA	7	2,71
	PERU	14	2,64
	SURINAME	5	3,00
	VENEZUELA	23	2,96
	TOTAL	97	2,71

This guideline proposes that forest management plans should include information about the presence and conservation status of plants, animals, and habitats of special interest for conservation, to ensure that conservation actions are effective in tropical production forests, as well as, are related to the interests of local populations regarding the use of non-timber forest resources.

In general, the main instrument related to this guideline is the Forest Management Plan. Within its research, technical guidelines and other requirements should carry out actions aimed at biodiversity conservation supported by research and information about biodiversity values and components.

The information presented by the countries shows that the Forest Management Plan meets these requirements when considering in its composition information on the presence and conservation status of plants, animals, and habitats of special interest in production forests.

However, this issue is also directly related to the quantity, quality, and availability of information for the main stakeholders involved in forest management, from managers and communities to forestry authorities.

Consequently, this guideline recommends partnerships among those responsible for management and research institutions to create a database to subsidize decision-making and instruments of regulation and control of forestry activity, highlighting the management plan.

The information presented in the Forest Management Plans of the Amazonian countries that are related to this guideline are mostly related to

the description of the biological environment, the forest typologies, the vegetation data generated by forest inventories, local fauna and its interrelation with the environment, among other information relevant to the maintenance of ecological functions.

Also, forest management techniques, such as forest inventory, fauna collection, selecting trees method (in seed trees, protected trees, trees for cutting) as well as the technical condition of forest management directly influences the attention to this guideline.

Likewise, the macro and micro-zoning within the management plans are useful, since they determine the areas of forest use and other types of land use, and the areas of integral protection, in that sense, they must also contemplate high-value conservation areas.

All countries expressed on their efforts to guarantee through their management plans the inclusion of important information for biodiversity conservation. However, the lack of information on biodiversity and its disclosure process is a challenge for compliance with this guideline according to **BOLIVIA**, **COLOMBIA**, **VENEZUELA**, **GUYANA**, and **SURINAME**.

Furthermore, joint participation of local populations is needed to ensure that traditional knowledge is also considered in the planning and execution of Forest Management Plans.

Accordingly, significant areas and species to local populations must be included in the plans, for example, the use of non-timber forest products or areas of great cultural importance for indigenous populations. Only **COLOMBIA** reported that consultation with local communities and populations is not common when it comes to the elaboration of Forest Management Plans.

GUIDELINE 27

Actual, potential and emerging threats to biodiversity must be anticipated and contingency plans prepared to ensure that, when needed, technically sound responses can be put rapidly into place.

Many threats to biodiversity in tropical production forests – such as illegal mining and agriculture, hunting and the unregulated exploitation of other forest species – can be detected through patrolling or remote sensing and a field presence is vital for their control. Other threats, such as those posed by invasive species and disease, might be harder to recognize, or their control might require specialized support. New threats to biodiversity are likely to emerge in the future. Climate change, for example, could have dramatic impacts, such as by increasing the risk of fire and disease and by changing moisture regimes. The construction of new infrastructure – particularly roads – can greatly increase the risk of forest loss and forest degradation due to agricultural expansion. These potential threats must be assessed, and plans put in place to address them. Conservation NGOs, research institutes and forest agencies all have roles to play. Some threats to biodiversity could emerge with very little warning and mitigation measures will need to be rapidly deployed. Clearly defined communication pathways are needed so that management responses can be made in a timely and effective manner.

PRIORITY ACTIONS

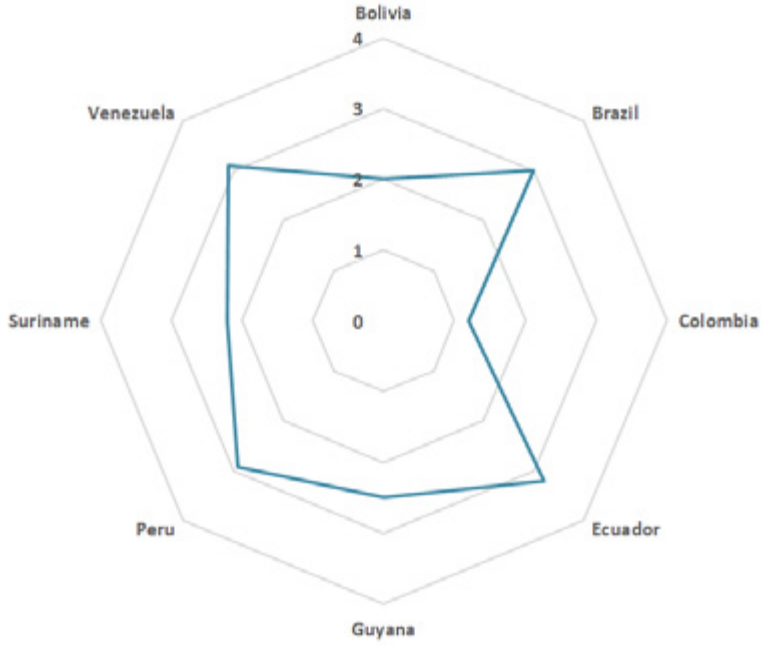
FOREST MANAGERS SHOULD:

- Plan and implement systems for identifying and responding to present and probable threats to biodiversity
- Establish contingency plans and clear communication pathways to help deal with emerging threats to biodiversity
- Ensure that monitoring systems and protocols established for tropical production forests include assessments of actual and emerging threats to biodiversity within and adjacent to those forests

The information presented by the ACTO Member Countries showed that 97 normative/regulatory instruments are related, in some way, to the evaluation and/or planning of real, potential and emerging threats against biodiversity. The overall average score obtained for guideline 27 for the Amazonian region was 2.51 corresponding to the Guideline within the established score scale.

It can be verified in Chart27 and Table 30, that three countries reached a degree of implementation 3, considered good, which is the highest average presented by Ecuador (3,20), and the lowest was presented by Colombia (1,20).

CHART 27 - IMPLEMENTATION DEGREE OF GUIDELINE 27 BY COUNTRY.



The number of legal instruments related to this Guideline can be visualized in the following Table, where it is verified that Brazil indicated the highest number of instruments (20) and Suriname the lowest (5).

The national assessments from the ACTO Member Countries showed that real, potential and emerging threats against biodiversity, along with the construction of contingency plans are not a common practice yet, related to management in tropical production forests in the Amazon.

BRAZIL and **VENEZUELA** mentioned that the requirement for the approval of the Forest Management Plan is to provide information related to the real and potential negative impacts of the activity, as well as the planning to ensure that quick measures be taken, when necessary.

On the other hand, the information presented by Ecuador and Peru showed existing processes to guarantee biodiversity conservation in national legal frameworks and programs, to adopt biodiversity conservation strategies. However, it was not evidenced that the Forest Management Plans have a direct relationship with the identification of threats and the elaboration of contingency plans.

Finally, **BOLIVIA**, **COLOMBIA**, **GUYANA** and **SURINAME** mentioned that there are no programs to identify threats to biodiversity directly related to forest interventions (management plans). Although there are programs and several other actions aimed at biodiversity conservation, man-

TABLE 30 – NUMBER OF LEGAL, NORMATIVE AND REGULATORY INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 27 BY COUNTRY.

	Real, potential and emerging threats to biodiversity must be anticipated and contingency plans must be prepared to ensure that when necessary, quick and technically sound responses can be adopted.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D27	BOLIVIA	14	2,00
	BRAZIL	20	3,00
	COLOMBIA	10	1,20
	ECUADOR	15	3,20
	GUYANA	10	2,50
	PERU	12	2,92
	SURINAME	5	2,20
	VENEZUELA	11	3,09
	TOTAL	97	2,71

agement plans do not specify the identification of real, potential and emerging threats, nor foresee the development of contingency plans.

The **BRAZILIAN** and **VENEZUELAN** experience shows that to approve Forest Management Plans it is also necessary to submit information about the identified threats, as well as about the contingency plan. This plan that must contain, for example

- (i) plan for prevention and combat, and training against forest fires;
- (ii) signs controlling movement of people, prohibition of hunting, etc.;
- (iii) educational campaigns with the surrounding population;
- (iv) definition of the areas and scope of risks;
- (v) projection and construction of infrastructures; among other indispensable information; (vi) others.

The impacts are analyzed on the physical, biological and socioeconomic media. The information is described in a matrix of environmental impacts directly related to the mitigating and compensatory measures proposed, where for each of the identified impacts, a mitigating action must be proposed. According to the Brazilian national assessment, the adoption of this set of measures and practices in SFMP seeks to contain potential threats and ensure the mitigation of damages to biodiversity within the management areas.

GUIDELINE 28

Biodiversity conservation objectives should be clearly and explicitly identified for each area of forest under management. These objectives should recognize and reflect the biodiversity values and possible tradeoffs amongst key stakeholders, including local communities.

Vague and general commitments to conserve biodiversity in production forests tend to produce vague and un-measurable outcomes. It is far preferable to focus on biodiversity of known special value and to invest in measures to protect it. Thus, the work on biodiversity in logging concessions in the Congo Basin (see annexes I and II) has focused on a group of forest mammals of high conservation interest – elephants and the great apes. The objective of conserving these species is easy to communicate, the management measures required are readily identified, and the success or failure of the conservation measures is easy to monitor. When the objective is set in more general terms, such as 'to retain all local biodiversity', the questions of what to do and how to measure results are much more difficult. It is also less easy to persuade commercial companies of the value of conserving species whose identity and location are barely known. One of the key elements of successful biodiversity conservation in any tropical production forest is to be very clear about exactly what is to be conserved. Baselines and monitoring measures for these biodiversity values must be included within the monitoring and evaluation framework of the forest management unit and management adapted to ensure that biodiversity objectives are met. Since local people often have extensive knowledge of the biodiversity in their forest, they can play an important role in assessing the changes that result from logging operations. This is especially true in instances where local communities have rights to, or are making use of, managed forests.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Make the biodiversity priorities of a tropical production forest as explicit as possible by listing species, habitats and populations to be maintained
- Monitor changes in these biodiversity priorities
- Involve local people in participatory monitoring of important biodiversity features

The quantitative analysis of the ACTO Member Countries presented a total of 79 regulatory instruments that relate in some way to the need to define biodiversity priorities and the conservation objectives of tropical production forests, recognizing and reflecting on the values of biodiversity, mainly, by local communities. The overall average score obtained for guideline 28 for the Amazonian region was 2.34 corresponding to regular attention within the established score scale.

Chart 28 and Table 31 show that only one country reached a degree of implementation 3, considered good, which is the highest average presented by Peru (3.00), and the lowest was presented by Colombia (1.30). With respect to the implementation of the guidelines, Bolivia

CHART 28 - IMPLEMENTATION DEGREE OF GUIDELINE 28 BY COUNTRY.

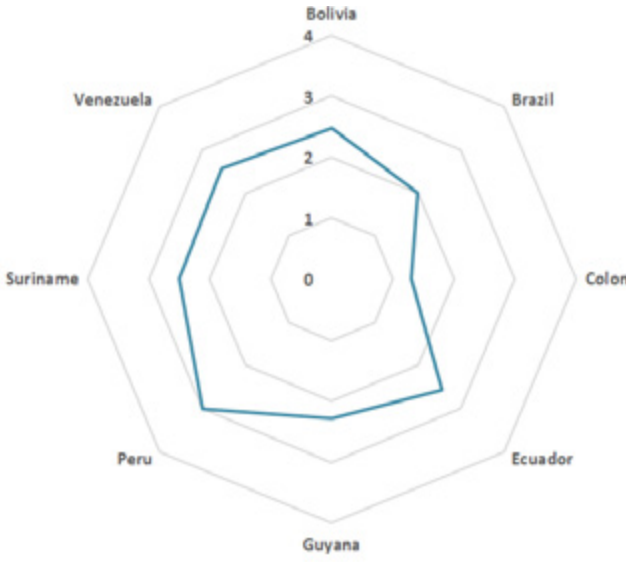


TABLE 31 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 28 BY COUNTRY.

	Biodiversity conservation objectives should be clearly and explicitly defined for each managed forest area. These objectives should recognize and reflect the values of biodiversity and the possible advantages and disadvantages for key stakeholders, in particular, local communities.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D28	BOLIVIA	15	2,47
	BRAZIL	13	2,00
	COLOMBIA	10	1,30
	ECUADOR	16	2,56
	GUYANA	7	2,29
	PERU	3	3,00
	SURINAME	6	2,50
	VENEZUELA	9	2,56
	TOTAL	79	2,34

presented the most instruments and related policies, and Peru was the smallest number, as shown in Table 32.

Guideline 28 clearly and specifically defines the objectives of biodiversity conservation for each managed forest area, identifying the species, habitats, and populations, and, if necessary, promotes changes related to biodiversity priorities. It also deals with the participation of local populations in these identification and biodiversity conservation processes.

The information presented by the countries shows that a clear and explicit definition has not yet been obtained, regarding biodiversity conservation priorities related to forest use areas.

In this regard, the countries mentioned that, at present, there are no existing actions or mechanisms in which conservation priorities are identified in forest management areas, and that these priorities be promoted in such way allowing to list species, habitats or populations of special interest for the conservation.

However, the preparing process of management plans, guided by current legislation, in some way define techniques such as zoning, conservation priorities definition, delimitation of areas of integral protection, among others, assisting in the conservation of species, habitats or populations of special interest for conservation. There are also laws and regulations in all countries for the conservation of important, emblematic, or endangered species.

Likewise, it is necessary to continue studies and

research related to the biodiversity conservation, as well as in the definition, assessment, and application of clear mechanisms for biodiversity conservation in the managed forest areas of the Amazon region. With reference to the participation of the local populations in the decisions and definitions of biodiversity conservation priorities, no mechanism was mentioned by the countries to ensure their participation in the areas of forest management.

GUIDELINE 29

The preparation of harvesting plans, including stock maps at the compartment level, should take into consideration the local occurrence of species or habitats of special conservation concern.

Foresters and logging crews often have a broad knowledge of the forests in which they work. Pre-logging inventories (stock mapping, etc) provide an excellent opportunity for collecting practical on-the-ground information about biodiversity. This information can be used to develop precise maps of the distribution of species and assemblages of species of conservation concern, such as nesting and fruit-bearing trees, and of other important biodiversity features such as wetlands, dry-season water supplies, patches of unusual habitats, saline earths and migratory routes. The presence of botanists, taxonomists or parataxonomists on the teams will enable the collection of information on rare plant and animal species restricted to specific sites. It is much easier to give such features special protection when stand maps show their locations. In many cases it might be unreasonable to expect commercial companies to bear the full cost of such detailed surveys. Specialized research organizations and NGOs can make valuable contributions by providing botanical and zoological expertise, training and user-friendly information; international conservation NGOs have done just this in the Congo Basin and Indonesia, with excellent results.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Ensure that pre-logging inventory teams include biodiversity specialists such as ecologists, taxonomists/ parataxonomists, botanists and zoologists, particularly in areas of high biodiversity value

CONSERVATION NGOS AND RESEARCH INSTITUTIONS SHOULD:

- Support pre-logging inventories by providing biodiversity specialists, particularly in areas of high biodiversity value

RELEVANT GOVERNMENT AGENCIES, RESEARCH INSTITUTIONS, UNIVERSITIES, TIMBER COMPANIES AND CONSERVATION NGOS SHOULD:

- Collaborate to build the capacity of field staff to monitor biodiversity by providing training and appropriate communication materials for the field identification of commercial tree species and other forest biodiversity

The quantitative analysis of the ACTO Member Countries presented a total of 66 regulatory instruments that are related, in some way, to the need to include the existence of species or habitats of special interest to conservation, in the preparation of the exploitation plans. The overall average score obtained for guideline 29 for the Amazonian region was 2.82 corresponding to the Guideline within the established score scale.

As shown in the following Table, Venezuela presented the largest number of legal instruments correlated with Guideline 29, and the lowest number was presented by Suriname y Brazil.

According to the national assessments of the ACTO Member Countries, within the Amazonian Forest Management Plans, zoning and mapping allows the identification of exploitation areas, as well as areas where productive activities are prohibited (of integral protection), or conservation areas where some productive activities are allowed such as extractives, for example.

These activities identify the flora composition, forest structure, distribution and diversity of the species contributing to the conservation of species or habitats of special interest to conservation. Simultaneously, the conservation actions of threatened species that are contemplated in the national and international legislation and regulations (CITES) contribute to the establishment of conservation measures.

However, the quality and effectiveness of the actions and mechanisms devoted to conservation are directly related to the quantity and quality of available information to those responsible,

CHART 29 - IMPLEMENTATION DEGREE OF GUIDELINE 29 BY COUNTRY.

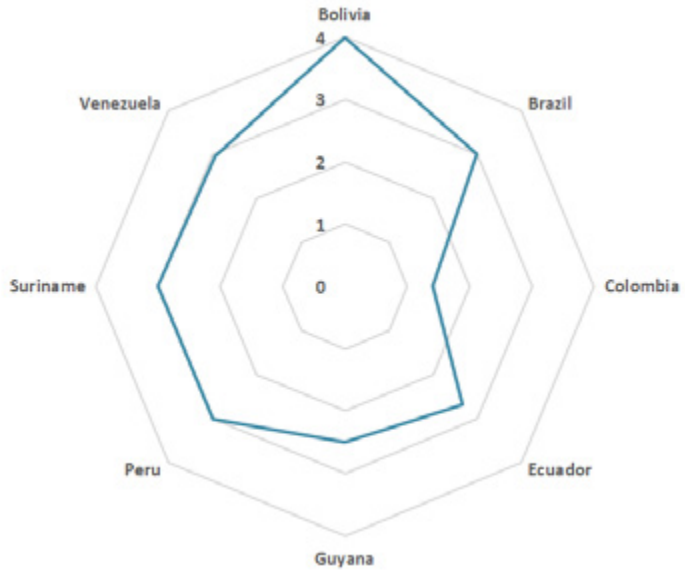


TABLE 32 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 29 BY COUNTRY.

	In the preparation of the exploitation plans with the stock maps at the compartment-level, the local presence of species or habitats of special interest for conservation should be considered.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D29	BOLIVIA	9	4,00
	BRAZIL	3	3,00
	COLOMBIA	10	1,40
	ECUADOR	9	2,67
	GUYANA	8	2,50
	PERU	4	3,00
	SURINAME	3	3,00
	VENEZUELA	20	2,95
	TOTAL	66	2,82

about the existing species and habitats in the managed forests. Therefore, it is necessary to promote studies and their application in actions and measures for the conservation of productive forests. Accordingly, a multidisciplinary technical team in addition to specialists in dendrology and plant taxonomy, ecologists or other professionals focused on biodiversity conservation are needed, which at present are not available within the region analyzed.

Some reported cases identified the presence of conservationist NGOs or government institutions supporting specific forest management initiatives in the ACTO Member Countries. In these cases, it is possible to have a multidisciplinary team to accompany all forest management activities, from their planning.

It is a fundamental strategy for the attention of this guideline, to strengthen the training of field teams and disseminate techniques and issues related to biodiversity conservation in sustainable forest management activities. Likewise, guarantee trained professionals to deal with the identification and establishment of mechanisms for biodiversity conservation.

Finally, it was pointed out that there is still a "bottleneck" in terms of the identification of species and habitats of special interest for conservation in all national assessments, contributing to the concerns related to conservation implementation measures that must take into consideration these issues.

GUIDELINE
30

Reduced impact logging should be used in tropical production forests.

The application of reduced impact logging techniques is probably the simplest and most cost-effective biodiversity conservation measure that can be taken in tropical production forests. Among other things, reduced impact logging reduces the impacts of logging infrastructure, particularly roads and skid trails, encourages the use of wheeled skidders to reduce damage to forest soils, and mandates the use of directional felling to protect remaining trees (see Box 5). All these measures are good for forest biodiversity. Most of what is widely accepted as good forestry practice is also good for biodiversity. Some silvicultural interventions, however, should be applied with caution. Pre- and post-harvest treatments such as climber-cutting and liberation thinning can impact negatively on some plant and animal species and, in some cases, are unnecessary either for silvicultural or safety reasons. Well-trained foresters should assess the safety, biodiversity and productivity implications of such measures on a case-by-case basis.

Most logging laws require that protective buffer zones should be retained along water courses, primarily to protect hydrological values. Often, these buffer zones are also very valuable for biodiversity, providing an added justification for their retention. Field reports during the testing of these guidelines suggested that such buffer zones are sometimes difficult to protect from log thieves; in such cases, special protection measures might be required. The potential impact on biodiversity of silvicultural treatments should be considered; non-commercial or malformed trees might have high biodiversity values, for example, and should not be systematically removed. A balance should always be sought between stand improvement measures and biodiversity conservation. After many years of management, some of the better-managed (from the point of view of the commercial forester) forests in Malaysia begin to look like even-aged plantations, with few trees containing hollows that nesting birds might use and few large horizontal branches for epiphytic orchids. Again, the forest manager must assess the tradeoffs and conservation specialists must identify species or communities that could be placed at risk by silvicultural interventions.

FOREST MANAGERS AND TIMBER COMPANIES SHOULD:

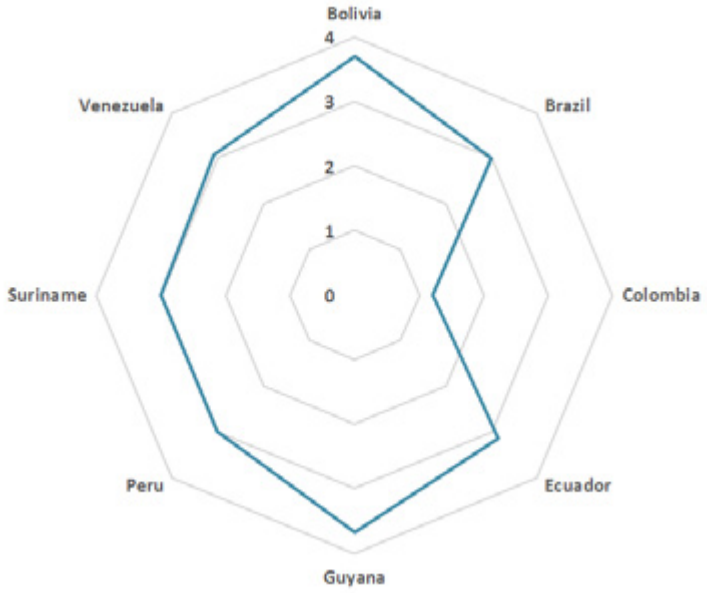
FOREST MANAGERS AND TIMBER COMPANIES SHOULD:

- Apply reduced impact logging
- Retain buffer strips along water courses
- Ensure that silvicultural treatments do not place important biodiversity features at risk
- Ensure that roads and skidding trails do not block watercourses or impede drainage

The quantitative analysis of the ACTO Member Countries presented a total of 62 legal instruments/ regulators that are related in some way to the reduced impact forest management techniques. However, the overall average of the score obtained for guideline 30 for the Amazonian region was 2.98 corresponding to the Guideline within the established score scale.

In general, all countries presented good attention to this Guideline, except for Colombia, which characterized as Bad the attention and application

CHART 30. IMPLEMENTATION DEGREE OF GUIDELINE 30 BY COUNTRY.



of the techniques of reduced impact in the country. However, the detailed information presented below shows that this is a very challenging situation the countries analyzed. As shown in the following Table, Venezuela presented the largest number of legal instruments correlated with Guideline 30, and the lowest number presented by Brazil and Suriname.

According to the national assessments of the ACTO Member Countries, it is still a challenge to execute the Reduced Impact Techniques for forest management in areas of timber-production forests in the Amazon.

These techniques are intended to increase the efficiency of forest exploitation while also guaranteeing the reduction of negative impacts resulting from the intervention in the area of forest management and surroundings.

Among these techniques, the following are mentioned:

1. Forest Inventory 100%;
2. zoning and determination of management areas, as well as protection and conservation areas;
3. directed felling actions;
4. liana cutting;
5. adaptation of the machinery used for forest extraction according to each situation;
6. constant training;
7. definitions of cut diameters and intensities;
8. safety at work, among others.

In a general, **BOLIVIA**, **COLOMBIA**, **ECUADOR**

TABLE 33. NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 30 BY COUNTRY.

	In tropical production forests, reduced impact extraction techniques should be applied.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D30	BOLIVIA	10	3,70
	BRAZIL	3	3,00
	COLOMBIA	9	1,22
	ECUADOR	7	3,14
	GUYANA	9	3,67
	PERU	9	3,00
	SURINAME	3	3,00
	VENEZUELA	12	3,08
	TOTAL	62	2,98

and **PERU** mentioned that the Exploitation of Reduced Impact activities have not been implemented yet, and this set of techniques is not very well disseminated among those responsible for forest management, although some of these are specified and standardized in the regulations dealing with the elaboration of Forest Management Plans.

In **ECUADOR**, for example, forest management with reduced impact exploitation is only required and applied in lands with irregular topographies.

In the other countries, a set of techniques of exploitation of reduced impact must be adopted for the elaboration of the Forest Management Plans, and they are determining factors for the approval of these activities. However, it is still necessary to improve and adapt the techniques used, ensuring that forest management is more efficient causing the least possible damage.

In that sense, **VENEZUELA**, **GUYANA**, and **SURINAME** emphasize that the Exploitation of Reduced Impact is a condition for the approval of Forest Management Plans. In these last two countries, reduced impact exploitation is required for holders of forest concessions.

The national evaluation of **BRAZIL** suggests the need of training so that these techniques be incorporated and applied, in the field, in forest management initiatives, despite the fact that such techniques have been fostered and discussed for decades.

GUIDELINE 31

Special precautionary measures are required to protect populations, and maintain the within-species variability, of the most valuable timber species.

Timber harvesting that removes a high proportion of individuals of a species can reduce the genetic variability of that species and its ability to adapt to environmental change. While research on the conservation genetics and ecology of tropical timber species has only recently begun to explore this issue, past excessive harvesting of some high-value timber species across their ranges has caused concern. Forest managers should pay special attention to the retention of different age classes within a stand, and especially of viable populations of commercial timber species. Where possible and where justified by the regeneration strategy of the target species, logging operations should be timed to follow periods of seed production. Forest managers should also address the special management needs of valuable commercial tree species with irregular age-class distributions. The mahoganies of Latin America and related species in Africa are good examples of trees that require special silvicultural treatments to ensure their sustainability.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Assess the need for special measures to encourage the retention of viable populations of seed trees and maintain the genetic diversity of commercially important species
- Ensure that the silvicultural requirements of target tree species are known and applied
- Promote research on the conservation genetics and ecology of commercially important species with the aim of providing useful guidance to forest planners and managers
- Encourage the establishment and maintenance of permanent forest sample plots and other monitoring systems to better understand long-term forest dynamics, regeneration, and within-species genetic variability with a special emphasis on actual and potentially valuable tree species

The quantitative analysis of the ACTO Member Countries presented a total of 80 legal/regulatory instruments and programs that address the need to adopt special preventive measures for the protection of the populations of the most valuable timber species and the maintenance of the variability of these species. The overall average score obtained for guideline 31 for the Amazonian region was 3.00 corresponding to good attention, within the established score scale.

It can be verified in Chart 31 and Table 34, that one country reached a degree of implementation 4, considered optimal, which is the highest average presented by Brazil (4,00), and the lowest was presented by Colombia (2,20).

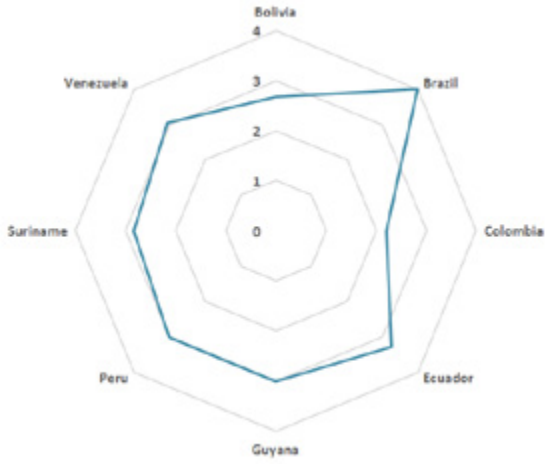
With regard to legal instruments, regulations, and programs, the country that presented the most correlated mechanisms to this Guideline was Venezuela, and the least presented was Brazil, as shown in Table 35.

Guideline 31 refers to the need for special preventive measures to protect the most valuable timber species and maintain variability within these species. In that sense, one of the measures of extreme importance is the maintenance and establishment of seed trees of those species of commercial value that suffer greater pressure of exploitation.

Moreover, as part of guideline's orientation, research on population genetics and ecology species is also central to guiding forest management planning and implementation actions, as well as establishing research plots to understand the dynamics of the managed forests and the process of natural regeneration, hence avoiding the genetic impoverishment of the species that make up the timer production forests.

In the instruments of regulation of forest management, with emphasis on the management plan, mechanisms are determined in addition

CHART 31 - IMPLEMENTATION DEGREE OF GUIDELINE 31 BY COUNTRY.



to the identification and establishment of seed trees. Also, these instruments guide the selection of preservation areas where no exploitation activities are allowed, which contributes to the process of maintaining genetic diversity and forest dynamics.

All countries mentioned that the mechanisms for establishing and determining seed trees are required in the elaboration of Forest Management

TABLE 34 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 31 BY COUNTRY.

	Special preventive measures are needed to protect populations of the most valuable timber species and maintain variability within these species.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D31	BOLIVIA	15	2,67
	BRAZIL	3	4,00
	COLOMBIA	10	2,20
	ECUADOR	11	3,27
	GUYANA	5	3,00
	PERU	11	3,00
	SURINAME	6	2,83
	VENEZUELA	19	3,05
	TOTAL	80	3,00

Plans, as well as the identification of trees protected by law (supported by the related legislation).

It is worth noting that the eight Member Countries of ACTO are signatories of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) and this international agreement along with the respective internal laws protect species endangered or of special importance to the local populations local (indigenous, extractives riparian and others), which contributes to the attention to this guideline.

Among the benefits of these areas are, maintenance of reproductive individuals of existing plant species in the locality and guarantee of shelter to the fauna, indispensable for the species that depend on the zoofilia and zoocoria. Also, these areas are extremely important for studies and research on genetics and ecology, providing important information for the conservation of species and habitats, as well as to guide forest management practices.

A weakness identified by the **COLOMBIAN** national assessment refers to the small amount of research and studies directed to population genetics and ecological species so that the absence of information in these aspects impacts negatively in conservation and forest management actions. Fostering this type of research are requirements of all the Amazonian countries.

Specifically, **ECUADOR's** forestry regulations determine the classification of trees in: (i) tree for future exploitation: DBH less than 30 cm and its cutting is not protected or prohibited; (ii) protected tree: it cannot be exploited for being considered by competent authorities a protected species, species of ecological importance (special element for the habitat or food source for fauna); (iv) low abundance species: less than one tree per 3 hectares with DBH equal to or greater than 30 centimeters.

In **BRAZIL**, some important criteria for the classification of managed trees were established in the forest legislation:

1. the minimum cutting diameter (MCD) greater than or equal to 50 cm of DBH;
2. the maintenance of at least 10% of the trees above the MCD by species such as seeds or matrices;
3. in addition to the above criteria, at least three (03) trees must be maintained above the Minimum Cutting Diameter per species in the area of effective exploitation in each Working Unit (UT) of approximately 100 ha;
4. minimum cutting cycle of 25 years and maximum of 35 years for SFMP - Full (business - mechanized) and 10 years for SFMP - Low Intensity (small scale or semi-mechanized community scale, does not use logging machines);
5. maximum cut intensity of 30 m^3 for a cycle of 35 years, and;
6. minimum measurement diameter in the Forest Inventory 100% of at least 10 cm below the MDC.
7. These measures, according to the national assessment, contribute to the attention to this guideline.

PERUVIAN legislation, in turn, details and explains that biological diversity management is governed by an adaptive management approach in accordance with the environmental and socio-cultural diversity of the various regions of the country. Therefore, any short-, medium- and long-term biodiversity management initiative or program must be adapted to the socio-cultural capacities and peculiarities of local stakeholders and must be continually evaluated, improved and adapted to the new environmental and social conditions, to ensure the effective and efficient conservation of the components of biodiversity and its associated goods and services.

GUIDELINE 32

Hollow trees, although generally of low commercial value, should be retained, as they provide important habitats for a wide range of animal species.

Foresters have often considered hollow trees to be undesirable because they compete with commercially valuable trees and could be sources of disease. They are, however, very important as nesting sites for a variety of mammals and birds. Trees should be checked for hollowness and, unless they have high commercial value, retained.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Retain hollow trees in harvest operations.

The quantitative analysis of the ACTO Member Countries presented a total of 43 legal instruments related somehow with the forest management techniques, which should also include the maintenance of hollow trees, as it is an important habitat for a wide variety of animal species. However, the overall average of the score obtained for guideline 32 for the Amazonian region was 2.86 which corresponds to Regular to the Guideline within the established score scale.

It can be observed from chart 32 and Table 35, that two countries reached a degree of implementation 4, considered optimal, which is the highest average presented by Brazil and Peru (4,00), and the lowest was presented by Colombia (1,00). The analysis of legal instruments presented identified that of the 43 instruments mentioned, the country that presented the largest number was Bolivia, Colombia, and Venezuela and the country that presented the least was Suriname.

The national assessments presented by the ACTO member countries have shown that the maintenance of hollow trees in the Amazon region is not well established still. Only in Brazil was the maintenance of the hollow trees (through the hollow tree test) was referred to in existing legal instruments.

However, in **PERU**, **ECUADOR**, **SURINAME**, and **VENEZUELA**, although local legislation does not directly address the maintenance of hollow trees, due to their low commercial quality they are not frequently exploited. In Bolivia, Colombia, and Guyana, national legislation does not address this issue, nor are hollow tree maintenance techniques applied in forest management activities. In Guyana, it is common to verify the use of the trunks of these trees as drainage channels during construction of the infrastructure of forest bridges (a practice that has been curtailed by the national authorities).

CHART 32 - IMPLEMENTATION DEGREE OF GUIDELINE 32 BY COUNTRY.

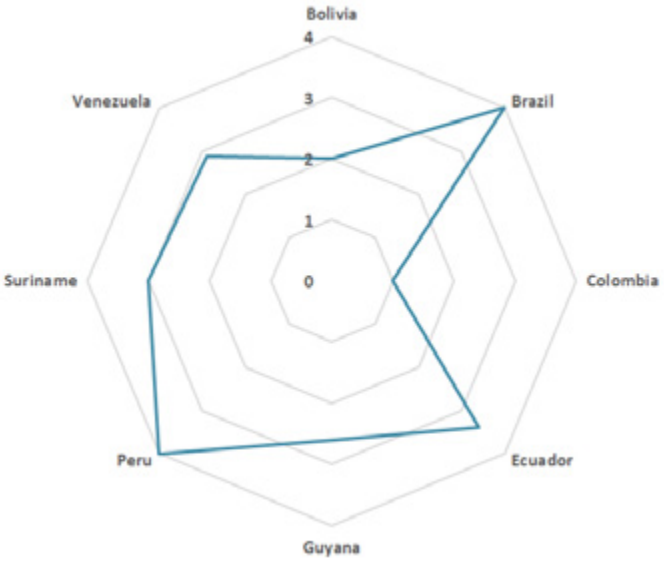


TABLE 35 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 32 BY COUNTRY.

	Hollow trees, while generally having a low commercial value, should be retained as they provide important habitat for a wide variety of animal species.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D32	BOLIVIA	9	2,00
	BRAZIL	3	4,00
	COLOMBIA	9	1,00
	ECUADOR	5	3,40
	GUYANA	5	2,60
	PERU	2	4,00
	SURINAME	1	3,00
	VENEZUELA	9	2,89
	TOTAL	43	2,86

In this regard, despite the fact that many national legislations address issues related to sustainable forest management plans, especially when the exploration phase and maintenance of hollow trees are carried out, attention to this guideline still needs to be strengthened, and the Brazilian experience can contribute to the other countries to guarantee the ecological and economic value of conservation of the hollow trees of productive forests.

Guideline 32 addresses the significance of maintaining hollow trees in productive forests, especially in timber forest management. These types of trees are responsible for harboring a wide diversity of fauna, and its function of goes beyond providing shelter for the local fauna since it also works to improve the pollination process performed by these animals, bats, birds, and small rodents.

In addition to the ecological value, in general, hollow trees have no commercial value justifying their exploitation, which is detrimental to the forest planning activity, as well as presenting risks to the cutting activity of the trees, since the presence of holes can interfere in the directed fall, favoring accidents. To avoid these problems and to guarantee the ecological function of these trees, the hollow tree test is recommended to determine the presence of holes or possible rotting, along with the evaluation of the quality of the stem (industrial purposes), or presence of endangered animals (or nests, for example) in the trees that were selected for cutting.

This test is commonly carried out by inserting vertically the saber of the chainsaw, or with a small angle, in the basal region of the tree (10 to 50 cm from the ground) to evaluate wood resistance to the cut, and sawdust moisture. Some tests in the Brazilian Amazon suggests in some cases a second hole test, in a height superior to the initial one (1.00 to 1.20 m in height) as a way of proving and evaluating the extent and situation of the holes of the tree, especially when the percentage of hollow trees indicated in the first test is high.

Brazilian legislation establishes that to present Sustainable Forest Management Plans and Annual Operational Plans it is foreseen "verification tests must be carried out in the commercial trees preselected for cutting within the annual production units (APU), including the hollow and rot tree test. If they exist and make commercial use unfeasible, they should not be cut, as they will be computed in the cut intensity. Also, when the trees selected for cutting are hollow making their operation unfeasible, "there may be an exchange of trees selected for cutting by others as long as they meet the determined criteria and are informed in the activity report and do not exceed the maximum intensity limit cut in the SFMP ".

The Brazilian experience in the application of the legislation dealing with the maintenance of hollow trees has been quite positive, so that this guideline has been addressed by the Sustainable Forest Management Plans in force, being one of the constraints analyzed during the field studies carried out in by the competent environmental body.

GUIDELINE 33

Unnecessary nutrient losses from the forest ecosystem and impacts on soils should be minimized.

Many tropical forest soils are very low in nutrients. The maintenance of forest productivity depends on the presence of a rich community of soil-dwelling fauna and microflora – invertebrates, fungi and microorganisms – which decompose and recycle essential nutrients. Any disruption of this below-ground biodiversity – by disturbances caused by logging, for example – can reduce productivity and lead to significant ecological change. Good forestry practice usually requires that logs are debarked in the forest so that nutrients are returned to the soil. In some situations, this practice can cause excessive nutrient enrichment that favours invasion by common weed species at the expense of native species that are adapted to nutrient-poor conditions. In other cases, bark might need to be retained on stored logs to protect them from insect damage that would reduce their commercial value. In general, however, biodiversity conservation is best served by in situ log-debarking and the on-site retention of logging debris.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Minimize soil disturbance and loss during forest management operations by following reduced impact logging practices
- Debark trees in the forest unless there are sound commercial or ecological reasons for not doing so

The quantitative analysis of the ACTO Member Countries regarding the need to minimize the unnecessary nutrients loss from the forest ecosystem and the impact on soils were reported in 54 legal instruments. related in some way to the techniques of forest management and means of guaranteeing the attention to this Guideline. The overall average of the Amazon region with respect to the implementation of Guideline 33 was 2.40, corresponding to Regular attention to this Guideline.

Chart 33 and Table 36 show that one country reached a degree of implementation 4, considered optimal, which is the highest average presented by Brazil (4,00), and the lowest was

CHART 33 - IMPLEMENTATION DEGREE OF GUIDELINE 33 BY COUNTRY.

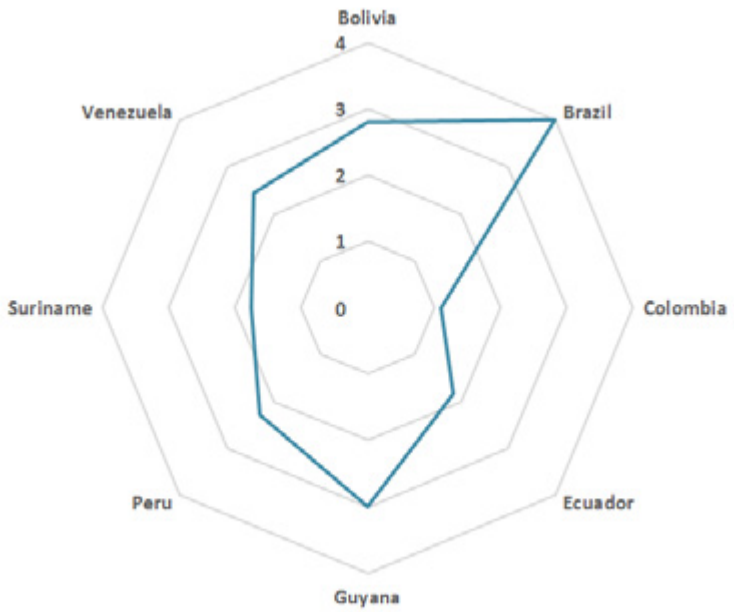


TABLE 36 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 33 BY COUNTRY.

	The unnecessary loss of nutrients from the forest ecosystem and the impact on soils should be minimized.	Nbr. of Related Legal Instruments	Score (0 a 4)
P9D33	BOLIVIA	10	2,80
	BRAZIL	5	4,00
	COLOMBIA	9	1,11
	ECUADOR	6	1,83
	GUYANA	4	3,00
	PERU	7	2,29
	SURINAME	4	1,75
	VENEZUELA	9	2,44
	TOTAL	54	2,40

presented by Colombia (1,11). With respect to the legal instruments mentioned, Bolivia mentioned the greatest number of instruments and Guyana and Suriname the smallest number.

Guideline 33 addresses the impacts related to the unnecessary loss of nutrients from the forest ecosystem and the impact on the soils caused by forestry activities in managed areas.

The need to build infrastructures for forest management, mainly mechanized, with emphasis on primary and secondary roads and patios, should be planned and implemented through reduced impact techniques, which include care with the unnecessary loss of ecosystem nutrients and impacts to the ground. Watercourses and uneven terrain must also be preserved as a way of minimizing losses and not generating erosive processes.

According to the national assessments, the countries through their forest management laws and regulations determine that the activities carried out should have the least possible impact on the soil and be explicitly oriented to the planning of the construction of forest management infrastructures, such as roads, and patios.

Only **COLOMBIA** mentioned that reduced impact techniques aiming at minimizing the loss of nutrients of the forest ecosystem are not common and that this recommendation is not explicit in the regulating mechanisms of forest management.

BOLIVIA also mentioned that forest regulations remark that operations should cause the least possible impact on the soil, however, they do not specify the techniques that should be adopted for this purpose. Complementing the bottlenecks, Ecuador described that these techniques are included in the laws, however, national soil studies are still lacking to suggest the most appropriate techniques.

On the other hand, the national assessments of **BRAZIL**, **GUYANA**, **VENEZUELA** and **PERU** present good results regarding this guideline. Guyana reinforces that the adoption of

reduced impact techniques in the country's forest management initiatives contributes directly to Guideline 33, as was also verified in Venezuela and Peru.

Among the mentioned techniques, the following are highlighted: (i) planning of the access and displacement routes; (ii) regulations for construction patios; (iii) care for water resources; (iv) guidelines for log trawling, and; (iv) Monitoring and exploratory actions (such as reforestation and conduction of natural regeneration).

Finally, according to the national assessment of Brazil, some reduced impact techniques used nationally and included in the regulations and requirements for the elaboration of the Forest Management Plans are described:

1. specific planning activities for opening roads, trails and patios;
2. fall planning to minimize impacts on remaining vegetation;
3. parameters for opening: drag limit of at most 10 logs per drag trail, the width of the track does not exceed the width of the blade of the machine, no trail can intercept watercourses - unless there is no alternative route, (AMF) road drainage cannot remain clogged, among other 142 verifiers established by the environmental authority.

Another relevant information of the Brazilian national evaluation is the permanence in place of roots, leaves, and branches of felled trees since there is where most of the nutrients are found. It also concludes that the adoption of the verification criteria for the SFMPs executed in the Brazilian Amazon ensure that the impacts on nutrients loss of the forest ecosystem and the impact on the soil are mitigated.

GUIDELINE 34

Disruption of canopy cover might be important in allowing the regeneration of light-demanding species, but this should be balanced by the need to retain canopy connectivity for canopy-dwelling animals and to reduce fire risk and the exposure of open ground to rain and sun.

Canopy disturbance can have major impacts on biodiversity, including on canopy-dependent species of primate and birds. On the other hand, opening up the canopy can favour other species, such as elephants and some great apes that feed on the shrubs that regenerate on exposed sites. To ensure that biodiversity conservation concerns are taken into account, the best available knowledge should be used in decisions on the extent of canopy disturbance permissible during logging operations.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Ensure that decisions on the extent of canopy opening take into account impacts on biodiversity

The quantitative analysis of the ACTO Member Countries presented a total of 46 legal instruments/regulations that relate in some way to the importance that decisions on the degree of openness of the forest canopy be considered with respect to the impact on biodiversity. The overall average of the score obtained for guideline 34 for the Amazonian region was 2.30 which corresponds to regular attention to the Guideline within the established score scale.

It can be verified in Chart 34 and Table 37, that two countries reached a degree of implementation 3, considered good, which is the highest average presented by Peru (3,50), and the lowest was presented by Colombia (1,41). Concerning the legal instruments, of the 45 mentioned in total, the countries with the largest number were Bolivia, Colombia and Venezuela and the lowest were presented by Suriname.

As informed through the ACTO Member Countries' national assessments, the issues related to the identification and establishment of canopy cover alteration measures are not quite detailed in the regulations and is not a technique commonly employed by the countries under review.

CHART 34. IMPLEMENTATION DEGREE OF GUIDELINE 34 BY COUNTRY.

TABLE 37. NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 34 BY COUNTRY.

	Alteration of the forest canopy may be important to allow regeneration of the heliophilous species, but a balance should be sought between this factor and the need to retain connectivity between tree crowns for those animals that live on the treetop and reduce the risk of fires and open ground exposure to rain and the sun.	Nbr. of Related Legal Instruments	Pontuação (0 a 4)
P9D34	BOLIVIA	9	3,00
	BRAZIL	6	2,00
	COLOMBIA	9	1,00
	ECUADOR	5	1,80
	GUYANA	5	2,40
	PERU	2	3,50
	SURINAME	1	2,00
	VENEZUELA	9	2,67
	TOTAL	46	2,30

However, many silvicultural treatments and technical interventions, especially the adoption of reduced impact techniques, are used to reduce the impacts to forest canopy and consequently canopy connectivity. Moreover, the opening of clearings is important in the ecological and successional process since they allow the development of heliophilous species in the managed forests.

Guideline 34 focuses on the need to seek a balance between canopy opening and canopy connectivity, by analyzing the possible impacts on the biodiversity of a timber forest intervention.

ECUADOR, **PERU**, **BRAZIL**, **SURINAME**, and **GUYANA** have demonstrated that the canopy analysis related to the balance between openness and connectivity is not explicit in their respective rules. However, many silvicultural techniques are employed with the purpose of favoring the natural regeneration of the species of the managed forest, mainly of the heliophiles.

Many forest management techniques employed and that favor compliance with this guideline are related to reduced impact techniques. In this sense, the adoption of such techniques in **GUYANA** and **SURINAME** allows, in a certain way, the fulfillment of this guideline. Brazil's national assessment shows that, even though there are no parameters in the normative acts that deal specifically with canopy alteration, many silvicultural techniques are used to reduce the impact to the canopy, such as:

1. the release of treetops (promoting the healthy growth of individuals);

2. ito ensure that the directed fall technique of commercial trees during logging is successful;

3. care with the drag of the logs;

4. directed cutting planning, among other measures that help the maintenance of the canopy and minimization of the impacts of the exploitation.

In the case of **VENEZUELA**, the intensity of use in the production units is low (from 1.4 to 1.5 trees per hectare) and, in that sense, the impact on the canopy and the structure of the canopies of the trees should be light if reduced impact techniques are executed correctly.

Also mentions that another factor that contributes more to the possible impacts to the canopy is the opening of roads and patios and, in that sense, a good planning is crucial to reduce these interventions and the use of good practices in their installing. Likewise, the Venezuelan experience mentions that the contact points and canopy connectivity are planned to guarantee the internal migration of animals, contributing to their protection and to natural regeneration.

GUIDELINE 35

Forestry operations can encourage the introduction and spread of invasive alien species and measures should be taken to minimize this risk

Invasive alien species pose a very significant risk to forest ecosystems (Box 7), a risk increased by climate change. The deliberate introduction of plants, animals, fungi and other microorganisms that might be invasive should be avoided and prompt action taken to eliminate established populations of invasive species. In areas where invasive alien species are a particular threat, special measures should be taken to avoid the transfer of seeds and propagules via, for instance, shoes, equipment and vehicles.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- In reforestation or enrichment planting activities, use weed-free seed and sterilized potting soil to prevent the accidental introduction of invasive species
- Prior to entry into tropical production forests, ensure that shoes, equipment and vehicles are free of propagules of potentially invasive alien species
- Take measures to eradicate invasive alien species that become established

RELEVANT AGENCIES SHOULD:

- Assist forest managers by providing management-relevant information on the prevention and control of invasive alien species

The quantitative analysis of the ACTO Member Countries presented a total of 54 legal instruments related in some way to the need for measures to minimize the risk of introduction and spreading of invasive species due to forest operations. The overall average score for guideline 35 for the Amazonian region was 2.08 corresponding to regular attention to the Guideline within the established score scale.

Chart 35 and Table 38 show that only one country reached a degree of implementation 3, considered good, which is the highest average presented by Venezuela (3,00), and the lowest was presented by Suriname (1,00).

With respect to the mentioned instruments, of the 54 instruments related to this Guideline, Venezuela presented the highest number and Suriname the lowest, as can be verified in the following Table.

Guideline 35 deals with the risk of the introducing and spreading of invasive alien species in Amazonian production forests, leading to the establishment of measures to minimize the possibilities that forest interventions could boost

CHART 35 - IMPLEMENTATION DEGREE OF GUIDELINE 35 BY COUNTRY.

TABLE 38 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 35 BY COUNTRY.

	Forest operations can facilitate the introduction and spread of invasive alien species and actions should be carried out to minimize this risk.	Nbr. of Related Legal Instruments	Score (1 a 4)
P9D35	BOLIVIA	9	2,00
	BRAZIL	3	2,00
	COLOMBIA	9	1,11
	ECUADOR	5	2,88
	GUYANA	6	2,50
	PERU	6	2,17
	SURINAME	1	1,00
	VENEZUELA	15	3,00
	TOTAL	54	2,08

the risk of invasion of these species. The first orientation refers to forestry that promotes the entry of substrates, seeds or other materials that can accidentally introduce invasive species, as is the case of forest enrichment and reforestation.

Likewise, access and movement of vehicles, machines, and persons should also be observed avoiding the introduction of alien species propagules in tropical production forests.

Also, once the invasion of exotic species is identified, their control should be promoted avoiding negative impacts and competition with the native species.

GUYANA and **SURINAME** do not have areas of exotic forest plantations with expressive values, so the risk of invasion mentioned in the national assessments is also low. Also, reduced impact techniques and care with silvicultural

treatments further minimize the possibility of invasion.

BOLIVIA, **COLOMBIA**, **PERU**, and **BRAZIL** mentioned that existing forest regulations do not establish specific rules to watch out for invasive alien species in forest management activities of native tropical forests, and the few existing policies are recent and are being developed still.

However, some of the good practices in forest management to keep out invasive alien species, as well as in silvicultural treatments, with emphasis on forest enrichment and reforestation of areas within or near the native tropical forest areas of production.

Likewise, **BRAZIL** reports that the concerns and actions to avoid the invasion of exotic species are recent and a process of identification and diagnosis of the current scenario was created and promoted policies and control programs, mainly directed to the national conservation units. Furthermore, until the present moment, there are no problems regarding invasive species in the areas of native tropical forest managed.

ECUADOR, in turn, highlighted a national program to encourage commercial reforestation addressing the national reforestation activities deemed relevant, and controls reforestation initiatives regarding possible damage to the native forest. However, no regulations have been mentioned that deal directly with forest management activities in native forests.

In general, **VENEZUELA** also mentions that national forest regulations carry out environmental assessments that include the orientations presented by this guideline.

GUIDELINE 36

Measures should be taken to avoid unsustainable levels of hunting and the gathering of NTFPs.

Many, if not most, communities of people living in forest areas have longstanding dependencies on hunting and the gathering of NTFPs for a wide variety of subsistence uses, including traditional health care and nutrition. At sustainable levels, these practices need not compromise biodiversity conservation objectives (Box 6). Endangered and threatened species are frequently among those collected and consumed by local people, who might be unaware that these species are of conservation concern but might be willing to change their consumption habits to protect them. Awareness raising through education, publicity and consultation with forest-dependent communities, hunters and collectors, and the broader public (such as consumers of commercially harvested bushmeat), can play an important role. The opening of forests to logging can expose them to increased levels of hunting and gathering, possibly beyond the limits of sustainability. In these situations, measures to monitor and regulate commercial hunting and NTFP-gathering should be put in place. Commercial activities should only be permitted when there is capacity to determine sustainable harvest levels and regulate off-takes. Forest managers should support measures, including collaboration with local communities, for controlling the harvesting and transport of bushmeat and NTFPs. To reduce the demand for bushmeat, large-scale logging operators should ensure that domestically raised meat is available to their employees.

PRIORITY ACTIONS

RELEVANT AUTHORITIES, TIMBER COMPANIES, CONSERVATION NGOS AND OTHER RELEVANT STAKEHOLDERS SHOULD:

- Assess the level of dependence that local communities have on bushmeat and seek ways of reducing this
- Collaborate to increase awareness among forest-dependent people and the private sector of the risks posed to biodiversity by unsustainable hunting or NTFP extraction
- Compile information on globally, nationally or locally threatened species that are commonly hunted or gathered in forests and make it available in appropriate formats and in local languages and dialects
- Determine the drivers of the bushmeat trade at national and international levels and increase consumer access to domestically raised meat
- Through participatory processes, establish hunting zones and employ local people and private companies to help control these areas

RELEVANT AUTHORITIES SHOULD:

- Allow, at sustainable levels, subsistence hunting for bushmeat and the subsistence extraction of other NTFPs from tropical production forests and, when it enhances the livelihoods of forest-dependent people, the commercial harvesting of these products
- Establish local rules to regulate hunting to protect sites that are important for wildlife breeding and to restrict hunting and NTFP collection activities for species of conservation concern, especially during periods of the year that are critical for their reproductive success
- Monitor and regulate the commercial exploitation of bushmeat and NTFPs
- Prevent the use of wire snares and high-caliber firearms
- Create opportunities for local people to manage wildlife and NTFPs for local use.

TIMBER COMPANIES SHOULD:

- Provide forest employees with meat and fish obtained from sustainable sources

The quantitative analysis of the ACTO Member Countries presented a total of 61 legal instruments/regulations related in some way to the need to avoid unsustainable levels of hunting and harvesting of non-timber forest products in production forests. The overall average score obtained for guideline 36 for the Amazonian region was 2.65, corresponding to a regular attention to the Guideline within the established score scale.

It can be verified in Chart 36 and Table 39, that four countries reached a degree of implementation 3, considered good, which is the highest average presented by Ecuador (3,20), and the lowest was presented by Colombia (1,00). Regarding legal instruments, Peru and Venezuela presented the greatest number of instruments related to this Guideline, and Brazil and Suriname the smallest number, as shown in the following Table.

The guidelines here established are related to identifying the hunting situation with respect to tropical timber production forests, to raising civil society awareness of possible damages and pressures on local fauna, to organizing and disclose information on wildlife and threatened species, as well as establishing regulations for subsistence hunting related to traditional populations, among others.

Furthermore, essential monitoring measures for sustainable forest management are to monitor and supervise hunting activities and the possible impacts caused to the local fauna, subsidizing measures of protection and local conservation. On the other hand, it is necessary to create opportunities for local communities to manage wildlife and non-timber forest products for subsistence or marketing purposes, guided by good extractives practices.

The Countries' experiences for this guideline demonstrate that local communities have permission to use non-timber forest products and for hunting, both for subsistence.

According to the **GUYANA** national assessment, there are no cases of commercial hunting as well

CHART 36 - IMPLEMENTATION DEGREE OF GUIDELINE 36 BY COUNTRY.

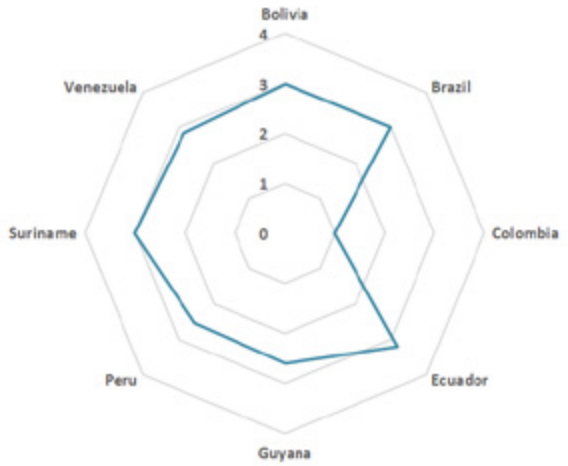


TABLE 39 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 36 BY COUNTRY.

	Measures should be taken to avoid unsustainable levels of hunting and NTFP harvesting.	Nbr. of Related Legal Instruments	Score (0 a 4)
P9D36	BOLIVIA	9	3,00
	BRAZIL	1	3,00
	COLOMBIA	9	1,00
	ECUADOR	10	3,20
	GUYANA	5	2,60
	PERU	13	2,54
	SURINAME	1	3,00
	VENEZUELA	13	2,85
	TOTAL	61	2,65

as few cases of non-timber forest products being collected in managed forests. Also, the forest management planning guided by reduced impact techniques helps identifying local fauna, along with establishing mechanisms for protection and conservation of species and habitats relevant for conservation.

Following this same direction is **SURINAME**, supported by reduced impact techniques as a strategy of attention to this guideline regarding the hunting and harvesting of NTFPs. However, it was identified that guidelines and regulations for the hunting and harvesting of non-timber forest products are not as explicit as described in the Guideline.

In **BRAZIL** hunting of any wild animal in forest management areas is prohibited by law, and those responsible for forest management must adopt measures to control the activity. Hunting and commercialization of wild animals are considered environmental crimes. Only subsistence hunting is allowed to traditional and indigenous peoples or communities.

The collection of non-timber forest products in Brazil is free, provided it complies with the established regulations. Thus, the assessment concludes that the laws in force in Brazil have served to avoid the disorderly exploitation of NTFPs and to ensure measures to inhibit the predatory practices of forest resources and consequent losses in biodiversity in the region.

As the contribution of **PERU** to this particular guideline, it mentions that there are several mechanisms for the protection of endangered species of fauna, such as prohibiting hunting in concession areas, conducting periodic wildlife assessments, and also identifying important habitats for conservation of these species.

GUIDELINE 37

Forest managers and other stakeholders should take special measures to mitigate increases in human-wildlife conflicts that might arise from logging activitie.

Logging operations can modify the habitat and change the distribution of species that are important resources for local people. Logging might also increase the likelihood of conflicts between people and wildlife. Conservation programs in northern Congo, for example, have been so successful that elephants concentrate in the area and often destroy the crops of local people. This might have the effect of forcing those people to resort to commercial hunting, so they can purchase staple food supplies they would otherwise have grown. Forest management plans should anticipate such potential conflicts and include measures to mitigate risk – such as the control of dangerous or crop raiding animals.

PRIORITY ACTIONS

FOREST MANAGERS SHOULD:

- Consider, in forest management plans, potential human-wildlife conflicts that could arise from logging activities and take appropriate measures to prevent their occurrence
- Take measures to avoid conflict when timber harvesting reduces the availability of the biodiversity required by other forest users

TIMBER COMPANIES SHOULD:

- Assist local people to manage wildlife conflicts caused by their forestry or biodiversity conservation and sustainable use activities

The quantitative analysis of the ACTO Member Countries presented a total of 58 legal instruments/rules related in some way with the need to take special measures to mitigate any human-wildlife conflicts that may arise from logging activities. However, the overall average score obtained for guideline 37 for the Amazonian region was 2.76 corresponding to regular attention to the Guideline within the established score scale.

Chart 37 and Table 40 show that three countries reached a degree of implementation 3, considered good, which is the highest average presented by Peru (3,33), and the lowest was presented by Colombia (2,20). With regard to the legal

CHART 37 - IMPLEMENTATION DEGREE OF GUIDELINE 37 BY COUNTRY.

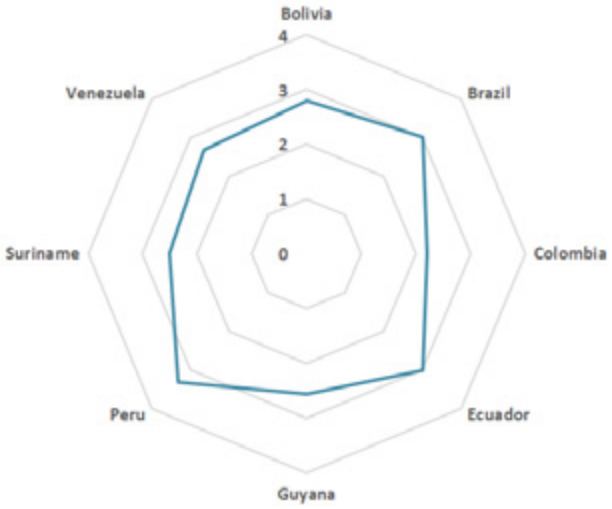


TABLE 40 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 37 BY COUNTRY.

	Forest managers and other relevant actors should take special measures to mitigate any wildlife-human conflicts that may arise from logging activities.	Nbr. of Related Legal Instruments	Score (0 a 4)
P9D37	BOLIVIA	10	2,80
	BRAZIL	1	3,00
	COLOMBIA	10	2,20
	ECUADOR	10	3,00
	GUYANA	7	2,57
	PERU	3	3,33
	SURINAME	2	2,50
	VENEZUELA	15	2,67
	TOTAL	58	2,76

instruments related to this Guideline, Venezuela presented the largest number of legal instruments related, and Brazil the smallest.

This guideline addresses the need of taking special measures to mitigate wildlife-human conflicts that may arise as a result of logging activities. In this sense, this guideline is oriented to contemplate in Forest Management Plans the identification and implementation of appropriate measures to address the possible wildlife-human conflicts.

According to the assessments presented by **BOLIVIA**, **COLOMBIA**, **ECUADOR**, **PERU**, Venezuela, Guyana, and Suriname, there are no explicit and detailed mechanisms in national regulations that sufficiently address this guideline. Still, it is necessary to understand and consider that the existing conflicts between human populations and wildlife go beyond hunting.

In this sense, there is an explicit need to strengthen the identification of possible human-wildlife conflicts in the countries analyzed due to forestry activities, not only related to hunting but involving all possible factors that can promote such conflicts as, for example, the landscape alteration and the decrease of species and habitats.

Likewise, it is important to correlate the availability of biodiversity with the existing traditional populations in the locality, so that logging does not cause scarcity or reduction of resources and problems for traditional populations that depend on forest resources.

However, parallel actions and mechanisms help minimizing the existing wildlife-human conflicts, such as the adoption of good forest planning including areas that are important to wildlife and of high value for conservation; implementation of reduced impact techniques in sustainable forest management; protective measures (national and international) of threatened and/or protected species; the monitoring of forestry activities and their possible impacts; among others.

Brazil has mentioned in detail that the hunting of wild animals is banned throughout **BRAZIL**, except for communities and traditional populations that depend on subsistence hunting. Also, any forest management plan must contain the identification and strategy to mitigate possible conflicts and impacts from forest intervention, both social and fauna (environmental impacts).

PRINCIPLE 10: Biodiversity conservation in planted forests

PLANTED FOREST AREAS SHOULD BE MANAGED IN WAYS THAT BENEFIT BIODIVERSITY, BOTH WITHIN THE PLANTED FOREST ITSELF AND IN AREAS OF NATURAL FOREST THAT ARE RETAINED WITHIN THE PLANTED FOREST LANDSCAPE.

GUIDELINE 38

Planted forest establishment should focus on previously deforested or other degraded sites and not replace natural forest habitats of conservation concern.

As for any change in forest land use, potential plantation areas should be surveyed to determine whether they contain biodiversity features of special concern. When such features are identified, the forest management plan should include measures to protect them.

PRIORITY ACTIONS

PLANTATION FOREST DEVELOPERS AND MANAGERS AND LAND-USE PLANNING AGENCIES SHOULD:

- Preferentially establish planted forests on degraded sites in need of rehabilitation
- Take measures to protect features of high biodiversity value, especially when natural forest is to be converted to plantation forest
- Promote research, technologies and innovative strategies and methods to develop planted forests on degraded forest lands

The quantitative analysis of the ACTO Member Countries presented a total of 51 legal instruments related in some way to the need to establish forest plantations to be concentrated in previously deforested areas or other degraded areas and, not replacing natural forest habitats of conservation interest. The overall average of the score obtained for guideline 38 for the Amazonian region was 2.30 which corresponds to regular attention to the Guideline within the established score scale.

Individually, **ECUADOR**, **PERU**, and **VENEZUELA** scored the attention to this guideline as Good, followed by **BOLIVIA**, **BRAZIL**, and **GUYANA** which qualified as Regular, and **COLOMBIA** and **SURINAME** as Bad. Is worth mentioning that this guideline does not apply directly to Guyana and Suriname since these countries do not own significant forest plantations. Only a few cases directed towards research (as mentioned by Suriname who owns 13 thousand hectares of plantations for research). Regarding the legal instruments, policies and programs related to this guideline, the chart below shows that the country with the largest number of instruments was Bolivia and the two countries with the lowest number were Brazil and Suriname.

The national assessments submitted by ACTO member countries have shown important information related to forest plantations. This guideline mentions that forest plantations should be concentrated in previously deforested areas or other degraded areas not replacing native forests of conservation interest.

Accordingly, the guidelines presented in the priority measures guide the planning and establishment of forest plantations in previously

CHART 38 - IMPLEMENTATION DEGREE OF GUIDELINE 38 BY COUNTRY.

TABLE 41 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 38 BY COUNTRY.

	The establishment of forest plantations should focus on previously deforested areas or other degraded sites and should not replace natural forest habitats of conservation interest.	Nbr. of Related Legal Instruments	Score (0 a 4)
P10D38	BOLIVIA	16	2,00
	BRAZIL	1	2,00
	COLOMBIA	9	1,00
	ECUADOR	5	3,40
	GUYANA	3	2,67
	PERU	3	3,33
	SURINAME	1	1,00
	VENEZUELA	13	3,00
	TOTAL	51	2,30

deforested or degraded areas, together with measures aimed at identifying and establishing actions for the protection of components of high conservation value.

It is therefore imperative that research, technologies and methods that ensure the success of establishing forest plantations in deforested or degraded areas be encouraged.

As mentioned above, this guideline does not fully apply to **GUYANA**. As well as **SURINAME**, these countries do not own forest plantations. The latter mentioned that the country presents about 13 thousand hectares of forest plantations destined only for research. The forest management initiatives in these two countries are directed to the forest concession in native tropical forests.

BOLIVIA, **COLOMBIA**, **PERU,** and **VENEZUELA** mentioned that in their territories, deforestation of the native forest is prohibited by law regarding plantations or reforestation activities for productive purposes. The Peruvian national assessment states that deforestation with exotic species is prioritized in areas previously deforested or degraded for commercial purposes. Also, reforestation actions are conducted aiming at the recovery and conservation with native species.

In **BRAZIL**, plant suppression is authorized meeting a series of conditions and criteria established by the authorities, including environmental authorities. According to Brazilian regulations for the Amazon, 80% of the native forest cover in the property, computed as a legal reserve area, must be maintained. This means that, within a rural property, only native forest areas can be converted to alternative land use, in 20% of the property, not being considered

other areas such as permanent preservation.

Likewise, alternative land use and forest replenishment determines that the exploitation of forests and succession formations, which entails the elimination of natural tree vegetation by cuttings, will only be permitted by means of deletion authorization for the alternative use of land issued by the competent body, mainly for large projects or initiatives located in settlement projects in Brazil.

Finally, according to the assessments, there is still a need to invest in research and forestry technology encouraging the recompositing of degraded or deforested areas with reforestation, both for commercial purposes and for conservation.

GUIDELINE 39 **Large-scale planted forests can provide a forest matrix within which areas of high conservation value can be protected and managed.**

A number of large-scale plantation schemes successfully manage biodiversity set-asides within their landscapes. In some cases, the resources available to such companies are sufficient to enable them to provide a higher level of protection than is available in nearby national parks and equivalent reserves.

PRIORITY ACTIONS

RELEVANT GOVERNMENT AGENCIES SHOULD:

- Encourage the setting aside of representative natural forest or other natural vegetation types within the plantation estate and, where possible, the restoration of natural forests on appropriate sites
- Ensure that plantation forest developers retain natural habitats along watercourses and take other steps, such as those set out elsewhere in these guidelines, to maximize biodiversity conservation in industrial plantation developments

PLANTATION FOREST DEVELOPERS AND MANAGERS SHOULD:

- Undertake rigorous and comprehensive impact assessments that consider the biodiversity value of an area to all relevant stakeholders
- Set aside biodiversity reserves within large-scale plantation schemes
- Retain natural habitats along watercourses within their plantation estates

The quantitative analysis of the ACTO Member Countries presented a total of 48 legal instruments/regulations which relate in some way to the possibility that large-scale forest plantations offer a forest matrix that allows the protection and management of high conservation value areas. The overall average score obtained for guideline 39 for the Amazonian region was 2.30 corresponding to regular attention to the Guideline within the established score scale.

Ecuador, Guyana and Venezuela characterized this guideline as Good, Brazil and Peru as Regular attention, and Bolivia, Colombia and Suriname with Bad attention, again considering the fact that this guideline does not apply in full to Guyana and Suriname since they do not have forest plantations.

Forest management initiatives in these two countries are directed toward forest concession in native tropical forests. However, in the light of this guideline, the mechanisms and regulations that could somehow address the issue were evaluated. Regarding the number of legal instruments presented in the national assessments, the country with the largest number of instruments related to Guideline 39 was Bolivia, and the lowest number was presented by Guyana and Suriname, as shown in the following table.

The national assessments submitted by ACTO Member Countries provided some important information regarding large-scale forest plantations. In general, Guideline 39 encourages the establishment of a forest matrix to protect and manage high conservation value areas.

Accordingly, the guideline seeks to reconcile timber forest production with actions and mechanisms that allow local biodiversity protection and conservation such as the establishment of areas of native forests or other types of natural vegetation, local water resources protection and preservation of established areas, care with the local fauna, among others.

CHART 39 - IMPLEMENTATION DEGREE OF GUIDELINE 39 BY COUNTRY.

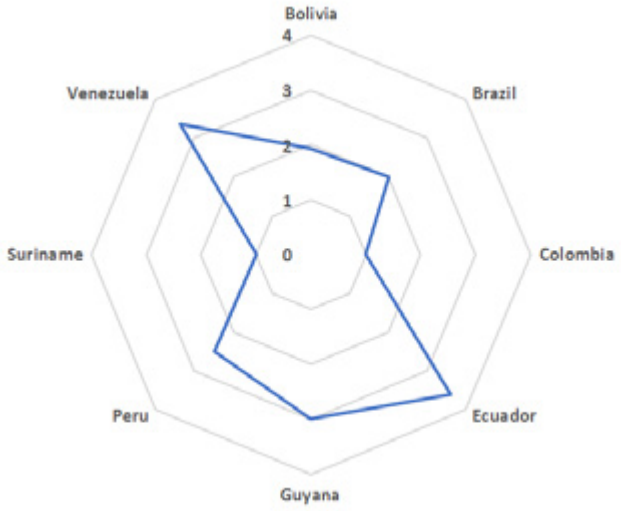


TABLE 42 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 39 BY COUNTRY.

	Large-scale forest plantations can provide a forest matrix to protect and manage areas of high conservation value.	Nbr. of Related Legal Instruments	Score (0 a 4)
P10D39	BOLIVIA	17	1,94
	BRAZIL	2	2,00
	COLOMBIA	9	1,00
	ECUADOR	5	3,60
	GUYANA	1	3,00
	PERU	2	2,50
	SURINAME	1	1,00
	VENEZUELA	11	3,36
	TOTAL	48	2,30

It also foresees that evaluation and monitoring processes of the impacts on biodiversity be intensified and efficient and that they can reorient new interventions, as well as delimit areas of special interest for conservation, and special attention to water resources, which must have its natural vegetation preserved.

It can be noted from the national assessments that the information from the countries is quite heterogeneous regarding commercial forest plantations. **GUYANA** and **SURINAME**, for instance, have no significant numbers of planted forests, and in the cases of **VENEZUELA** and **ECUADOR**, the main source of wood comes from planted forests.

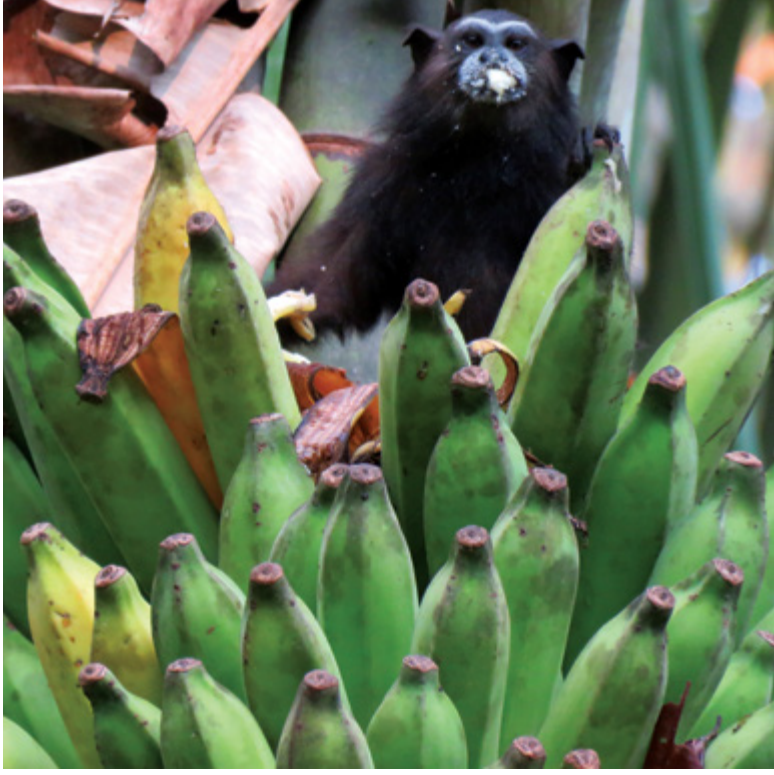
In **BRAZIL**, large-scale forest species forestry in the Amazon region is not very expressive yet when compared in terms of planted area and volume produced compared to the other regions of the country. The Brazilian law related to this guideline deals with the obligation of forest restoration to those who use raw material originating from the suppression of native vegetation or has the authorization to suppress native vegetation.

Also, **COLOMBIA** mentions that there are laws that encourage and, in some cases, require the reservation of an area of natural forest or other native vegetation in forest plantations. However, there is still a need to strengthen the vision of biodiversity conservation in regulatory mechanisms.

Reforestation incentive programs are aimed at commercial timber production, mainly with fast-growing exotic species. However, other mechanisms are mentioned within the programs and in the national forest regulations, which assist the attention to this guideline. Such is the case of the identification and selection of areas destined for the protection and

preservation of the vegetation associated with the water courses, among others.

On the other hand, evaluation and monitoring of possible damages from forest plantations need to be encouraged and strengthened. The application of rigorous and exhaustive assessments and monitoring identifying and considering biodiversity values is not yet a requirement, as oriented by this guideline.



GUIDELINE 40 **Management systems that favour natural processes and native species and enhance the productivity and resilience of the planted forest should be developed.**

Appropriately managed planted forests can retain surprisingly high levels of local biodiversity. There are indications that longer rotation lengths, reduced soil cultivation and other silvicultural practices not only favour biodiversity but can also be good for plantation productivity. Reducing the use of herbicides and pesticides can help planted forests to retain more biodiversity, which in turn can benefit soils and forest productivity.

PRIORITY ACTIONS

PLANTATION FOREST DEVELOPERS AND MANAGERS SHOULD:

- Encourage research to develop innovative economical and effective silvicultural practices to enhance the biodiversity values of planted forests
- Where economically viable, adjust silvicultural practices to favour local biodiversity in planted forest stands
- Reduce pesticide and herbicide use
- Promote research on alternative non-chemical methods for controlling pests and diseases in forest plantations

The quantitative analysis of the ACTO Member Countries presented a total of 56 legal instruments/regulations which are related in some way to the importance of establishing management systems that favor natural processes and natural species and increase the productivity and resistance of the planted forests. The overall average of the score obtained for guideline 40 for the Amazonian region was 2.20 corresponding to regular attention to the Guideline within the established score scale.

It can be verified in Chart 40 and Table 43, that one country reached a degree of implementation 4, considered optimal, which is the highest average presented by Guyana (4,00), and the lowest was presented by Bolivia and Colombia (1,00).

It should be noted that this Guideline does not fully apply to Guyana since there are no forest plantations, nor does it apply to Suriname, which mentioned that the country has inexpressive amounts of forest plantations only devoted to research. Forest management initiatives in these two countries are aimed at forest concession in native tropical forests. However, in the light of this Guideline, the mechanisms and regulations that could somehow address the subject were evaluated. Regarding the number of legal instruments mentioned for this Guideline, Bolivia presented the largest number and Guyana the smaller, as presented in the following Table.

Guideline 40 deals with the establishment of management systems that favor natural processes and native species, and consequently increase the productivity and resistance of planted forests.

It also guides research of appropriate and innovative forestry practices that are economically viable and effective to improve the biodiversity values of planted forests, considering the readjustment of forestry practices, good forestry practices, and the reduction pesticides and herbicides.

It was verified in the national evaluations present-

CHART 40 - IMPLEMENTATION DEGREE OF GUIDELINE 40 BY COUNTRY.

TABLE 43 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 40 BY COUNTRY.

	Management systems should be established that favor natural processes and native species and increase productivity and resistance of planted forest.	Nbr. of Related Legal Instruments	Score (0 a 4)
P10D40	BOLIVIA	18	1,00
	BRAZIL	4	3,00
	COLOMBIA	9	1,00
	ECUADOR	5	1,40
	GUYANA	1	4,00
	PERU	2	3,00
	SURINAME	3	1,33
	VENEZUELA	14	2,86
	TOTAL	56	2,20

ed by ACTO Member Countries that this guideline cannot be met yet, despite the countries' efforts to promote commercial forest plantations and the production of legalized timber.

No mechanisms, laws or regulations were reported in the countries analyzed, guiding the establishment of silvicultural techniques for forest plantations aimed at biodiversity conservation, or that determine the reduction of chemicals, herbicides, and insecticides.

The adoption of these techniques and measures by those responsible for reforestation is still optional and rare because of the additional costs involved for this group of stakeholders. However, voluntary forest certification is a legal instrument that, by means of its principles, criteria, and indicators, guides the least impactful silvicultural practices and can assist in the attention to this guideline.

There was also evidence of the need to encourage studies and research that correlate forest plantations with biodiversity conservation, as well as the study and application of new silvicultural techniques that favor forest conservation.

The national evaluation from Brazil adds that national research, both for forest management and for plantations, has contributed to the improvement of silvicultural techniques used.

GUIDELINE 41 **The use of native tree species and species mixes in planted forests enhances the biodiversity value of the stand. When exotic species must be used, choose those which provide the best habitat for local biodiversity.**

Planted forests composed of native tree species will always provide better conditions for local biodiversity than those composed of exotics. The production of industrial wood fiber is focused increasingly on a small number of plantation species; a counter-effort is needed to diversify the range of species used. Such diversification, using native species, could increase the sector's resilience to climate change and other threats.

PRIORITY ACTIONS

GOVERNMENT AGENCIES, RESEARCH INSTITUTIONS, CONSERVATION NGOS AND PLANTATION FOREST DEVELOPERS AND MANAGERS SHOULD:

- Encourage the use of native species in planted forests
- Promote collaboration between research institutions and forest industry to develop the silvicultural knowledge and practices needed to increase the use of a wider range of native species in planted forest development

The quantitative analysis of the ACTO Member Countries presented a total of 48 legal instruments that are related in some way to the need of native species utilization and combinations in planted forests, and also caring for the selection of the species when these are exotic species. The overall average of the score obtained for Guideline 41 for the Amazon region was 2.68, which corresponds to Regular attention to the referred guideline, within the established score scale.

It is emphasized that this guideline does not fully apply to Guyana since in that country there are no forest plantations. Nor does it apply to Suriname, which mentioned having inexpressive amounts of forest plantations, intended only for research. The forest management initiatives in these two countries are directed to the forest concession in native tropical forests. However, in the light of this guideline, the mechanisms and regulations that may in some way address the aforementioned subject were evaluated.

Chart 41 and 44 indicate that a country reached a degree of implementation 4, considered optimal, which is the highest average presented by Peru

CHART 41. IMPLEMENTATION DEGREE OF GUIDELINE 41 BY COUNTRY.

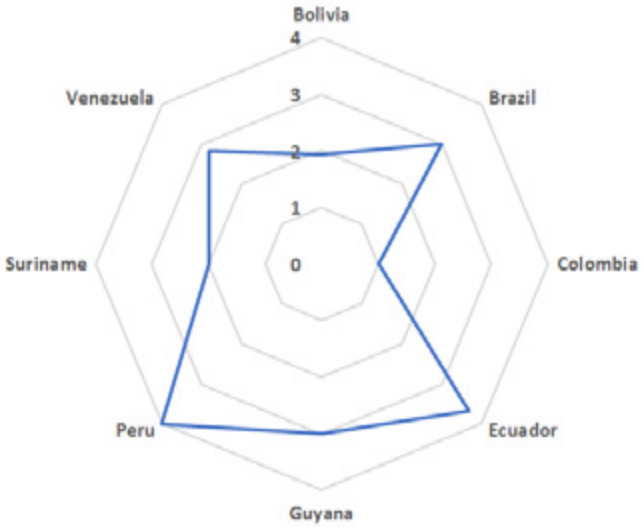


TABLE 44. NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 41 BY COUNTRY.

	The use of native tree species and combinations of species in planted forests increases the biodiversity value of the stand. When exotic species should be used, those that offer the best habitat for local biodiversity should be chosen.	Nbr. of Related Legal Instruments	Score ((0 a 4)
P10D41	BOLIVIA	15	1,93
	BRAZIL	2	3,00
	COLOMBIA	9	1,00
	ECUADOR	3	3,67
	GUYANA	3	3,00
	PERU	2	4,00
	SURINAME	2	2,00
	VENEZUELA	12	2,83
	TOTAL	48	2,68

(4.00), and the lowest was presented by Colombia (1.00). With respect to the legal instruments presented, it can be seen that Bolivia has the largest number, while Brazil, Peru, and Suriname the lowest for a total of 48 instruments related to this Guideline as shown in the following Table.

The national assessments submitted by the ACTO member countries have shown that efforts are still needed to reconcile native trees with commercially planted forests to increase the value of local biodiversity.

Also, forest plantations choosing exotic species should analyze and search for the species that offers the best habitats for local biodiversity. To this end, research is needed that reconciles the ecological characteristics of the exotic fast-growing species selected for the plantations with the economic and industrial performance of this wood. Also, encourage the research of native species that can replace the forest plantations of fast-growing exotic species.

Research related to this guideline is still scarce, mainly when it refers to the identification of native species that can replace the main fast-growing exotic species adopted in the forest plantations, directly related to the forest industry, also with reference to the performance of these species and other issues that may subsidize the substitution of these species in commercial wood plantations.

The **ECUADORIAN** experience mentions that commercial forest plantations are the national priority, both for supplying the industry with legal timber and for reducing pressure on native forests by virtue of the demand for wood. However, fast-growing exotic species are prioritized for commercial plantations, but research that links forest plantations and native species with biodiversity conservation is still scarce.

According to **PERU**, the national forest legislation requires that the behavior of exotic species introduced by forest plantations be previously studied, as well as possible negative impacts of the introduction of the species, both at an ecological and genetic level, which contributes to the attention to this directive.

BOLIVIA reported that the use of native species in reforestation and commercial plantations is a factor considered in the national strategy, as well as strengthening the research and studies that guide the replacement of exotic fast-growing species by native ones with the same characteristic. In this regard, **COLOMBIA** mentioned that there are regulations that aim to promote the use of native species in forest plantations, as well as the promotion of research that diversifies the number of species used in forest plantations.

According to the evaluation of **BRAZIL**, despite many research and tests conducted for the planting of native species in the Amazon, there are few initiatives of those forest plantations oriented to the current commercialization in the region.

GUIDELINE 42 **Measures should be taken to ensure that plantation forestry does not facilitate the introduction of invasive species, which could impact negatively on both the planted forest and neighboring natural forests.**

Climate change will increase the risk posed by invasive species, especially where exotic tree plantations are being established on new sites.

To minimize the risk, care should be taken in selecting and testing new species or varieties of trees for planted forests.

PRIORITY ACTIONS

GOVERNMENT AGENCIES, RESEARCH INSTITUTIONS, CONSERVATION NGOS AND PLANTATION FOREST DEVELOPERS AND MANAGERS SHOULD:

- Take precautions to prevent the introduction or spread of invasive alien species in association with plantation schemes
- Avoid introducing tree species that are likely to spread outside the planted forest area

The quantitative analysis of the ACTO Member Countries presented a total of 62 legal instruments/regulations which are related in some way to actions conducted to ensure that forest plantations do not facilitate the introduction of invasive species that may have a negative impact, both on the planted forest and on neighboring natural forests. However, the overall score obtained for guideline 42 for the Amazonian region was 2.28 corresponding to the Guideline within the established score scale.

It can be verified in Chart 42 and Table 45, that one country reached a degree of implementation 4, considered optimal, which is the highest average presented by Peru (4,00), and the lowest was presented by Colombia (1,00). Regarding the legal instruments presented for guideline 42, it may be observed that Venezuela and Bolivia mentioned the largest number while Brazil, Peru, and Guyana the smallest, for a total of 62 instruments related to this Guideline as shown in the following Table.

Guideline 42 refers to measures to ensure that forest plantations do not provide or incorporate invasive species that may impact negatively in both planted forest and on nearby natural forests.

CHART 42 - IMPLEMENTATION DEGREE OF GUIDELINE 42 BY COUNTRY.

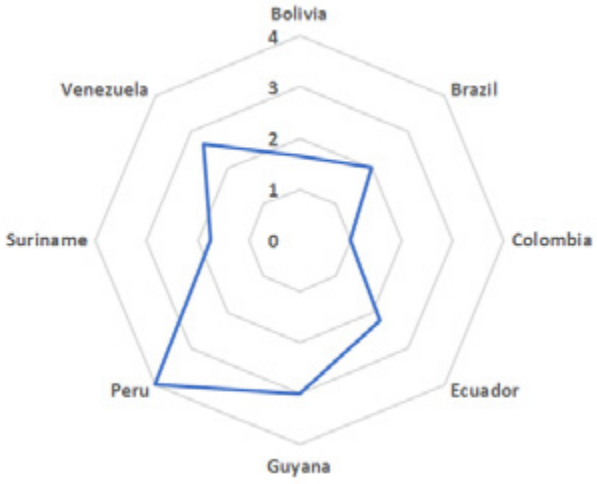


TABLE 45 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 42 BY COUNTRY.

	Measures should be taken to ensure that invasive species are not introduced by forest plantations, which could impact negatively on both the planted forest and neighboring natural forests.	Nbr. of Related Legal Instruments	Score (0 a 4)
P10D42	BOLIVIA	17	1,65
	BRAZIL	2	2,00
	COLOMBIA	9	1,00
	ECUADOR	9	2,22
	GUYANA	2	3,00
	PERU	2	4,00
	SURINAME	4	1,75
	VENEZUELA	17	2,65
	TOTAL	62	2,28

Two basic issues for addressing this guideline are highlighted. The concern to introduce exotic species that may be harmful along with the care that exotic trees can spread outside the areas of the plantations.

It should be known that, in addition to the risk of introducing exotic tree species in forest plantations affecting negatively both the forest plantation and the local native forests, care with the silvicultural activities carried out in these plantations is essential, since substrates, equipment, and machinery can be a source of propagules for these invasive species.

The national evaluations informed about existing environmental and phytosanitary institutions and authorities to rule the dangers of exotic species invasions and their potential negative impacts in the countries analyzed, that are in some way mentioned in the national laws and regulations to prevent invasive alien species from being introduced or spread in forest plantations and in nearby native forests.

According to **ECUADOR**, field inspections are carried out in the areas destined for forest plantations with exotic species, where, among other criteria, the possible impacts on native vegetation and biodiversity are investigated.

Moreover, the assessment of **PERU** added that for the exotic species plans are developed to control and even to eradicate invasive species where damages to the plantations and to the biodiversity are identified. Venezuela, mentions that, among these strategies, it is mandatory to incorporate native species in the exotic forest plantation.

BRAZIL, in turn, registered that there are national strategies for invasive alien species that include prevention elements, control, policies, and legal instruments, public awareness, technical training, research, and financing. However, specifically for the Brazilian Amazon region, studies related to invasive species are recent. In this region, the authorized initiatives of exotic forest plantations at moment do not foresee any specific controlling regulation.

OPERATIVE PRINCIPLE

PRINCIPLE 11: Maintaining functioning forest ecosystems

A FUNDAMENTAL GOAL OF SFM IS TO MAINTAIN ECOSYSTEM FUNCTIONS AT BOTH THE STAND AND LANDSCAPE SCALES. BIODIVERSITY PLAYS AN IMPORTANT ROLE IN ECOSYSTEM FUNCTIONING AND ITS CONSERVATION CONTRIBUTES TO MAINTAINING YIELDS OF TIMBER AND OTHER FOREST PRODUCTS AND SERVICES OVER THE LONG TERM.

GUIDELINE 43

Ecological knowledge should be improved and applied to ensure that forest management enhances or maintains biodiversity and thus ensures forest functions such as pollination, seed dispersal and nutrient cycling. The ecology and habitat requirements of species of both commercial and conservation concern need to be understood and addressed in forest management planning.

Conservation and research organizations should undertake more work on the ecology and habitat requirements of species of both conservation and commercial interest. These organizations should provide forest management planners with information on the special habitat requirements of species. During the testing of the draft guidelines it became evident that a number of larger industrial forest organizations are already working with trained ecologists to increase the body of ecological knowledge in their forests. This should be encouraged.

PRIORITY ACTIONS

GOVERNMENT AGENCIES, RESEARCH INSTITUTIONS, CONSERVATION NGOS, TIMBER COMPANIES AND FOREST MANAGERS SHOULD:

- Adopt, as a fundamental principle, the idea that as much indigenous biodiversity as possible should be retained in tropical production forests
- Facilitate and encourage ecological research in tropical production forests, including the establishment and maintenance of long-term forest biodiversity monitoring plots
- Encourage research on the ecology and habitat requirements of species of conservation and commercial interest
- Collaborate on the design of studies that will yield new knowledge for application in addressing important biodiversity management questions
- Collaborate to collect, synthesize, analyze and share data on forest biodiversity based on permanent forest plots, inventories and other sources and make these accessible to forest planners, forest managers and other stakeholders
- Encourage ecological research on species assemblages, since this is likely to be more useful to forest managers than more focused studies on individual species
- Assist forest managers to apply research results to forest management

The quantitative analysis of the Member Countries of ACTO presented a total of 92 legal/ regulatory instruments that are related in some way to improve the ecological knowledge base along with the guarantee of application of this knowledge so that forest management maintains or increases biodiversity and ensures its functions.

The overall average score obtained for guideline 43 for the Amazonian region was 2.18 corresponding to Regular attention, within the established score scale.

Chart 43 and Table 46 present the two countries that reached the degree of implementation 3, considered good, being the highest average presented by Brazil and Guyana (3.00), and the lowest was presented by Suriname (1.00). With respect to the legal instruments, it is observed

that Bolivia presented the largest number, while Suriname presented the lowest number, for a total of 92 instruments related to Guideline 43, as shown in the following table.

The national assessments of the ACTO Member Countries informed on a number of experiences and mechanisms of attention to this guideline, related to knowledge improvement so forest management increases and/or maintains biodiversity, and ensures the essential forest functions, such as pollination, dispersion, and nutrient cycling, incorporated into the planning and execution of forest management.

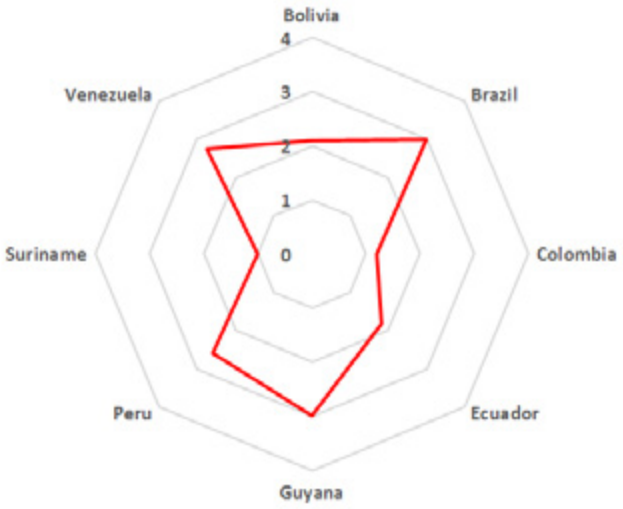
For this purpose, it is necessary to promote and strengthen ecological knowledge and habitat requirements, both for commercially valuable species and for species of special interest for conservation. Without this knowledge established and disseminated among the stakeholders related to forest management, it is not possible to guarantee that the measures and mechanisms adopted will meet the demands of this guideline.

In general, national assessments show that there is still a need to promote research related to biodiversity and forest harvesting activities, such as forest management and commercial reforestation since they are the basis of effective mechanisms that take into account the biodiversity conservation.

In addition, other studies are needed to help create and establish mechanisms for biodiversity conservation in forest management interventions, such as zoning at both the macro and micro levels. The lack of information, knowledge, and research on local biodiversity were problems mentioned by Ecuador.

Peru also mentioned that there is a lack of information on biodiversity that can support the planning and zoning of forest management. According to this assessment, it is necessary to understand and address the ecology and habitat requirements of species of commercial value and those that are of interest for conservation under forest management planning. However,

CHART 43 - IMPLEMENTATION DEGREE OF GUIDELINE 43 BY COUNTRY.



the guidelines for establishing the list of critical habitats and their conservation measures are currently being prepared.

On the other hand, within the difficulties mentioned by the countries, Colombia stated that there is no evidence that government agencies, research institutions, conservation NGOs, logging companies and other forest managers adopt the main idea that in production forests should be maintained as much biodiversity as possible. Also, there are scarce financing actions and support for research and studies related to this topic.

In addition, in Guyana was observed that as strategy to complying with this guideline is the implementation and improvement of reduced impact techniques for forest management.

Moreover, Suriname reports that several investigations are carried out by local institutions focused on forest management, which contribute to the adoption of sustainable measures and practices. The Training Plans developed emphasized the need to improve the ecologi-

TABLE 46 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 43 BY COUNTRY.

	The ecological knowledge should be improved and applied so that forest management increases or maintains biodiversity and thus ensures forest functions such as pollination, seed dispersal, and nutrient cycling. In the planning of forest management, it is necessary to understand and address the ecology and habitat requirements of both species of commercial value and those that are of interest for conservation.	Nbr. of Related Legal Instruments	Score (0 a 4)
P11D43	BOLIVIA	23	2,09
	BRAZIL	9	3,00
	COLOMBIA	10	1,20
	ECUADOR	6	1,83
	GUYANA	10	3,00
	PERU	17	2,59
	SURINAME	1	1,00
	VENEZUELA	16	2,75
	TOTAL	92	2,18

cal knowledge of species of special interest for conservation. However, there is no comprehensive structural plan or program available to improve knowledge, especially for the sustainable use of natural resources and biodiversity conservation.

Finally, Brazil reported that there are institutions that act in the research of all stages of forest management, with the objective of identifying and evaluating the possible negative impacts of commercial forestry, including the monitoring, for several years, of timber production forest areas.

However, despite research and published results answering and clarifying many issues related to the impacts generated by the sustainable exploitation of forest resources versus ecological functions, in practice, the adoption of conservationist safeguards aimed at maintaining the functions of forest ecosystems within forest management areas are conditioned by the adoption of the technical criteria established in current forestry regulations.

GUIDELINE 44

Special management consideration should be given to species that are strongly interactive or play a key role in the ecology of other species or have important influences on the overall ecology of a forest and the survival of other species.

There is much scientific argument about the existence and role of keystone species in forests. It is clear, however, that some species do have significant impacts on the survival of other species, such as by performing pollination or seed-dispersing functions. Such species should receive special attention from managers and should be monitored. Some conservation organizations maintain databases that can provide good baseline information on the status and distribution of such species.

PRIORITY ACTIONS

GOVERNMENT AGENCIES, RESEARCH INSTITUTIONS, CONSERVATION NGOS, TIMBER COMPANIES AND FOREST MANAGERS SHOULD:

- Identify and give special protection to species that perform ecological functions vital to the long-term maintenance of commercial species and to the maintenance of biodiversity features of high conservation value
- Raise awareness among forest workers and managers about the existence and importance of species that play key roles in the ecology of other species or of the forest as a whole

The quantitative analysis of the ACTO Member Countries presented a total of 77 legal instruments/regulators that relate in some way to the need to emphasize highly interactive species or playing a key role in the ecology of other species or having a significant influence in the general ecology of the forest, or in the survival of other species. However, the overall average of the score obtained for guideline 44 for the Amazonian region was 2.21, which corresponds to regular attention to the Guideline within the established score scale.

It can be verified in Chart 44 and Table 47, that three countries reached a degree of implementation 3, considered good, which is the highest average presented by Peru (3.38), and the lowest was presented by Ecuador (1, 00). With respect to the legal instruments presented, it is observed that Bolivia presented the highest number while Guyana has less instruments, for a total of 77 legal instruments related to this Guideline as shown in the following Table presents.

Guideline 44 refers to the need to emphasize species that are highly interactive, playing a key role in the ecology of other species or have an important influence on the forest general ecology as well as on the survival of local fauna and flora.

The guidelines contained in the priority measures aim to identify the species that perform vital functions, both for the biodiversity conservation and for commercial production. They also carry out training with those stakeholders directly involved in forest management (managers, workers), and with civil society, on the importance of forests and the biodiversity conservation.

As already verified in other guidelines dealing with the identification of the biodiversity components and species and habitats of special value to conservation in the Amazon region, as well as for research related to biodiversity conservation in tropical rainforest production, research strengthening and knowledge genera-

CHART 44 - IMPLEMENTATION DEGREE OF GUIDELINE 44 BY COUNTRY.

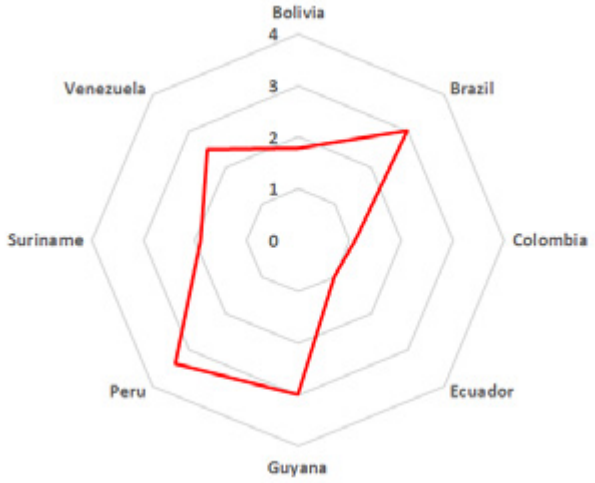


TABLE 47 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 44 BY COUNTRY.

	Emphasis should be placed on species that are highly interactive or that play a key role in the ecology of other species or have an important influence on the general ecology of the forest and the survival of other species.	Nbr. of Related Legal Instruments	Score (0 a 4)
P11D44	BOLIVIA	18	1,78
	BRAZIL	5	3,00
	COLOMBIA	10	1,10
	ECUADOR	6	1,00
	GUYANA	4	3,00
	PERU	8	3,38
	SURINAME	10	1,90
	VENEZUELA	16	2,50
	TOTAL	77	2,21

tion in this issue are still required.

It is necessary that this knowledge is reflected in the national laws and regulations, from planning to execution, as requirements of the Forest Management Plan. For this purpose, it is also essential that this information reaches the main stakeholders through the transfer of technology and knowledge.

The countries mentioned that there are institutions and organizations that develop research on issues related to the ecology and biodiversity conservation, in addition to universities that also produce knowledge related to these and other areas.

However, in general, the countries assessed did not mention the direct application of this knowledge in the process of forest management regulation that includes the identification of species of special value for conservation and performing vital ecological functions.

Laws and regulations that prohibit the exploitation and commercialization of species considered at risk, vulnerable or of special importance to traditional populations and communities, is one of the main mechanisms of attention to this guideline.

The national evaluation of Bolivia states that, despite the research from institutions related to the forest and biodiversity conservation, information about the ecology of the species considered important for the general ecology of the forest is still scarce.

In **ECUADOR**, despite the efforts of research

institutions to identify species of special value for conservation, no systematic plans are identified aiming to increase awareness among forest workers and those responsible for management.

PERU, in turn, stresses that national forestry regulations provide that. for these key species of wild flora of high economic value, there should be a regulation for these plans directed to the exploitation of species of importance at the level of intrinsic value and their function in the forest ecosystems. It was observed, that in Guyana the search for the implementation and improvement of reduced impact techniques for forest management is the strategy adopted for the attention to this guideline. In this sense, as was presented by Suriname, the guideline needs to be more explicit and strengthened within the regulations, rules, programs, and policies of forestry and conservation of national biodiversity.

In Brazil, through research aims to identify the importance of some species for the forest ecosystem and the interaction with the forest environment. However, the investigations do not have a direct application yet in the regulations for sustainable forest management in the Brazilian Amazon region, so that the main mechanism of attention to this guideline are the laws that protect species considered at risk, vulnerable or especially important for traditional populations and communities.

GUIDELINE 45

Particular sites and areas of forest and other habitats that provide important ecological functions should be identified and special measures taken to ensure their protection.

Within any tropical production forest there are certain habitats or features, such as wetlands, salt licks and caves, that are of special importance for biodiversity. Such areas need particular attention in forest land allocation and forest management. Some conservation NGOs have attempted to develop criteria for identifying such high conservation value forests, but it has proven difficult to do so in ways that are suitable for all the local conditions and interests that exist in tropical forests. Attempts to develop national definitions of high conservation value forests are under way in several countries and are encountering similar difficulties. Ultimately, the identification of areas requiring special management should occur through normal processes of forest management planning (provided they meet the requirements set out in these guidelines).

PRIORITY ACTIONS

ALL RELEVANT STAKEHOLDERS SHOULD:

- Identify and give special protection to areas that are identified as providing important ecological functions
- Ensure that forest management in areas identified as providing important ecological functions is adapted to maintain these values

The quantitative analysis of the ACTO Member Countries presented a total of 87 legal instruments/regulators that are related in some way to the need to identify specific forest areas or other habitats that fulfill important ecological functions, where special measures should be taken to ensure their protection. The overall average score obtained for guideline 45 for the Amazonian region was 2.79 corresponding to the Guideline within the established score scale.

Chart 45 and Table 48 show that one country reached a degree of implementation 4, considered optimal, which is the highest average presented by Brazil (4.00), and the lowest was presented by Colombia (1.30). The total number of legal instruments mentioned by the countries for this Guideline was 87, so that Bolivia had the largest number and Ecuador the smallest, as presented in the following Table.

The national assessments from the ACTO Member Countries showed that there are mechanisms for identification, delimitation, and zoning of areas fulfilling important ecological functions or are important for biodiversity conservation, as well as for the protection of water and soil resources, those related to forest management as for other areas of importance.

In this sense, conservation and protection mechanisms were mentioned, mainly related to the zoning of areas of ecological importance, water resources and geological formations, also contemplating the protection of the native fauna and flora.

In addition, these areas can be contemplated in the normative and regulatory instruments of forest management, such as, the delimitation and establishment of areas of integral protection and areas of restriction of forest use, or take into consideration in a more macro level the forest areas of special value due to its ecological importance, for the ecosystem services offered, or also, because it is directly related to the traditional local populations (indigenous or not) that depend on these areas for their subsistence. In this aspect, instruments such as National Parks, Ecological Reserves, Ecological Corridors, Natural Heritage Reserves, among others were mentioned.

Every forest has its ecological importance and environmental and sociocultural values. However, some forests are being identified and characterized as forests of high value for conservation, which is a concept established by the Forest Stewardship Council (FSC), because these Values are extremely important due to various factors, such as the protection of water resources and the protection of endangered or threatened species of flora and fauna.

Guideline 45 focuses on the identification of these areas as a first step for the establishment of environmental protection and conservation mechanisms. In the event of forest exploitation in these areas, the adoption of

CHART 45 - IMPLEMENTATION DEGREE OF GUIDELINE 45 BY COUNTRY.

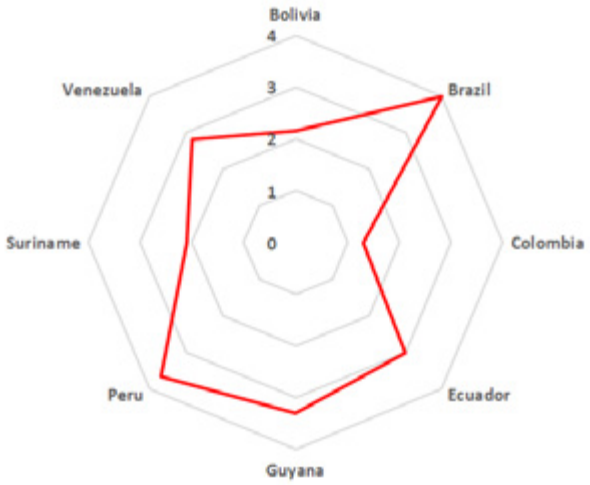


TABLE 48 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 45 BY COUNTRY.

	Specific sites and forest areas and other habitats that fulfill important ecological functions should be identified and special measures should be taken to ensure their protection.	Nbr. of Related Legal Instruments	Score (0 a 4)
P11D45	BOLIVIA	19	2,16
	BRAZIL	8	4,00
	COLOMBIA	10	1,30
	ECUADOR	4	3,00
	GUYANA	10	3,30
	PERU	9	3,67
	SURINAME	10	2,10
	VENEZUELA	17	2,82
	TOTAL	87	2,79

adaptive techniques to ensure the maintenance of ecological functions and local Ecosystem Services should be considered.

As previously mentioned, for proper attention to this and other guidelines related to this issue, the countries need to promote the ecological knowledge and biodiversity conservation, in addition to the establishment of constant mechanisms for the transfer of this knowledge and technologies to those responsible for forest management, to environmental authorities and also to civil society.

Although there are research studies related to these areas, the results and important information should be reflected and incorporated into national regulations and mechanisms that deal with forestry exploitation interventions, as well as for the zoning of production areas, aimed at biodiversity conservation and to the integral preservation.

In this context, **BOLIVIA** mentioned that there are maps of national forest areas that were characterized in 9 different forest types and are available for the planning of production and conservation activities. However, no information crossover has been conducted with research and studies generated on areas of high value for conservation, or even with the environmental information and knowledge generated in the country.

PERU also informed on the mechanisms in local legislation that oblige those responsible for forest management to identify and protect specific forest areas and other habitats of vital ecological functions, where exploitation activities are restricted, and, in other cases, its integral protection is determined.

Ecuador mentions that national legislation addresses ecosystems characterized as fragile allowing their identification and implementation of biodiversity conservation mechanisms, such as comprehensive protection or restriction of potential productive activities to generate negative impacts on ecological functions. The National Program "Sociobosques" stands, which is an initiative that promotes the maintenance of these areas and the provision of ecosystem services of which society in general benefits.

GUYANA, on the other hand, understands that the adoption of techniques of reduced impact by forestry initiatives, together with the effort to reduce the gaps in forest mapping and establish buffer zones in vulnerable places, are its main mechanisms of attention to this Guideline, in addition of the delimitation of protected areas, reserves and others.

On the other hand, **COLOMBIA**, despite existing mappings and conservation mechanisms at the macro level, the identification and mapping of areas of special interest to conservation are still scarce and are not directly incorporated into national laws.

BRAZIL, in addition to the strategies already mentioned of identification and zoning of areas of high conservation value, points out that to approve management plans they must comply with the obligation to adopt protection measures to mitigate the impacts of logging in areas identified as of high ecological value, and which are important for the conservation of specific habitats for certain species or areas of relevant ecological interest and that are within the MFA.

Within the framework of conservation strategies, Brazil adopted the National System of Units of Conservation (SNUC) with the identification and delimitation of areas of high value for biodiversity, divided into two main categories: comprehensive protection and of sustainable use. The indigenous lands and other traditional communities such as the Quilombolas are other national strategies for the conservation of these areas of natural forest in the Amazon.

GUIDELINE 46

The fire ecology and fire susceptibility of tropical production forests should be understood, and biodiversity considerations included in fire management measures.

Fire poses a significant challenge for biodiversity conservation and sustainable use, particularly in the face of climate change. Knowledge of the fire ecology of forests should be used in developing management plans. Such plans should identify fire-prone areas and specify the fire management practices to be applied, such as very low impact harvesting methods. The ITTO Guidelines on Fire Management in Tropical Forests provide an excellent basis for addressing fire related issues in management planning. Measures to manage fuel loads and fire risk should be a permanent part of the forest management process and fire suppression measures should be available in anticipation of fire events. Fire prevention is generally much cheaper than fire suppression and efforts to prevent fire are therefore a wise investment.

PRIORITY ACTIONS

FOREST MANAGERS AND OTHER RELEVANT STAKEHOLDERS SHOULD:

- Ensure that the fire ecology of a forest is understood and knowledge of the likely consequences of fire built into biodiversity conservation and sustainable use plans
- Use reduced impact logging to reduce fire risk and maintain unlogged buffers to protect fire-sensitive stands
- Use the ITTO Guidelines for Fire Management in Tropical Forests in developing forest management plans and measures to prevent and suppress forest fire
- Develop training programs for community organizations on integrated approaches to agricultural practice, forest management and the wise use of fire

The ACTO Member Countries submitted a total of 64 legal instruments/regulators that relate in some way to the ecological role of fire in the tropical production forests and the susceptibility of these forests to fires, which should include considerations relating to biodiversity in fire control and management measures. The overall average of the score obtained for guideline 46 for the Amazonian region was 2.17, which corresponds to Regular attention, within the established score scale.

It can be verified in Chart 46 and Table 49, that four countries reached a degree of implementation 3, considered good, which is the highest average presented by Venezuela (3.09), and the lowest was presented by Suriname (1.00). With respect to the legal instruments, it is observed that Bolivia presented the largest number while Ecuador the smallest, for a total of 64 instruments related to this Guideline according to what the Table to follow shows.

Guideline 46 deals with the importance of understanding the ecological role of fire in tropical production forests and the susceptibility of forests to fire. Therefore, considerations on the biodiversity conservation through the control and proper management of fires should be included.

These control and management measures are characterized by: understanding the ecological role of fire; the use of reduced-impact exploitation techniques that reduce the risk of fires, the maintenance of native forest depreciation zones, the use of ITTO's tropical forest fire management guidelines, and; training programs on integrated approaches to agricultural practices, forest management and the rational use of fire.

COLOMBIA mentioned that there are plans, regulations and institutional actions implemented at the landscape level that deal with the prevention and control of forest fires. Efforts are still needed

CHART 46 - IMPLEMENTATION DEGREE OF GUIDELINE 46 BY COUNTRY.

TABLE 49 – NUMBER OF LEGAL INSTRUMENTS AND IMPLEMENTATION DEGREE OF GUIDELINE 46 BY COUNTRY.

	It is important to understand the ecological role of fire in tropical production forests and the susceptibility of these forests to fire. Biodiversity considerations in fire control and management measures should be included.	Nbr. of Related Legal Instruments	Score (0 a 4)
P11D46	BOLIVIA	19	1,05
	BRAZIL	3	3,00
	COLOMBIA	9	1,22
	ECUADOR	1	3,00
	GUYANA	11	3,00
	PERU	8	2,00
	SURINAME	2	1,00
	VENEZUELA	11	3,09
	TOTAL	64	2,17

to strengthen the awareness process of the ecological role of fire, the possible negative impacts and the techniques that aim to reduce the risk of forest fires. However, according to Colombia, plans, regulations and institutional actions implemented at the landscape are dealing with the prevention and control of forest fires, but efforts are still needed to strengthen the awareness of the ecological role of fire, its possible negative impacts and also the existing techniques aiming to reduce the risk of forest fires. Additionally, those responsible for forest management at the local and regional level do not understand the ecological role of fire and do not take appropriate measures considering the consequences of fire on biodiversity conservation and sustainable use plans, as well as, it is not clear the use of reduced impact techniques of extraction to reduce the risk of fires and maintain areas of amortization.

In **BOLIVIA**, there are programs to promote the integrated management of fire, contemplating within the mechanisms and activities related to these programs, the biodiversity conservation and possible negative impacts that may affect ecosystems.

The national assessment of **ECUADOR** indicated that, despite the existing rules addressing this subject of forest fires, the cultural aspect of demolition and burning is maintained for the opening of new areas for agricultural activity. Based on the experiences of the "Amazon sin fuego" project (Amazon without fire) carried out in **BRAZIL** and **BOLIVIA**, **ECUADOR** is in the phase of implementing and establishing a forest fire program. **PERU** mentions that its regulations and laws address the subject of prevention and control of forest fires, characterizing the authorship of an-

thropic fires as very serious infractions. However, the risk and impact analysis of these events and the threats they pose to biodiversity are not incorporated yet into the control and management mechanisms of forest fires.

In turn, the legal regulations mentioned in the national evaluation of **VENEZUELA** oblige those responsible for forest management plans, to organize and develop activities for the protection and surveillance of the management units and thus neutralize any threat of forest fire, as well as prohibit the use of fire in the forests.

In **GUYANA**, severe sanctions in the forest regulations for the improper use of fire in the forests are applied, as well as the conduction of the reduced impact exploitation techniques must guide the actions of control and prevention of forest fires.

In the case of **SURINAME**, there is no mechanism for managing forest fires in the country, but no forest fires events have occurred for many years (the last was in the 60s). The monitoring actions, however, are carried out in association with projects and institutional organizations, such as the ACTO.

Finally, in **BRAZIL**, sustainable forest management plans must ensure that measures for prevention and protection against forest fires are adopted by those responsible for forest management. In addition, the techniques currently practiced are based on the use of reduced impact exploitation techniques (EIR) and the adoption of parameters and technical guidelines previously established by laws.

3.1.2 IMPLEMENTATION DEGREE OF THE GUIDELINES IN THE AMAZON REGION

According to the qualitative analyzes provided by ACTO Member Countries synthesized in this document, there is a large amount of detailed and valuable information to analyze the regional context and the wealth of experiences registered and considered in each one of the forty-six guidelines presented.

There is evidence of many important and interesting actions to promote biodiversity conservation and sustainable use in tropical timber production forests, not only through the creation of legal instruments but also in practice.

However, looking at Charts 47a and 47b most of the guidelines presented a regular degree of implementation, inserted in the scale 2. According to the methodology used, this happens when the guidelines are covered or managed by the legal instrument, in a range of 26% to 50%. This corresponds to the analysis in the Amazonian region, for all the eight ACTO Member Countries.

Still, along the line of the radial chart (Chart 47a) it may be noted that many guidelines are near grade 3, considered good, and that according to the methodology, this happens when the guidelines are covered or managed by the legal instrument among 51 % and 75%.

However, in a universe of forty-six guidelines, only three reached this degree of implementation in the Amazon region, considering all the eight ACTO Member Countries. Guideline 3, with 3.13; Guideline 7, with 3.02; Guideline 31, with 3.00.

Specifically, it was evaluated as good, the fact that in the legal and normative frameworks that govern the concession and use of lands for forestry production, the following guidelines were well reflected, the international commitments for the conservation of genes and species (guideline 3); national land-use planning processes and the explicit focus on forest and environmental laws on conservation and sustainable use of forest biodiversity issues at all spatial scales (guideline 7); and the existence of special preventive measures to protect populations of more valuable timber

species and maintain genetic variability among these species (guideline 31).

National processes of territorial management and its explicit focus on forest and environmental laws regarding the aspects of the conservation and sustainable use of forest biodiversity at all spatial scales (guideline 7); and the existence of special preventive measures to protect populations of more valuable timber species and maintain genetic variability among these species (guideline 31).

As seen during the analysis, although there are a lot of legal instruments and good initiatives and efforts from so many actors, there is still a long way to go, there is much to improve, not only in legal instruments, regulations and public policies but also especially in its practical implementation, so that good rates of conservation and sustainable use of biodiversity in tropical timber production forests are achieved.

CHART 47A. DEGREE OF IMPLEMENTATION OF THE GUIDELINES IN THE AMAZONIAN REGION OF ACTO MEMBER COUNTRIES.

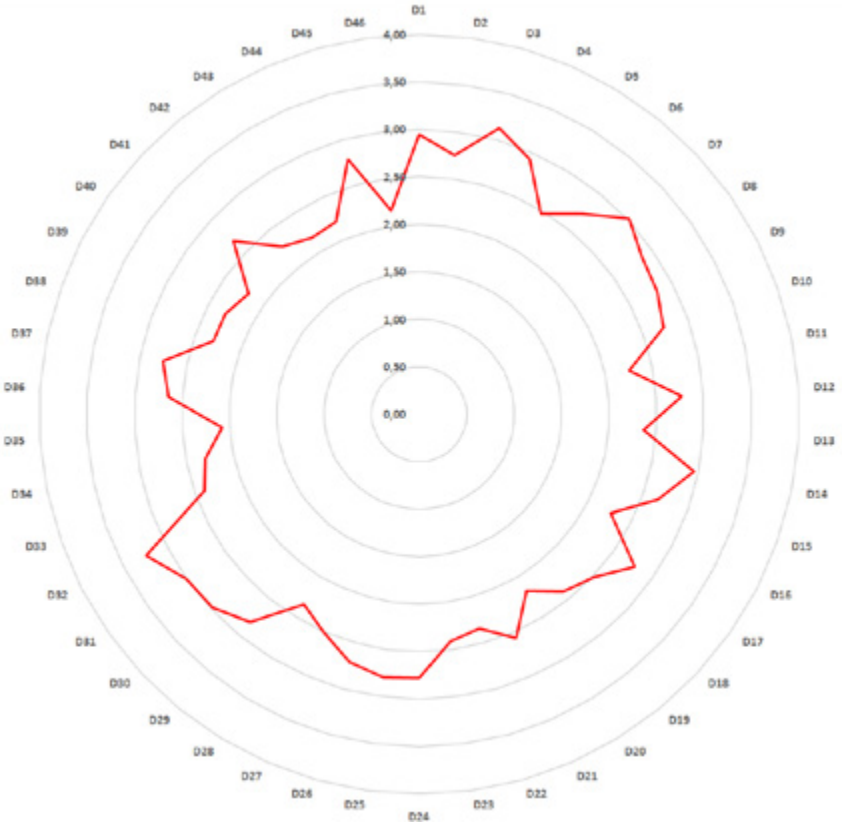


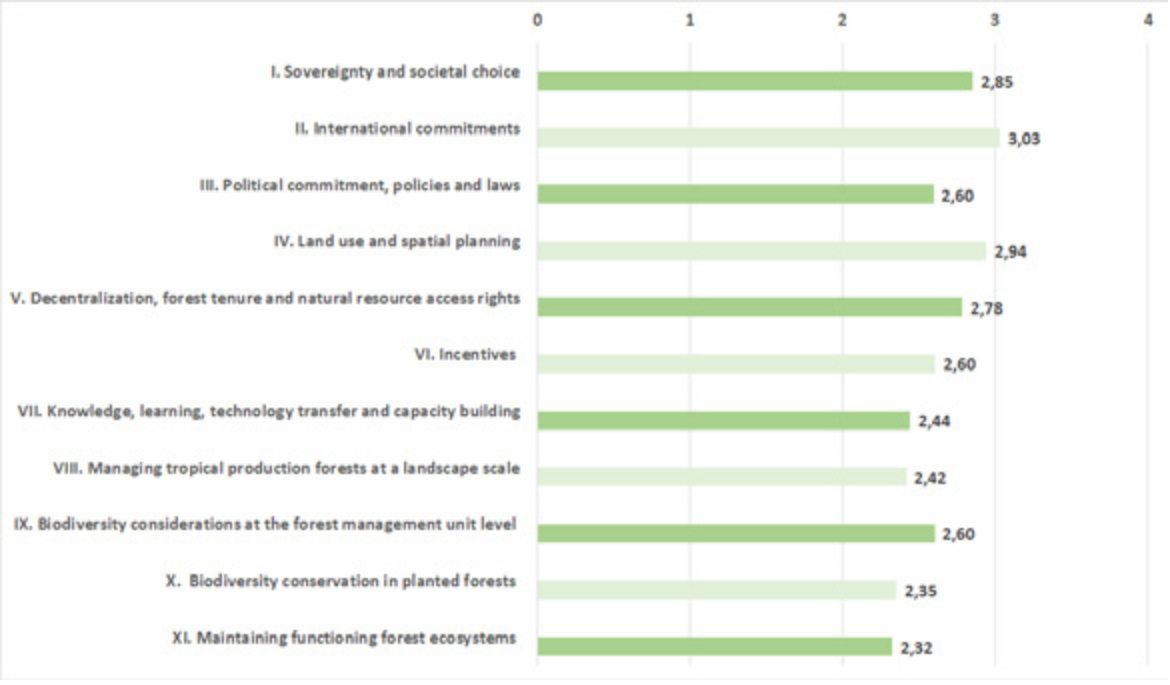
CHART 47B. DEGREE OF IMPLEMENTATION OF THE GUIDELINES IN THE AMAZONIAN REGION OF ACTO MEMBER COUNTRIES.

3.1.3 IMPLEMENTATION DEGREE OF THE PRINCIPLES IN THE AMAZON REGION

After obtaining the average of each Guideline reflected in the legal and regulatory instruments, the respective weighting was carried out and the average was obtained by Principle (Chart 48), and finally by category of principle (Chart 49).

Of the eleven principles, only one reached a degree of implementation 3, considered good, being this the principle II, which deals with the established international commitments and in which the Member Countries of the ACTO participate. The other Principles reached degree 2, considered regular, but most of them have an ascending degree, between regular and good, according to the scale of evaluation adopted, as presented in Chart 48.

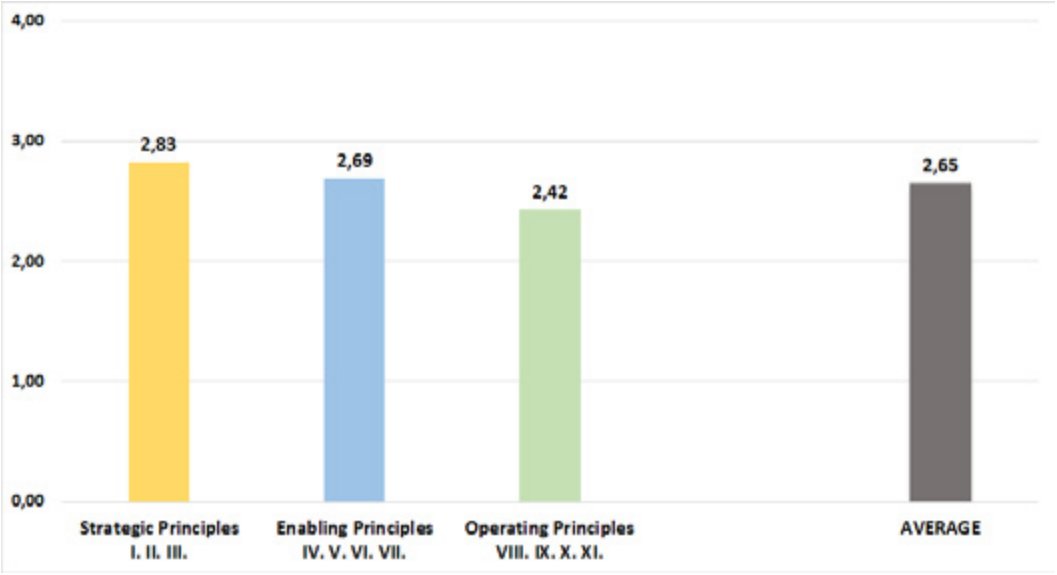
CHART 48 –DEGREE OF IMPLEMENTATION OF THE PRINCIPLES IN THE AMAZON REGION OF THE ACTO



When performing another average weighting, by category, of the principles (strategic, enabling and operative), a degree of implementation 2 is obtained, considered regular, being 2.65 the average of the three categories presented in Chart 49.

The results indicate that, despite the implementation of measures and tools aimed at integrated forest harvesting for biodiversity conservation, it is necessary to improve the degree of attention to the principles and guidelines of the Amazon region, considering the eight ACTO Member Countries.

CHART 49 – DEGREE OF IMPLEMENTATION BY CATEGORY OF THE PRINCIPLES IN THE AMAZON REGION OF THE ACTO MEMBER COUNTRIES.



CONSIDERATIONS AND CONCLUSIONS

The analysis carried out in the Amazonian region by the ACTO Member Countries concerning the activities within the ITTO/IUCN Principles and Guidelines for the Conservation and Sustainable Use of Biodiversity in Tropical Timber Production Forests, is part of the first phase of the Project Building capacities of ACTO Member Countries ecologically responsible forest management and biodiversity conservation in managed forests of the Amazon". This is the first step for the collection of information about the Amazon, guided by the ITTO / IUCN Guidelines.

During the analysis process the Member Countries participated in the research and preparation of the National Assessments. Important information was collected, mainly related to the current forestry situation, the implementation of the guidelines, successful cases, and the identification of training centers in forest management and biodiversity conservation.

The results obtained in the Project's Phase 1 (Evaluation) provided inputs to guide the preparation of the Training Methodological Proposal along with the preparation and implementation of the Training Modules for the three pilot courses that will address ecologically responsible forest management and biodiversity conservation in the Amazon region. The project's Phase 2 (Implementation) will address the main difficulties and threats identified in the regional evaluation.

Under the scope of this research and the amount of detailed information provided by ACTO Member Countries, these assessments and the results presented by Guideline hereby are significant, identifying differences regarding the approach, regional context, and the wealth of experiences registered and considered individually.

These national assessments can provide general, up-to-date and official information related to the conservation of forests and biodiversity within the framework of ecologically responsible forest management in the Amazon Region of the eight ACTO Member Countries, as well as to prove the practical use of the guidelines, identify obstacles that may limit its application and observe some good experiences that have been carried out by the countries, especially those mentioned, mostly, by Ecuador, Peru, Brazil and Venezuela.

Eight professionals in the environmental and forestry areas from each of the countries were responsible for data and official information collecting, systematizing, synthetizing and analysis. Subsequently, the Forest Engineers Erilene Lima Silva and Otávio Marangoni grouped, systematized, synthesized and analyzed the resulting information, evaluating by guideline each one and the whole ACTO Member Countries, and finally presenting the degree of implementation of the guidelines in the Amazon region.

During the preparation of this document, specifically the guideline analyzes, diverse and rich experiences are described, as well as recommendations that, if they are to be applied, together with the various suggestions for priority actions, could positively affect and strengthen the Sustainable Forest Management of the Amazon Region with a multi-sectoral approach and at different scales of intervention.

It is observed that in many countries the number of legal, normative, regulatory and political instruments related to the use of natural resources (with emphasis on the forest) and conservation is relatively high, but the degree of individual implementation of the guidelines was considered bad or regular. This fact shows that national laws still need to be adapted to the concepts, techniques, and mechanisms of forest management promoting biodiversity conservation and, in many cases must more explicit in these instruments.

Another important observation is that the strategy found in the regulations, regarding biodiversity conservation, are often prohibitive or require more complex mechanisms and techniques that are often directly related to incremental costs. Therefore, it is necessary to create mechanisms and measures guaranteeing to those responsible for forest management, means to apply the techniques that take into consideration the conservation, as well as somehow cover these costs.

It is evident that the process of research, studies and to obtaining important information for the biodiversity conservation in tropical timber production forests needs to be fostered and strengthened. It is considered a fundamental step for the elaboration and implementation of mechanisms devoted to biodiversity conservation and adapt the intervention techniques and processes related to forest use.

Also, it is still necessary to guarantee that the results of research, studies and programs dedicated to forest use and biodiversity conservation are explicitly reflected in forestry laws and regulations (with emphasis on the Management Plan/Use), for example, when they are part of forestry planning, zoning and in the establishment of protected areas, and in the techniques of reduced impact adopted, among others.

In addition to providing information, it is necessary to create or strengthen means to transfer technologies and information reaching all stakeholders related to forest management and biodiversity conservation in timber production forests.

The forest management plan (also called a forest use plan) is the main instrument for forest management in the Amazon region, which regulates and guides the planning and implementation of practices that reconcile forest use with biodiversity conservation.

Accordingly, there are many considerations and requirements for the implementation of forest exploitation initiatives, with emphasis on Reduced Impact Techniques that directly contribute to the attention of what was stated in the guidelines.

Another mechanism mentioned by the countries to complying with the guidelines is the Forest Certification, through the establishment of principles, criteria, and indicators. This voluntary mechanism is a supporting tool because it considers and guides towards sustainable forest management and the biodiversity conservation in the managed forests.

Moreover, in the preparing process of the guideline's priority measures were identified, containing in turn, important guidelines and recom-

mendations, presented for each of the guidelines analyzed.

Most of the evaluations observed the texts contained in the Guideline during the analysis, however, some countries responded in accordance with the suggested priority measures for each of the guidelines. It may be observed in the qualitative detail that countries do undertake some actions that are referred to in legal and/or political instruments, which made it possible for most of the guidelines to reach a degree of regular implementation (2), some approaching to good (3).

That is, there are several actions being executed which are expressed in the degree of attention, whose general application average was 2.65. It is believed that, if the suggested priority measures are entirely adopted and implemented, they will help to observe the principles and to put the guidelines into practice at a higher level of attention, thus reaching the optimum level of implementation.

As observed, the countries of the Amazon region are far from achieving full compliance with the eleven principles and forty-six guidelines. However, it is encouraging to know that part of the road has already been traveled, that there are many interesting experiences carried out by the Member Countries, and that it is important to exchange this information, add efforts and implement many more actions to optimize the biodiversity conservation in tropical production forests.

In this sense, the Member Countries of the ACTO have a clear and detailed orientation for the attention to the guidelines, considering the activities related to forest management and biodiversity conservation in tropical timber production forests, for the capacity of ACTO Member Countries in ecologically responsible forest management and biodiversity conservation in managed forests of the Amazon.

RECOMMENDATIONS

Considering the results of this first approach to the ITTO/IUCN Guidelines for the Conservation and Sustainable Use of Biodiversity in Tropical Timber Production Forests, some initial recommendations are detailed in this document:

1. To expand the studies of the implementation of the ITTO/IUCN Guidelines, at the level of priority measures, using the measurement index of 0 to 1 to obtain the real implementation percentage to define and identify actions, programs, laws, regulations and successful policies in the ACTO Member Countries, that may assist the countries showing a low degree of attention to the Guidelines analyzed;

2. Perform the same analyzes of this study, that was presented to the group of the eight ACTO Member Countries, in each of the countries individually, analyzing the degree of implementation of each of the guidelines by country. Hence, obtaining a clear scenario according to the degree of national implementation, to make even better decisions thereof, to improve the processes to reach better rates of biodiversity conservation and sustainable use in tropical timber production forests;

3. Ensure research on biodiversity conservation in tropical timber production forests, at the local level of the forest initiative, identifying and studying species and habitats of particular importance to biodiversity conservation. Also, create permanent means to disseminate information and ensure that it is incorporated into the rules and regulations of forest management (platforms, database, dissemination of research results, among others) and also reach those in charge of forest management;

4. Encourage participatory spaces that include local communities in decisions related to forest management and the identification of important species and habitats for biodiversity conservation. Also, through this mechanism, ensure that the traditional knowledge of these populations is present in the planning and implementation of forest use activities;

5. Ensure the application of the Reduced Impact Techniques in the forest management actions, supported by current research on biodiversity conservation and sustainable forest management;

6. Strengthen the monitoring actions of forest use activities with the aim of providing important information and knowledge that can improve the techniques used;

7. Considering the diversity and richness of experiences and forestry activities in the ACTO Member Countries, identify the great potential for knowledge and experiences exchange among the countries, as a way to improve the attention to the guidelines analyzed, besides of promoting spaces for exchanging experiences directed towards responsible forest management and biodiversity conservation in the Amazon region.

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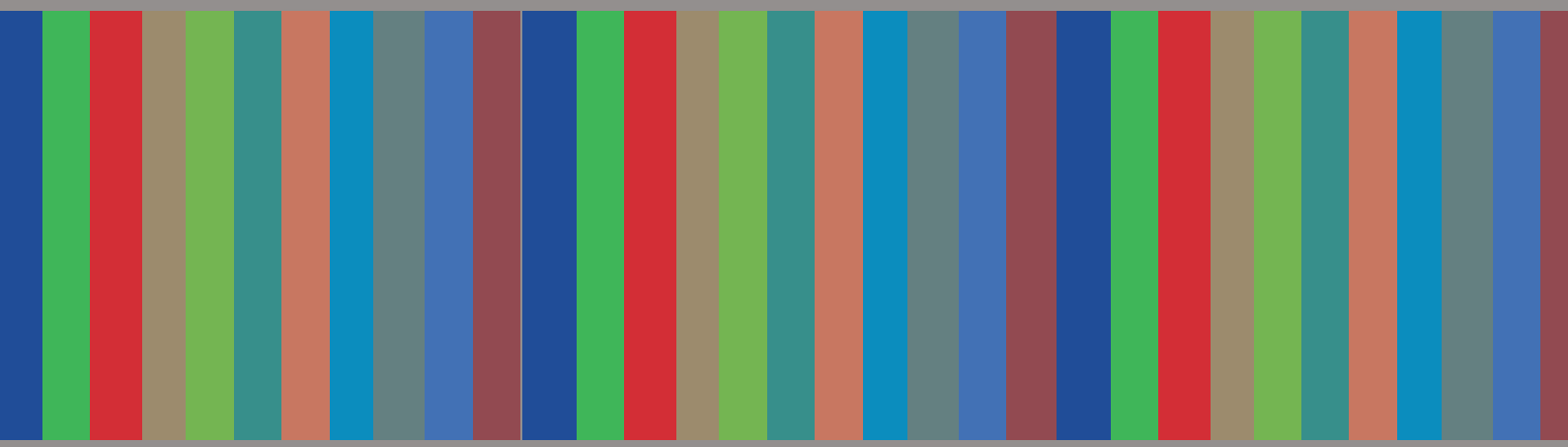

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