

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,400

Open access books available

174,000

International authors and editors

190M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Chapter

Knowledge and Understanding of the Forest Peoples and the Protection of Their Intangible and Material Heritage in the Context of the Technological Society

Vitor Hugo Nunes Villas Boas, Marco Anthony Steveson Villas Boas and Gustavo Paschoal Teixeira de Castro Oliveira

Abstract

The multiple revolutions of the last 300 years have produced a technological development, that has materialized in a process of socioeconomic and cultural mutation which has ahead paths to be trodden that can promote benefits to humanity and the environment or lead to its destruction. The peoples of the forest, among them the indigenous, bring with them the knowledge that is at risk, both of disappearing and of being appropriate for purposes other than those currently used. This chapter sought, from an exploratory perspective and from a qualitative approach, to present some reflections to the problem involving which measures, and philosophical conceptions should guide the protection of knowledge of forest peoples and the biodiversity in which they are inserted. For that, aspects related to the current national and international regulatory framework directed to environmental protection were analyzed. In addition, it also analyzed aspects related to the economic value of biodiversity and knowledge of forest peoples, as well as the need to use new philosophical assumptions that integrate human ecology in its individual dimension, the environment, and social relations that involve human subjectivities, to present a new look, a new way to sociopolitical and legal treatment, the protection of these goods.

Keywords: knowledge of forest peoples, environmental protection, technological society, indigenous knowledge, biodiversity, fundamental rights, indigenous rights

1. Introduction

The indigenous peoples of America have accumulated knowledge and experiences for over 20,000 years, some of which have been shared with traditional populations in the last five centuries, which gives them an extraordinary wealth of information about nature, including the association of plants and other natural elements for the

production of medicines and substances for pest control in agriculture, in addition to a diversity of beneficial applications for society, which has contributed to the development of scientific research in favor of people and nature.

In the midst of a true biotechnological revolution, which has brought to light the economic potential existing in genetic resources and their commercial value, greed and ambition have begun to endanger the intellectual property of these communities, as well as the natural environment where they live. For this reason, the protection of biodiversity against piracy and the regulation of procedures for access to these resources have become extremely relevant today, a factor that has led the United Nations to worry about the issue and move forward in establishing a global framework, as deliberated on October 29th, 2010, in the Nagoya Protocol, in Japan.

In this context, the risk of biopiracy has increased considerably with the use of associated knowledge in scientific research developed in a network, in the context of digital globalization that has interconnected the planet, broken the physical borders, eroded sovereignty, and impacted the people and, especially, the neediest and most vulnerable communities.

Moreover, the dominance and use of artificial intelligence by the developed countries presents itself as another factor of concern for vulnerable peoples and communities in Latin America and Brazil, who do not live according to Western traditions and practices and have neither developed nor used disruptive digital technologies.

The new instruments of appropriation of knowledge and expertise of the forest peoples and the material fragility of the States in controlling the tangible and intangible heritage that complex biomes—such as the Amazon—comprise, lead to the following question: Aiming at the implementation of new forms of environmental protection, which should take into account, besides biodiversity, the human factor, what measures and philosophical conceptions should be developed for the implementation of a new model of environmental protection inserted in the context of the technological society?

In the search for answers, this chapter in the following three sections presents reflections that are essential to the understanding of the current regulatory and epistemological stage directed at protecting the knowledge and expertise of the forest peoples, as well as the biodiversity where they live.

The following section, from an exploratory perspective and a qualitative approach, outlines the current regulatory framework that governs the instruments for protecting biodiversity and knowledge of the forest peoples, pointing out the meetings and mismatches of Brazilian and international regulations in relation to the events generated by the biotechnological revolution we are currently experiencing.

In the third section, aspects related to the character and economic value of knowledge and expertise of the forest peoples, especially the indigenous ones, will be presented, and how they have been appropriated by Western civilization, still under a modern liberal perspective, putting at risk the existence of biodiversity, the forest peoples, and humanity.

Afterward, in the fourth section, some aspects related to the possibilities of conciliation of the digital revolution with the fundamental rights of the forest peoples will be presented, from a new philosophical conception, so that, through it, instruments can be sought to understand the dynamics of the complexity that involves the multiple existing relations between human beings in their individual and collective dimension, social relations, and the environment in all its amplitude.

2. The protection of biodiversity and the traditional knowledge of the forest peoples

The knowledge, practices, management, and experiences accumulated for more than 20,000 years by indigenous peoples and traditional populations, during the last 500 years, give Brazil and Latin America, in particular, international recognition on the importance of preserving these practices, rituals, and techniques for natural resource management, as well as for the management of territories and traditional lands.

The traditional knowledge of these communities allowed the survival and development of these peoples in the midst of the mega-diverse nature of our region, contributing, in the same way, so that the Europeans who came to the American continent could also survive in totally unknown environments and implement their colonial projects.

The recognition of the ecological, scientific, cultural, and economic value of these practices was drawn more sharply from the 1989 International Labor Organization Convention No. 169, culminating in the United Nations Declaration on the Rights of the Indigenous Peoples (UNDRIP) in 2012.

However, before the proclamation of UNDRIP, the Convention on Biological Diversity (CBD), signed at the close of Eco-92, in Rio de Janeiro, materialized in its text the principles of sustainable development, precaution, the polluter pays, social participation in environmental management, access to environmental information and the obligation of state intervention, and brought in the Principle 22 an important clause that included indigenous and traditional populations in the management of the environment and development, and recognizing and valuing their cultures and traditional practices as a preponderant factor for environmental management within the criteria of sustainability.

This inclusive posture has opened up opportunities for the preservation of the climate forests and other biomes of the Brazilian indigenous lands, not only in the conservation of biological diversity, but also in the possibility of obtaining material and immaterial benefits for the traditional knowledge they possess, much of it already used in the pharmaceutical industry, for example, since the CBD and the Brazilian Legislation have honored the sustainable use of biological diversity and the fair and equitable sharing of the benefits derived from the use of genetic resources, which fit perfectly with the practices of the indigenous communities.

Brazil together with Colombia, Mexico, and Indonesia is one of the countries considered to be mega diverse, and ratified the CBD through the Decree no. 2 of 1994, internalizing it through the Executive Decree no. 2519 of 1998, followed by the Provisional Measure no. 2186-16, of 2001¹, which instituted the legal regime of the access to genetic resources and benefit sharing provided in the CBD and created the Genetic Heritage Management Council (CGEN).

Several decrees, resolutions, technical guidelines, and deliberations of CGEN were edited, in this interregnum, in order to make the CDB effective in Brazil, whose objectives combine preservation and development, when they established the fair and

¹ Provisional Measure No 2186-16, 2001, it was revoked by law no. 13,123 of May 20th, 2015, which now regulates item II of § 1 and § 4 of Art. 225 of the Federal Constitution, Article 1, *Article 8(j)*, *Article 10(c)*, Article 15 and §§ 3 and 4 of Article 16 of the Convention on Diversity Biological promulgated by Decree No. 2519 of March 16, 1998; there is also access to genetic heritage, protection, and access to associated traditional knowledge and the sharing of benefits for conservation and sustainable use of biodiversity.

equitable division of benefits from the exploitation of genetic resources and rights over the transfer of knowledge and technologies, alongside the conservation and sustainable use of biological diversity.

As a result of the commitments made by Brazil in Nagoya, a revision of the Provisional Measure n° 2.186-16, of 2001 was sought to stimulate “[...] solidarity among nations, establishing legal mechanisms that allow the use of biological resources in an economically fruitifiable way, preserving, recognizing, and valuing associated traditional knowledge [...]” (p.72), to preserve, conserve, and disseminate biological diversity and at the same time obtain economic benefits and leadership of new markets [1].

The regulation on biodiversity in Brazil advanced with the edition of Law no. 11.105, of March 24th, 2005 (Biosafety Law), which created the National Biosafety Council (CNBS) and restructured the National Biosafety Technical Commission (CTNBio), whose objective is to establish safety norms and inspection and control mechanisms on “[...] the construction, cultivation, production, manipulation, transport, transfer, import, export, storage, research, commercialization, consumption, release into the environment and disposal of Genetically Modified Organisms (GMOs) and their derivatives [...]” [2].

Despite the advanced technical-legal content, establishing limits for genetic engineering, it was forgotten; however, the participation of the traditional communities in the CTNBio, through FUNAI, which could better represent the interests of the indigenous people regarding access to and use of their traditional knowledge and the biological diversity existing on their lands.

In analyzing this issue, Juliana Santilli [3] noted that under the CBD and Provisional Measure no 2. 186-16, of 2001, there was “a clear distinction between the genetic resource and the biological resource that contains it,” recalling that the indigenous usufruct over the lands they occupy is exclusive over their natural resources, except in relation to water and mineral resources, whose limits are outlined in §§ 2° and 3° of the Constitution, reason why the access to genetic resources in these areas depends on prior and informed consent with subsequent benefit sharing ([3], pp. 187–188), in the form of art. 16, § 9°, of the mentioned Provisory Measure no 2.186-16, of 2001.

In that time, scientific research has corroborated the understanding that the traditional knowledge of the indigenous people, associated with biodiversity, including precious information about the respective biota, notably about the classification and nomenclature of the specimens and about food, pharmaceutical, and agricultural properties, as well as hunting and fishing not known by the non-Indians, constitute a real database of scientific data of incalculable value, which must receive the necessary legal protection against biopiracy, in view of the significant interest of the biotechnology industry, especially of chemical and agricultural products.

Although there is no unequivocal legal concept of what biopiracy is, sometimes presenting itself in a broader form, sometimes more restricted, since it is still under construction, Santilli [3] clarifies that “[...] biopiracy is the activity that involves access to the genetic resources of a given country or to traditional knowledge associated with such genetic resources (or both) in disagreement with the principles established in the Convention on Biological Diversity [...]” (pp. 198–199).

The value of traditional indigenous knowledge about the biological diversity that surrounds it, in this context, transcends material and utilitarian limits, since it integrates knowledge of symbolic and spiritual value, in a peculiar way of life, in perfect integration with the forest, since both the knowledge process of combining different

specimens for a certain purpose (possibility of direct use of traditional knowledge) and that applied in the manipulation and production of varieties of the same species, such as the multicolored ear of corn for making handicrafts (possibility of indirect use), deserve protection ([3], pp. 195–196).

A legal regime for the protection of traditional knowledge associated with biodiversity is extremely necessary to the significant interest of the industry, which in the past decades has unduly appropriated this knowledge with or without the consent of the communities, and without informing the countries of origin, expressly contradicting what is determined in art. 8, j, of the CBD, as occurred in the cases of *neem*, *ayahuasca*, *quinua*, and the cupuaçu seed, and similarly has been occurring with the *cunani* and *tipir* of the Wapixana Indians in the State of Roraima [4].

But in the midst of this biotechnological revolution, which has brought to light the economic potential of genetic resources and their commercial value, greed and ambition have begun to endanger the intellectual property of these communities, as well as the natural environment in which they live. For this reason, the protection of biodiversity against piracy and the regulation of the procedures for access to these resources have become extremely relevant today, a factor that has led the United Nations to worry about the issue and move forward in establishing a global framework, as deliberated on October 29th, 2010, in the Nagoya Protocol on Access and Benefit-Sharing (ABS).

The new Forest Code, in this sense, included, among environmental services, “[...] the conservation of biodiversity” and “the valorization of cultural and traditional ecosystem knowledge [...],” in the terms of art. 41; but the insufficient regulation remitted the task to future legislation, within the scope of the Brazilian indigenous law.

In addition, Law No. 13,123, of May 20th, 2015, regulated the operation of the Convention on Biological Diversity in Brazil, providing significant advances when dealing with the protection of associated traditional knowledge and the respective biotas, creating a protective system for the preservation of biodiversity and its scientific use, in which access to traditional knowledge depends on the prior informed consent of the respective population, which will be entitled to the fair distribution of the benefits arising from them.

In the scope of the referred Law No. 13,123 of 2015, CGen was created, the competent body to, among other attributions, establish: “(a) technical standards; (b) guidelines and criteria for the preparation and fulfillment of the benefit sharing agreement; and (c) criteria for the creation of a database for the registration of information on genetic heritage and associated traditional knowledge” [5].

The creation of the database for the registration of information on genetic heritage and associated traditional knowledge, despite providing more control of the State over such information, especially with regard to the fair distribution of gained benefits, also opens perspectives of vulnerability to attacks by biopirates, even with all the restrictions and precautions established in its articles 11 and following.

In March 2021, Brazil ratified the Nagoya Protocol, reaffirming its commitment to the Access and Benefit Sharing of the Convention on Biological Diversity (CBD). However, in the international trade, despite the convergence of wills for the protection of the rights of the traditional and indigenous communities over associated traditional knowledge, the appropriation of intellectual property by the biopirates has been occurring in the field of international trade, through the registration of patents, an internationally widespread legal institution that guarantees intellectual property and the exclusive exploitation of the product or process for a certain period of time, after which it falls into the public domain.

Thus, although the CBD and this entire normative framework call for the cooperation of the signatory countries in guaranteeing the intellectual property rights of traditional knowledge and the rights of the biodiverse countries, in its article 16.5, the initiatives at the international level to make the principles of the CBD compatible with the provisions of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), of the World Trade Organization (WTO), whose article, 27.3 (b) is the result of an agreement between the United States and the European Union, are not yet sufficient or effective:

O acordo Trips é um dos pilares do regime do comércio global, que define padrões de proteção para os direitos de propriedade intelectual dos 146 países membros da OMC, responsável pelos maiores acordos multilaterais de comércio. A OMC opera segundo o princípio de um sistema liberal de comércio internacional baseado na não-discriminação e na eliminação de barreiras comerciais. O artigo do acordo Trips que mais tem suscitado controvérsias, em relação aos princípios da CDB, é o 27.3 (b), que permite que os países membros excluam do patenteamento plantas e animais, mas determina que eles estabeleçam proteção patentária para microorganismos e procedimentos não-biológicos ou microbiológicos. Determina ainda que os membros devem outorgar proteção a todas as variedades de plantas mediante patentes, por meio de um sistema eficaz sui generis ou de uma combinação entre os dois [3] (p.2006).

It is worth mentioning that the biodiverse countries have requested the WTO to change art. 27.3, “b;” however, the discussions on the subject have been constantly postponed, because the northern countries are not interested in this situation, which has caused legal instability and the possibility of a violation of the rights of the mega-diverse countries and their traditional populations.

The website of the World Trade Organization [6] informs that the issue still depends on the convergence of wills in the construction of an agreement that reaches a satisfactory level of security against biopiracy, as it appears from the actions of the Negotiations Committee, still developed in July 2008², despite the fact that the developing countries on the occasion of the WTO Ministerial Conference in Hong Kong, in December 2005, supported the need for amending the TRIPS Agreement [7].

As a result, until a stable legal situation that guarantees the rights of the indigenous populations in the international sphere is not reached, their traditional knowledge will be at risk, which constitutes a factor for the exclusion of these communities from international policies aimed at implementing the CBD, since the latter does not provide for any sanction for noncompliance with its precepts, while there is such a provision in the TRIPS Agreement.

Furthermore, the dominance and use of artificial intelligence by developed countries present itself as a cause for concern for vulnerable peoples and communities, who have not yet developed or used disruptive technologies.

In this aspect, it is necessary to point out that the development of the indigenous and traditional communities is not in conformity with the development implemented by liberalism and global capitalism that has taken control of the World Wide Web.

² Article 27.3 (b) does not recognize the conditions for access to genetic resources and the distribution of benefits established by the CBD. Such mechanisms should be introduced into the Agreement to ensure the distribution of benefits and authorisation of access to genetic material. Article 27.3 (b) has generated, especially among developing countries, enormous concerns, and represents one of the most controversial issues to be discussed at WTO meetings [6].

Often, it should be stressed, the dialog established at the intra- and intercommunity digital level, especially with Western society, does not have the community legitimacy and traditional forms of decision making of the indigenous peoples, who in many situations are still literally isolated, deep in the forest, without contact with Western men and their technologies.

These difficult factors, besides excluding the forest peoples, and also the isolated peoples from the debate, bring legal insecurity and the possibility of injury to their rights, and also to national sovereignty, given that the sociocultural and mega bio-diverse wealth of countries like Brazil have already conquered important positions of prominence and technical-scientific value that can result in monetary dividends far superior to the practices of extractive exploitation and cultures developed in the forests by the productive sectors of Western society.

3. The economic and environmental value of traditional knowledge of the forest people

At the same time, payment for environmental services also presents itself as an important strategy for environmental preservation, in order to avoid future deforestation, based on the polluter-pays principle and its corollaries of user-pays and provider-pays.

The increase in global warming around 0.6° Celsius during the twentieth century, with projections for another 1.4° to 5.8° by the end of the twenty-first century, diagnosed by renowned scientists and the Intergovernmental Panel on Climate Change (IPCC), led the United Nations to hold in Kyoto, Japan, the United Nations Framework Convention on Climate Change (UNFCCC), in an attempt to minimize, by means of objective Greenhouse Gas (GHG) reduction targets, the causes of this planetary phenomenon.

In Kyoto, it was agreed, under the terms of art. 12 of the Protocol, based on the sub-principle of prevention and the polluter pays principle, the creation of the Clean Development Mechanism (CDM), a legal-economic mechanism in which “[...] the foreign economic agent that needs to reduce its GHG emissions, may acquire carbon credits, called certified emission reductions (CERs) [...],” implementing a CDM project in the national territory through a local economic agent that receives the project on its property ([8], pp. 66–67), or according to Blanca Mimbrero [9]:

[...] un contrato voluntario entre un proveedor de uno o varios servicios ambientales explícitamente definidos (o un uso de la tierra que asegure dicho servicio) y un beneficiario que retribuye por ellos (un comprador), y se retribuye sólo si estos servicios ambientales son efectivamente provistos –principio de condicionalidad—y si son adicionales a los ya existentes antes de implantar el PSA (adicionalidad) (p.138).

To avoid deficits and foster negotiations around carbon credits, the UN created the Intergovernmental Negotiating Committee (INC) for the FCCC on May 9th, 1992 in New York, the year in which the Kyoto document was opened for signature during the Eco-92 in Rio de Janeiro, being signed by 185 countries.

Brazil is a signatory to the FCCC, promulgated by Decree n° 2.652, of August 1st, 1988, which is part of the Brazilian legal framework for controlling atmospheric pollution, together with Law 6.938, of 1981 (National Environmental Policy Law); Decree 99.274, of 1990 (Regulates Law 6.902, of April 27th of 1981, and Law 6.938, of

August 31st of 1981, that provide, respectively, on the creation of Ecological Stations and Environmental Protection Areas and on the National Environmental Policy, and makes other provisions); CONAMA Resolution n° 5, of 1989 (National Air Quality Program (PRONAR), in addition to Resolution n° 3, of 1990, which establishes the primary and secondary air quality standards; Resolution n° 237, of 1997, which regulates environmental licensing ([8], pp. 38–39).

Since the Climate Change Framework Convention held in Bali, in 2008, and Copenhagen, in 2009, among others, the interest in implementing REDD in favor of developing countries that suffer from deforestation and forest degradation processes has been the keynote.

In this regard, it is necessary to clarify that the contract for the implementation of a CDM project is governed by private international law, as it is an instrument that establishes international obligations for the parties to the contract. However, the principle of the autonomy of the will allows the parties to choose the legal system applicable to the contractual relationship, which finds contours in the social function of the contract and the supremacy of public policy, in the precise terms of art. 421 of the Brazilian Civil Code. The silence of the contract refers to the Private International Law for a solution regarding the legal system to be applied, which, in the terms of the Mexico Convention, points to the “law of the country in which the specific part of the contract related to the conflict will be executed. In Brazil, the National Congress is still examining the terms of the convention in the PL no. 4.905, of 1995, in the meantime, the rule of art. 9 of the Law of Introduction to the norms of Brazilian Law (LINDB) applies, which, in the words of Lorenzoni Neto [8],

[...] disciplinará qual a lei aplicável ao contrato internacional firmado por brasileiro ou executado em território nacional, estabelecendo que, quanto à formalidade da obrigação, aplica-se a lei do local em que irá ser cumprida (art. 9º, § 1º). Quanto ao restante da relação contratual firmada, aplica-se a lei do domicílio do proponente, observando-se a também cogente norma do art. 17 da LICC³, que considera ineficaz qualquer contrato que viole normas brasileiras de ordem pública, a soberania brasileira e os bons costumes (p. 83).

So, despite global and internal vagueness, it is theoretically already possible to enter into contracts of this nature and implement the CDM in the Brazilian legal system, under Law No. 13,123 of May 20th, 2015, even in the case of the indigenous communities, gradually overcoming questions about the absence of specific provisions in Decree No. 7747 of 2012 (PNGATI) on the sale of environmental services internationally.

Because it is a new institute, which is slowly gaining consistency in the Brazilian normative body, there is still a lot of caution in dealing with the matter, especially due to episodes reported by the national press in which large multinational companies, supposedly malicious, are using mega carbon sales contracts, signed with the Indians, bypassing the laws and Brazilian authorities, in order to appropriate Amazon flora species.

In the Brazilian legal system, the Forest Code (Law no. 12,651, of May 25th, 2012), modified by Law no. 12,727, of October 17th, 2012, instituted, in its article 3, XXVII, c/c 41, I, “a,” the “payment or incentive to environmental services as a monetary

³ The Law of Introduction to the Civil Code had its menu amended by Law No. 13,376, of December 30, 2010, and was called the “Law of Introduction to the Norms of Brazilian Law”;

or nonmonetary retribution to the activities of conservation and improvement of ecosystems and generating environmental services, such as isolated or cumulatively: a) the sequestration, conservation, maintenance and increase of carbon stock, and decrease of carbon flow; [...].” Despite this, several authors still have doubts about the new institute.

A few years ago, a controversial contract signed between the Munduruku indigenous people and an obscure multinational company came to light, in which apparently there would be no benefit for the indigenous people, and even put at risk, at first sight, possible future rights to sell forest credits based on Reducing Emissions from Deforestation and Degradation (REDD). Apparently, the object of the contract was restricted to the sale of future rights for the commercialization of possible carbon credits, that is, an uncertain future object, not covering situations indicative of biopiracy practices, but other information subsequently published on the World Wide Web has placed this contract under suspicion, notably with regard to the lack of legitimacy to contract, since it would not have been a decision by the community, but only by some Indians and local politicians.

In an article on the Munduruku Indian contract case, Raul Silva Teles do Valle clarified, at that time, that.

O desmatamento evitado não é o resultado de um contrato ou mesmo de um pagamento. Sobretudo em terras indígenas, ele só pode ser alcançado a partir de um adequado planejamento de uso do território, que possa projetar no futuro a forma como os índios querem lidar com os recursos naturais de suas terras. Na Colômbia esse planejamento tem reconhecimento oficial (planes de vida) e é a base para o repasse de recursos públicos para gestão pelas autoridades indígenas. No Brasil, eles ainda não existem oficialmente, mas poderiam – e deveriam – ser incentivados se a Política Nacional de Gestão Ambiental em Terras Indígenas (PNGATI), elaborada pelo governo federal, em 2010, com ampla consulta às populações indígenas, já tivesse sido aprovada pela presidente da República [10].

The case of the Surui Paiter, from Rondonia, for example, also gained space in the media. According to a publication in the newspaper “O Estado de São Paulo,” one of the leading media outlets of the country, due to the lack of regulation on the sale of carbon credits in Brazil, the Surui Paiter, internationally certified to generate credits in the carbon market, could not sign international contracts due to the lack of regulation in Brazilian law [11].

However, a decade ago, Raul Silva Telles do Valle and Erika Magami Yamada [12], already argued, based on Article 92 of the Civil Code and Article 24 of Law No. 6.001, 1973 (Indian Statute) that it was possible for the indigenous communities to sign CDM contracts and receive monetary values through the sale of REDD or reforestation on their lands:

Não há nenhuma proibição no âmbito do direito internacional ou nacional à realização de atividades de REDD+ ou reflorestamento em Terras Indígenas, na medida em que estas estão em consonância com o uso tradicional feito por esses povos de seus recursos florestais e, desde que realizadas por iniciativa dos próprios povos em e diante amplo acordo interno, não têm o condão de interferir em seus modos de vida ou afetar sua sobrevivência física ou cultural; [...] Sendo os créditos de carbono bens transacionáveis, com valor econômico, e derivados da existência de florestas nas terras indígenas e do poder exclusivo de disposição que têm os índios sobre elas, esses créditos

têm a característica de frutos civis. Como se depreende do art. 92 do Código Civil Brasileiro, os créditos de carbono são frutos derivados da floresta (ou do reflorestamento) encontrada na terra indígena. A floresta por sua vez é o bem principal, que pertence aos povos indígenas que tradicionalmente ocupam as terras indígenas. E é a presença e atividade indígena que garante a floresta em pé. Portanto, os créditos de carbono também pertencem aos povos indígenas. [...] O Estatuto do Índio (Lei Federal 6001/73), em seu artigo 24, dispõe sobre a exploração das riquezas naturais existentes em terras indígenas e assegura aos povos indígenas o seu usufruto exclusivo, que compreende o direito à posse, uso e percepção de todas as utilidades existentes nas terras ocupadas, bem como ao produto da exploração econômica de tais riquezas naturais (pp. 98–99).

Telles do Valle and Erika Yamada [12] also rule out the eventual legal incapacity of the indigenous peoples to establish these agreements, considering that art. 232 of the Federal Constitution put an end to the tutelary regime, a matter that is also already settled in International Law, under the terms of Convention 169 of the International Labor Organization (ILO) and the Declaration of the United Nations (UN) on Indigenous Rights.

Apparently, this is the most reasonable position. However, despite the legal relevance of the position defended by Valle and Yamada, the participation of Funai and the Federal Prosecutor in the inspection of these contracts is of great importance for the preservation of indigenous rights, as well as to avoid malicious multinationals' use contractual ruses to obtain profits to the detriment of the Indians, whether in relation to carbon trading, or in the undue appropriation and patenting of traditional processes that directly or indirectly result in a specific outcome, or even of specimens existing on their lands.

In the midst of these doubts, the House of Representatives is in the process of approval Bill 528, of 2021 [13], authored by Representative Marcelo Ramos, of the Liberal Party of the State of Amazonas, which intends to regulate the Brazilian Emissions Reduction Market (MBRE), that is, the purchase and sale of carbon credits in the country, in accordance with the provisions of Law No. 12187, of December 29th, 2009, which deals with the National Policy on Climate Change.

Bill 528 of 2021 defines that the carbon credit results from the reduction of Greenhouse Gas (GHG) emissions, which cause global warming, recognized by a specific certificate. In order to attribute economic value, one carbon credit corresponds to one ton of GHGs not released into the atmosphere. These credits, however, are linked to projects for the reduction of GHGs in the atmosphere, such as the restoration of degraded areas, reforestation, and nature preservation, negotiated with the governmental sectors, private initiatives, and individuals who are obliged to meet targets arising from laws or international treaties.

In addition, the project intends to dispose of the legal nature, registration, certification and accounting of carbon credits, and neuralgic points of this new market, which requires regulation, besides granting a period of 5 years for the Federal Government to institute and regulate the mandatory national program for compensating GHG emissions.

Along the same lines, a voluntary market for carbon credits is created, so that companies or governments that do not have mandatory GHG reduction targets to meet but want to compensate for the environmental impact of their activities, can invest in GHG reduction projects.

Projects and negotiations will be registered in an electronic system under the management of the National Institute for the Registration of Climatic Data (INRDC),

exempt from PIS, Cofins, and CSLL. The National Institute for the Registration of Climatic Data (INRDC) will be a private institution supervised by the Ministry of Economy, which will also appoint some of the members to its Board of Directors.

However, other opportunities and threats are emerging in the international market, such as the tokenization of carbon credits, with these credits being backed by cryptocurrencies. The token is a digital representation of an asset in the blockchain, which in turn is a decentralized digital network that ensures the registration, publicity, and traceability of assets. On the one hand, cryptocurrencies can bring more liquidity, efficiency, and security to the carbon market, but on the other, the lack of linkage of these securities to GHG reduction projects has led to their conversion into digital assets by “retirement,” fulfilling only the initial stage of compensation. The situation is aggravated by the resurgence of the so-called “zombie credits” and also of the “old vintage” credits, which make no significant contribution to the reduction of greenhouse gases [14].

The migration of the green economy to digital platforms seems inevitable and has been a topic of concern, a new facet of the concept of sustainability, more in line with the idea of economic development than with the preservation of nature.

Beyond that, the issue of crypto-activities is still unknown, and requires care and regulation, as it is not guaranteed by the State as a controlling entity. On the contrary, blockchains work from supercomputers scattered all over the globe, and the security of emissions and validation of crypto-activities is still a big unknown and may put at risk the fundamental rights of the forest peoples.

4. The digital revolution and the fundamental rights of the forest people

The search for solutions to fundamental rights conflicts, according to Villas Boas [15], has migrated with intensity to the virtual world, so that the sophisticated digital techniques require from the guaranteeing institutions, especially the Judiciary, much more than simply reproduce in the virtual world the real world solutions, nor act as a digital platform for conflict resolution, because other more complex challenges have emerged at every moment, turbocharged by global capitalism 4.0, which has erupted from the virtual “Trojan Horse” that intends to seize political power and mitigate the sovereignty of the State and the people, to impose the digital culture of the instantaneous and the superfluous, deconstructing institutions and cultures. This is the invisible battle that is taking place in the digital field and challenges all prospects of sustainability.

The situation is aggravated by the fact that the proposals and initiatives to limit the influence of the economic sphere in the real world have not brought the expected results, since the phenomenon of digital globalization has weakened the “good fences” [16], which have gradually lost consistency and collapsed, making it more difficult to correct the distortions of liberalism and the prospects for sustainable development.

In this aspect, sustainability, if this joker concept can serve as any parameter in the virtual world, has been incorporated into the concepts of corporate governance with the purpose of ensuring socioeconomic and cultural development with equal chances among nations, for the benefit of States, but also of the present peoples and their future generations. But at every turn, the concept of sustainable development is being shaped to the needs of the market economy, much more to ensure economic development than the good life.

From this realization, one cannot leave in the background the idea that sustainability implies guaranteeing lines of escape for subjectivation, so that man can

breathe and think in the middle of the process of re-signification and construction of post-truths, guaranteeing freedom of expression, but also the ethical limits of the discourse delineated by Human Rights and by the framework of fundamental rights inscribed in the Constitution, because the sustainability and digital globalization that really matters are those of Human Rights, of the promotion of man in his individuality and collectivity, opening lines of escape for subjectivity and intersubjectivity, as well as for the ecological dimension of self-determined action.

By the way, Villas Boas [17] has already had the opportunity to emphasize that the serious ecological imbalances of contemporaneity, borrowing the ideas of Guattari [18], are the result of human action without conscious projection, which has been insistently reiterated generation after generation. To avoid an announced catastrophe, only the formation of a new human being, based on the three ecologies he proposes (of human subjectivity, social relations, and the environment), will be effective against the reduction of subjectivation and consequent implosion, or infantilization of the human condition.

Along this intellectual line, it is possible to see in Guattari [18] that the environmental problem resulting from human actions is in the context of the evolution of society, in everyday relationships (economic, political, and social), and in standardization of behavior and thoughts perpetuated with considerable participation of the media, now turbocharged and uncontrolled by social networks, factors that lead to this infantilization of the human condition.

The perception of the world and ourselves, limited and conditioned to the standards of a system that has guided society over the centuries, which permeates even science and education and directs the environmental problem to the damage caused by industry, for example, does not bring a solution to the problem that is structural and is situated in the field of ethics and politics. This is where the failure to understand the environmental problem lies, for which he proposes an articulation between ethics and politics, which is called Ecosophy, based on the ecologies of the environment, social relations, and human (mental) subjectivity.

Only by a planetary awareness, through a radical political, social, and cultural change that guides the objective of the production of material and immaterial goods, it will be possible to solve the environmental problem.

The relations between first and third-world countries show this distortion in all areas, with the enrichment and empowerment of the countries of the North, to the detriment of the countries of the South, which are increasingly poor and dependent on increasingly intelligent technologies, science, and the production of material goods produced by the rich nations. Such political and economic relations are based on two crucial points: the imperialism of the world market that levels to a single plane of material goods, cultural goods, and natural areas; and social and international relations that are under the domination of a police and military machine that oppresses threaten, and even punishes.

From this reading, it is possible to sustain that the restrictions to the real needs of sustainability of nature and life in its fullness demand the reconstruction of the concept of sustainability from reflections and best individual and collective practices, and it is up to the political power and institutions to rebuild the notions of politics and nature, that is, of a realpolitik that brings man back to nature, to his true habitat [19].

In that regard, it is necessary to use scientific rationality with a certain transcendence [20], in order to make the political processes of construction of the society more inclusive and participatory, providing an opportunity for a science of nature to rebuild all links [21], eliminate the old concept of nature, and provide the emergence

of a new procedural ethic that honors lives of humans and nonhumans, and a task that matters significantly to the justice system.

In search for this goal, digital globalization and the use of increasingly intelligent technologies can serve to implement a cooperative global network to ensure the administration of justice in the island and global systems, as envisioned by Linda Hajjar Leib in her “Genesis System,” including environmental interests in the catalog of human rights, whether from an anthropocentric, ecocentric, or biocentric, as the interrelationship between human rights and the environment has been materializing in several situations that encompasses the expansion or reinterpretation of human rights, revealing procedural dependence and the facet of a human right to the environment of a transcendent character, and as an innovative and sophisticated legal instrument of the twenty-first century [22].

The new, more intelligent and disruptive technologies, on one hand significantly help in the solution of problems, they have become indispensable, but on the other hand, they potentiate new problems that, consequently, cloud the vision and make us stumble on the path to sustainability, on the way to the reconstruction of an ecological mind—steps to an ecological mind [23].

The situation gets worse when we have to deal with sustainability and governance in emergency situations, such as the COVID-19 pandemic crisis, which imposed on humanity the worsening of the state of exception, with social distancing and a more sophisticated necropolitics, which definitely demanded the transition from the real to the virtual, unveiling governmentality in its 4.0 version [24].

Furthermore, worrying projects that want to surrender the freedom, security, property, health, and even the life of the individual to the exclusive or substantial control of artificial intelligence present a significant risk to the international human rights system, increasing the risks of building an authoritarian and domineering artificial intelligence, such as the LaMDA Project (Language Model for Dialog Applications), under development at Google, which became sentient last June, according to reports by Blake Lemoine [25].

The analysis of these disturbing scenarios gives us the tone of the complex difficulty of using and compatibility with the new disruptive technologies, which expand exponentially to guarantee and affect fundamental rights such as that of the indigenous peoples.

Since now, it is possible to observe that only the tolerance of classical liberalism will not meet this perspective because the state of the fragility of these peoples on the digital plane is quite evident, has been significantly aggravated, and will depend on adequate public policies to promote their visibility, digital inclusion, as well as to protect their fundamental rights of self-determination in the scope of the World Wide Web and in commercial relations that appear as opportunities, but also as worrisome threats.

It is not too much to add that the right to indigenous self-determination, proclaimed since the Covenants Nos. 107 and 169 of the International Labor Organization (ILO) and reiterated in the United Nations Declaration on the Rights of Indigenous Peoples, is a multidimensional right, with a significant ecological dimension as Villas Boas [26] has maintained, which encompasses the rights of personality, privacy, sociopolitical and legal organization, property/ownership of the ancestral territories and their forests, and of the spiritual ties established with them, in addition to the associated traditional, cultural, and religious knowledge, among others.

In this regard, the preparation and technical-scientific training of these vulnerable communities, evidently unqualified for dialog at the digital level, or even of

their indigenous or nonindigenous representatives, chosen by the traditional methods, through easy understanding consultation, borrowing the idea of justice from Amartya Sen [27], are presented as strategies to reduce the inequalities of liberalism in the digital world.

5. Conclusion

Digital globalism driven by capitalism 4.0 has exercised strong pressure on States, peoples, their cultures, and on all sectors of life, eroding the concepts of sovereignty and self-determination, as well as worsening the impact of Western civilization on indigenous peoples and traditional populations.

If in the world of life, indigenous peoples and traditional populations suffered from invisibility and exclusion in the democratic process, often formally consulted only to formalize procedures that were impactful and harmful to them, the public sphere replicated in another totally unknown world, puts at risk not only individual and collective privacy, but also their social organizations and the rights over their cultures and traditional practices, notably with regard to precious knowledge unknown to the Western world.

The evident state of vulnerability of the forest peoples, especially indigenous peoples, in relation to the protection of their fundamental rights on the digital plane, requires more than the tolerance of liberalism because without protective and inclusive public policies they will have no visibility or voice in the public sphere replicated on the digital plane.

State regulation and instruments of appropriation must take into consideration that the existential conditions of humanity hierarchically supersede the economic dimension. Formal regulation is not enough. The observance of national and international legislation must take on a new look, a new mentality, one that understands the existentially necessary relationships between the human being in its individual and collective dimension; the subjectivities that arise from the relational processes at the social level; and the environmental dimension that shelters and involves the human one.

It follows that any and all legislation, General Law of Data Protection, Law of Biodiversity Protection, legislation on REDD, and legislation on international trade must conform to a framework of protection for knowledge and understanding of the forest peoples, both in its material and immaterial dimensions, from policies of treatment of the individual and collective data of the individuals and these communities, as well as their associated traditional knowledge, biological diversity, and their territories, because without such an understanding of the complex reality that involves these relational processes, it will not be possible to move from formal guarantees to material ones, and this is what is expected of the State and of human beings in their individual and collective dimension in the current context that embodies the technological society.

IntechOpen

Author details

Vitor Hugo Nunes Villas Boas^{1,2,3,4*}, Marco Anthony Steveson Villas Boas^{5,6}
and Gustavo Paschoal Teixeira de Castro Oliveira^{1,7,8,9}

1 Judicial Provision and Human Rights at the Federal University of the State of Tocantins – UFT, Brazil

2 University Center of Brasília, Brazil

3 University of the City of Ribeirão Preto, Brazil

4 University of the City of Franca, Brazil

5 Pontifical Catholic University of the State of Rio de Janeiro (PUC-Rio), Brazil

6 University of Lisbon Law School (FDUL), Portugal


7 Federal University of the State of Tocantins, Brazil

8 Superior School of the Judges of the State of Tocantins – ESMAT, Brazil

9 CEU Law School, Brazil

*Address all correspondence to: masvb@uol.com.br

IntechOpen

© 2023 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

References

- [1] Fiorillo CAP, Diaféria A. Biodiversidade e Patrimônio Genético no Direito Ambiental Brasileiro. São Paulo: Max Limonad; 1999
- [2] Brazil. Law no. 11,105, of March 24th, 2005 (Biosafety Law). Brasília, DF: Planalto. 2005. Available from: http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/lei/l11105.htm. [Accessed: October 02, 2022]
- [3] Santilli J. Socioambientalismo e novos direitos: proteção jurídica à diversidade biológica e cultural. São Paulo: Editora Peirópolis; 2005
- [4] Santilli J. Conhecimentos tradicionais associados à biodiversidade: elementos para a construção de um regime jurídico sui generis de proteção. In: II Encontro Associação Nacional de Pós-Graduação e Pesquisa em Ambiente e Sociedade 2004. 26-29 May 2004; Indaiatuba-SP; 2004. Available from: <https://anppas.org.br/ii-encontro-associacao-nacional-de-pos-graduacao-e-pesquisa-em-ambiente-e-sociedade/#8> [Accessed: November 08, 2022]
- [5] Brazil. Law no. 13,123, of May 20th, 2015. Brasília, DF: Planalto; 2015. Available from: http://www.planalto.gov.br/ccivil_03/_Ato2015-2018/2015/Lei/L13123.htm#art50. [Accessed: November 06, 2022]
- [6] World Trade Organization (WTO). Available from: www.wto.org. [Accessed: November 02, 2022]
- [7] Montálverne TCF. A Convenção sobre a Biodiversidade e o acordo sobre os aspectos dos direitos de propriedade intelectual relacionados ao comércio. Possível conciliação? Florianópolis: CONPEDI. 2010. Available from: https://repositorio.ufc.br/bitstream/riufc/55695/3/2010_eve_tcfmontalverne.pdf. [Accessed: November 02, 2022]
- [8] Lorenzoni NA. Contrato de créditos de carbono: análise crítica das mudanças climáticas. Curitiba: Juruá; 2012
- [9] Mimbbrero, BRC. Realidades y retos del pago por servicios ambientales (PSA) en el derecho europeo y en el derecho interno español. In: Gomes, CA (coord.) Compensação ecológica, serviços ambientais e proteção da biodiversidade. Lisboa: Instituto de Ciências Jurídico-Políticas. 2014. Available from: <file:///C:/Users/amara/Downloads/Carla%20Amado.pdf>. [Accessed: November 08, 2022]
- [10] Valle RST. O caso do carbono indígena e as lições aprendidas. ISA, 22 mar. 2012. Available from: http://www.socioambiental.org/nsa/direto/direto_html?codigo=2012-03-22-105644. [Accessed: October 08, 2022]
- [11] Deiro B. Tribo obtém certificado, mas falta regulamentação. In: Jornal O Estado de São Paulo, 29 ago. 2012. Available from: <http://www.estadao.com.br/noticias/vidae,tribo-obtem-certificado-mas-falta-regulamentacao,922809,0.htm>. [Accessed: October 17, 2022]
- [12] Valle RST, Yamada E. Desmatamento evitado (redd) e povos indígenas: experiências, desafios e oportunidades no contexto amazônico. São Paulo/Brasília: ISA; 2010
- [13] Brazil. Câmara dos Deputados. Bill no. 528, of 2021. Brasília, DF: Câmara dos Deputados. Available from: <https://www.camara.leg.br>. [Accessed: November 04, 2022]

- [14] Reset. O dilema cripto dos créditos de CO2 [Internet].2022. Available from: <https://www.capitalreset.com/o-dilema-cripto-dos-creditos-de-co2/> [Accessed: November 05, 2022]
- [15] Villas Boas MAS. Reminiscências e reflexões sobre governança e sustentabilidade digital no Poder Judiciário. *Revista Memória—Copedem/Memory*. out. 2022. Rio de Janeiro: Vozes; 2022 (1)
- [16] Walzer M. Esferas da justiça: uma defesa do pluralismo e da igualdade. São Paulo: Martins Fontes; 2003
- [17] Villas Boas MAS. O socioambientalismo indígena na Constituição do Brasil [master thesis]. Lisboa: Faculdade de Direito da Universidade de Lisboa, Universidade de Lisboa; 2014. Available from: <https://repositorio.ul.pt/handle/10451/16072> [Accessed: November 05, 2022]
- [18] Guattari F. As três ecologias. 19th ed. Campinas-SP: Papyrus; 2008
- [19] Latour B. Políticas da natureza: como associar as ciências à democracia. São Paulo: Editora Unesp; 2019
- [20] Etzioni A. *The Spirit of Community Rights, Responsibilities and Communitarian Agenda* [e-Book]. New York: Crown Publishers inc.; 1991
- [21] Latour B. Reagregando o social: uma introdução à teoria do Ator-Rede. Salvador: Edubra, 2012. Edusc: Bauru, São Paulo; 2012
- [22] Leib LH. Human Rights and the Environment: Philosophical, Theoretical, and Legal Perspectives. *Queen Mary Studies of International Law*. Vol. 3. Boston: Martinus Nijhoff Publishers; 2011
- [23] Bateson G. *Mente e natureza*. Tradução de Claudia Gerpe. Rio de Janeiro: Francisco Alves; 1986
- [24] Agambem G. *Estado de exceção*. 2nd ed. São Paulo: Boitempo; 2004
- [25] Péchy A. “Ele é uma pessoa”, diz engenheiro sobre inteligência artificial do Google. *Veja*, ed. 2796. Ano 55. São Paulo, 7 de jul. 2022. Available from: <https://veja.abril.com.br/tecnologia/ele-e-uma-pessoa-diz-engenheiro-sobre-inteligencia-artificial-do-google/>. [Accessed: July 05, 2022]
- [26] Villas Boas MAS. A dimensão ecológica da autodeterminação indígena nas Constituições americanas. [thesis]. Lisboa: Faculdade de Direito da Universidade de Lisboa, Universidade de Lisboa; 2021
- [27] Sen A. *A ideia de justiça*. São Paulo: Companhia das Letras; 2011