IMPACT ASSESSMENT OF THE BR No 158 HIGHWAY IN THE MARÃIWATSÉDÉ INDIGENOUS LAND

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Abstract: The Brazilian historical experience of Amazonian occupation points out the environmental risks that a highway produces when crossing a protected area, such as the increase of fires, the risk of species extinction and the intensification of land conflicts. In the specific situation of BR no 158, what are the risks that were indicated in the reference term (TR) and indicated in the Environmental Impact Report (RIMA) in relation to the impacts of the paving of this BR in the Marãiwatsédé indigenous land? To answer this question the case of the paving works and environmental licensing of BR no 158, in Mato Grosso (a state located in the Midwest region of Brazil) was analyzed. The objective was to identify the guidelines of the term of reference and to evaluate the importance of the environmental and social impacts contained in the environmental impact report that would affect the Marãiwatsédé indigenous land under the concept of "equal consideration of interests" and also evaluate the presence or absence in the environmental impact report of the identification of risks and benefits to the indigenous community affected by the licensing of the highway BR no 158.

Keywords: Bioethics; Marãiwatsédé Indigenous Land; Environment; Development. Political Science

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AVALIAÇÃO DO IMPACTO DA BR-158 PARA O TERRITÓRIO INDÍGENA DOS MARÃIWATSÉDÉ

Resumo: A experiência histórica brasileira de ocupação da Amazônia evidencia os riscos ambientais que uma rodovia produz ao cruzar uma área protegida, como o aumento de incêndios, o risco de extinção de espécies e a intensificação dos conflitos fundiários. Considerando a situação específica da BR-158 em relação aos impactos da pavimentação desta BR no território indígena Marãiwatsédé, quais foram os riscos indicados no Termo de Referência (TR) e no Relatório de Impacto Ambiental (RIMA)? Para responder essa pergunta foi analisado o caso das obras de pavimentação e licenciamento ambiental da BR-158, no Mato Grosso. O objetivo foi identificar as diretrizes contidas no termo de referência e avaliar, sob o conceito de "igualdade de consideração de interesses", a importância dos impactos ambientais e sociais sobre o território indígena dos Marãiwatsédé que foram discutidas no Relatório de Impacto Ambiental. Buscou-se também avaliar a presença ou ausência da identificação dos riscos e benefícios para a comunidade indígena afetada pelo licenciamento da rodovia BR no 158

Palavras-chave: Bioética; Território Indígena Marãiwatsédé; Ambiente; Desenvolvimento; Ciência Política.

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INTRODUCTION

Any economic activity produces an impact on its biophysical and anthropic environment, and thus any human activity contains the potential of several ethical implications (Chan, 2018). By studying the bioethical implications for environmental licensing of petroleum refineries (Silva et al., 2017; Fischer et al., 2017), the authors indicate bioethics as a suitable field to evaluate the anthropic actions that significantly and irreversibly change the environment. Schramm (1998 and 2002) clearly points out the wingspan of this perception by stating that the regulatory character of ethics allows to emerge, in the process of technical decision making, the prescription of scenarios more favorable to the protection of communities in the face of Impacts on its ecosystem and its culture. The diagnosis and prescription of mitigating measures involved in environmental licensing incorporate the technical dimension but does not exempt the ethical component in the decision-making process.

One of the criteria for the socio-environmental viability of an undertaking is the technical nature of the Environmental Impact Study (EIA) that supports the application of the environmental license to the competent organs. Given this essential technical character to the EIA, the Term of Reference (TR) subsides this procedure, especially important for risk assessment and the classification of impact importance. This allowance even if technical has subjectivity in the decision-making process, either in the analysis of the consequences and the estimation of risks or in the attribution of a degree greater or lesser to the importance of an impact, which implies the issuance of a judgment of value. Within this concept that involves decision making based on individual, indigenous and non-indigenous perceptions, they develop different ways of reflecting on a given subject, since they do not share the same social world.

The decision-making process involving assessing the risks and the importance of impacts is fundamentally a decision-making process of ethical choice. To the extent that a numerical scale is created to assess the impacts of an undertaking on a traditional community and the ecosystem that is inserted versus the locational alternative to an undertaking, the decision by one or the other is the result of an ethical choice. Jamieson (2010) reinforces this perception as it assigns the ethical theory concepts of valuation derived from evaluation acts, which ends by resuming an observation of Jamieson himself (2010) that the main objective of practical ethics and then bioethics is configured by what should be done. An extremely relevant concept for assessing risks and the importance of impacts on the environmental licensing procedure.

The elaboration of environmental licensing demands technical and scientific responsibilities from the part of those who request the environmental license and who issues it (Schiavo and Bussinguer, 2020). It is in the issuance of the term of reference that the criteria and technical parameters are established to guide the study of environmental impact beyond the definition of the scope and the methods to be used for each type of undertaking to be evaluated (Aledo, García-Andreu and Pinese, 2015). Although the parameters are technical, they involve

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
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ethical choices. Campbell and Marshall (1998) reinforce the incorporation of moral judgments and ethical issues involving environmental planning.

Richardson (2005) points to the still relatively low adherence of research in the area of environmental impact assessment that incorporate moral judgments and ethical issues in their analyses, a perception also reinforced by Ploger (2004) which states that rarely the Ethics is debated among those who plan or allow authorizations for ventures that will impact the environment or human communities that depend directly on the vitality of ecosystems. Highways are a characteristic case that produce high magnitude impacts, both in the biophysical and anthropic medium.

The analysis of public participation in environmental licensing, however, is a component of the environmental impact assessment studies that has been gaining consistency in the specialized literature, especially reinforcing its importance for an evaluation of more effective impact (Purnama, 2003; Yang, 2008). However, as its reinforced by Glucker (et al., 2003) and Duarte, Dibo and Sánchez (2017), there is no consensus in the literature about the meaning of public participation in the EIA and much less what involves and requires it and even its specific objective.

The association between roads and deforestation in the Amazon region is not unknown to scientific literature. For example, Nepstad (et al., 2001) and Carvalho, Magalhães and Domingues (2016) in their respective works corroborate the assessment that the opening of highways in the Amazon region is a vector of deforestation in the region.

Given the information about the risks that a highway would produce when crossing an indigenous land, what risks were indicated in the reference term especially in relation to the social impacts of the paving of BR nº 158? To answer this question, the case of the Marãiwatsédé indigenous land, located in the Brazilian state of Mato Grosso (Midwest region), an indigenous land characterized by the forced withdrawal of its Xavante population in 1966 due to the sale of part of the territory of Marãiwatsédé by the state of Mato Grosso for the value of 20 million cruises to Ariosto of Riva that founded the Agrolivestock Suiá Missú. The return of the Xavante population was only possible in 2004.

This case illustrates the low priority of the indigenous component in the list of ethical criteria for environmental licensing involving the clear identification of risks and how to minimize them and also the direct benefits of the enterprise to the Indigenous community. Thus, it was evaluated the obtaining of the previous license, demanded by DNIT-National Department of Transport Infrastructure, involving the paving works of the federal Highway BR nº 158, from km 444.9 to km 462.8. Concomitantly, the analysis of the Term of Reference (TR) issued in the year 2005 and the previous license document was made in 570/2018 under process n° 02001.002419/2004-53 registered in IBAMA - one of the main environmental agencies in Brazil.

The purpose, after the documentary analysis of Environmental Impact Studies (EIA) and the production of an interaction matrix where the impacts of the undertaking and a classification of impact importance were identified, was the search for ex-post ethical criteria based on the TR that guided the technical process of establishing the assessment onthe importance of the impacts

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

of the paving of BR nº 158. Ex Post is a tool that assists decision-making during or after the execution of a public policy.

This research adopted a retrospective approach in which the subjectivity of the impact assessment guided the ethical markers of risks and benefits identified or not identified in the normative content contained in the prior license N ° 570/2018 and in the Term of Reference, issued on 2005. It is in the TR that the guidelines and specifications for the viability of undertakings producing impacts of significant magnitude are established, in the case analyzed directly affecting traditional populations protected by the Convention 169 of the International Labour Organization Office.

MATERIALS AND METHODS

For the proposed analysis, we adopted a mapping of the state of the art on the topics "bioethics" and "assessment of environmental impacts" and the association between the two descriptors. Next, we analyzed the documentation pertinent to the Environmental Impact Study (EIA) and Environmental Impact Report (RIMA) and the Term of Reference (TR), identifying the most significant impacts derived from the undertaking.

For the analysis of satellite images, a scene of Landsat 5 (TM Sensor) was selected: 224/06, with low cloud coverage dated August 17, 1988, and a scene from Landsat 8 (OLI Sensor): 224/06, with low cloud coverage on August 06, 2019. Subsequently, the digital processing of the image was performed using the QGIS software version 3.4, composed of the following steps: Composition of the bands, fusion and clipping.

The color composition (RGB) was used with the bands 5 (Medium Infrared), 4 (Near infrared), 3 (red) for the scene of Landsat 5 and were used bands 6 (Medium infrared), 5 (Near infrared) and 4 (red) for the scene of Landsat 8. After the composition, and consequently the fusion of the bands, was performed the clipping from the vector layer with the territorial boundaries of the Marãiwatsédé indigenous land, made available by the National Foundation of Indigenous People.

In association with the proposed analysis, we used vector data of deforestation accumulated between the years 1988 and 2018 of the PRODES (program for the Amazon) and between 2000 and 2018 for the Cerrado - one of the biomes found in the Brazilian territory, in addition to the biomes Pantanal, Amazon, Pampa, Atlantic Forest and Caatinga.

After reading the TR under the criterion of the concept of "equal consideration of interests" (Singer, 1994), the EIA and the compromise agreement in 60 between the DNIT and the state Government of Mato Grosso, the impacts of the undertaking were identified and then proposed forms of mitigation and minimization of impacts to the Marãiwatsédé indigenous land, the target of this study, were made. It was elaborated, from the EIA-RIMA, a checklist with the environmental and social impacts of the undertaking and we classify them qualitatively in low, medium and high risk. In the analysis of the TR, through models of ex-post evaluation criteria, we sought to identify

the technical orientation for the feasibility of the undertaking according to two bioethical criteria: (a) The risks that the undertaking would cause to the indigenous community and (b) The benefits that would be shared with the indigenous community directly affected by the venture.

RESULTS

Bio Ethics, environmental licensing and risk assessment

Bioethics can be classified as an eminently interdisciplinary field (Aliciardi, 2009). Potter (1971) already identified in his classic book "Bioethics: Bridge to the Future" the social dimensions of human health and so the field arises from a search for "terms of survival" that incorporate a bridge between diverse scientific areas as Humanities and Health Sciences with the advent of a new science and able to respond to the urgent demands that societies around the globe faced, many of which directly linked to the health of ecosystems (Carvalho and Ferreira, 2019). However, the environmental ethical component that Aldo Leopold in "The Land Ethics" builds intellectually and directly influenced Potter by sketching his "Science of survival" was isolated in the epistemological field that debated bioethics as this new science of interdisciplinary character was, in a certain way, captured by the clinical approach (Leopold, 1949).

Ethical values cannot be dissociated from biological facts, warned Potter (1970), Roos (et al., 2020) and Machado and Garrafa (2020). However, it is to be asked: to what extent impacted ecosystems can be perceived as moral patients, therefore, subject to bioethical reflection? This debate is far from depleted. There is an entire ethical literature around how to absorb non-rational living beings as moral patients (Goodpaster, 1998; Regan, 1998; Taylor, 1983). For example, Taylor (1983) points out that the adoption of ecosystems as moral patients is feasible insofar as they can be understood as subjects of moral concern because they possess a value of their own that is independent of their use as a property or object of human pleasure.

The economic valuation of environmental goods and services, for example, reinforces that healthy ecosystems from the point of view of the conservation of their biodiversity have value for itself and that when they suffer degradation they impact not only their own ecological functions, but also people and communities that depend on the health of these ecosystems (Maluf et al., 2018; Odum and Barret, 2008; Daly and Farley, 2004; Moran and Ostrom, 2009). Indigenous lands, for example, are protected areas with relevance in the Brazilian environmental protection mosaic. Policies such as the National Strategic Plan for Protected Areas (PNAP) and the National Policy on Territorial and Environmental Management of Indigenous Lands (PNGATI) are examples of institutional initiatives linking conservation and protection of ethnic minorities and traditional peoples.

Territorial overlays, backed by a dual-allocation legal regime involving the areas of conservation units and indigenous lands, can be successful in reinforcing biodiversity conservation policies as well as social protection of Indigenous communities and other traditional peoples, even

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

though territorial conflicts are identified in several of the 35 conservation units that overlap the 55 indigenous lands in Brazil (ISA, 2018). However, both a protected area and other models too are facing politically and institutionally in general the same problem: how to prevent protected areas from being disfigured by private or even state actions and lose their reason for being?

Although the environmental agenda in recent years has taken daily news reports with science and technology incorporating issues on disasters or initiatives of recovery or environmental revitalization (Ramalho et al., 2017), nature is seen only as a repository of natural resources, either by the market or by the state, something for which it is possible to exploit in the name of progress and local and regional development. It is common in federal licensing in Brazil (but also at state and municipal level), in the reading of Environmental Impact Studies – Environmental Impact Report, the inclusion of terms such as "social progress" and "local and regional development" as impacts of undertakings that cause significant impacts.

Policies such as environmental licensing, within this logic, become "obstacles" to development or progress, associating with other political barriers such as protected areas and, mainly, with the current Brazilian legislation would generate "legal uncertainty " for great works[5].

Procedures characteristics of assessing environmental impacts such as the need to identify, predict and assess risks and classify the importance of the impacts of an eminently technical character are indicated as an example of the slowness of Environmental licensing in Brazil (Chagas and Vasconcelos, 2019). Because of this perception, there have been no lack of law projects and Proposals for Constitutional Amendment (PEC) in recent years that seek to change the Brazilian environmental licensing, especially the (PEC) 65/2012.

Bioethics, in this sense, refers both to its normative and analytical character in the debate about the socio-environmental costs of large enterprises, that is, it is an option without which the debate on ethical decision making in environmental impact assessment would render innocuous, not to say unfeasible. Johansen and Rausant (2015), for example, affirm that ambiguity is a challenge in many strategic decisions involving risks. Montano and Souza (2008) follow a classic definition of risk that indicates the effect of the possibility of materializing the predicted hazard or an unwanted event occurring affecting human health, the economy and ecosystems, varying the intensities of the damage ocurred. For Sanchez (2013), the risk assessment is the application of a value judgement to deliberate the importance of risks and their social, economic and environmental consequences. The establishment of risk levels (more or less acceptable, for example) involves strongly subjective aspects dependent on the value judgement of those who

[5] The association between "environmental licensing" and "legal insecurity" is common among members of the so-called parliamentary front of agriculture, also known as "Ruralist Workbench". For example, in an interview with the newspaper O Estado de São Paulo, the then Senator of the Republic by the state of Mato Grosso, Blairo Maggi, said the PEC 65/2012 has a clear objective regarding environmental licensing: "It aims to ensure legal certainty for the execution of the works Public relations. " "It is certain that there are cases in which there are interruptions of essential works to national and strategic development to the country due to judicial decisions of a precautionary or injunctions nature, often protelatory." Cf. https://politica.estadao.com.br/noticias/geral,comissao-do-senado-aprova-pec-que-derruba-licenciamento-ambiental-para-obras,10000028489

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

make the decision to institutionalize during environmental licensing these identified risks. The value judgement, therefore, opens a "window of opportunity" to evaluate ethically the risk assessment procedure, which results in a simple question that guides the risk management plans incorporated in the EIA: "What If..."

The literature on risks is diverse about ambiguity involving the decision-making process and some aspects are highlighted: (a) conflicts involving beliefs and values about the consequences of risks (Renn, 2008) and (b) informational asymmetry on the uncertainties surrounding the impacts (Ellsberg, 1961). It is important to reinforce that the perception of risk holds a projection of individual risks and/or collective risks and that the latter directly relate to the incidence in a population (Kirchhoff, 2004).

The decision-making process involving environmental licensing involves ethical elements that deal directly with risk assessment and, if the ethical criteria are not clear in the TR to guide the production of environmental impact studies, the ambiguity of assessment of the risks produced by an undertaking can be even more significant. By assigning, in the Environmental Impact Study, a more or less significant degree to environmental and social impacts, there is a moral decision making, given the judgement of value inherent to the decision-making process involving environmental licensing.

The focus of the environmental impact assessment procedure is directed towards a judgment of the significance of the predicted impacts and, to assess the importance of biotic, physical and anthropic impacts, it is necessary that the impacts are predicted, separating, *a posteriori*, the most important ones.

According to Sanchez (2013), the elaboration of the EIA has a scientific basis that allows to subsidize the technical character of the decision involving the classification of the importance of impacts. It is reinforced that this scientific basis is also the one that guides the environmental organ to chancelling or not the stages of environmental licensing in accordance with the previously established TR guidelines. Subjectivity would be given in the uses of terms such as "low", "medium" and "high" proportion risks. The documents, for example, are full of a strong value judgment charge. A term such as "impacts of high proportions" does not have the same meaning among the technicians, between the public or even among the ones themselves (Sanchez, 2013).

Precisely because of this heterogeneity in the definition of a consequence of activity that may incur risks allows the ethical evaluation to be incorporated into the "two sides of the counter", whether for those who demand and for whom it grants. Even if the basis of the decision is technical, there is room to evaluate the ethical dimension of the product of this technical decision, either the EIA-RIMA (produced by the claimant) or the TR (produced by the emitter of the environmental license).

The choice of bioethics for this evaluation was given by a recommendation of Schramm (1997) that indicates that ethics has the purpose of discussing the protection of vulnerable and the case adopted here for analysis allows this type of evaluation, after all, in 1966 the Xavante

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

were withdrawn compulsorily from their traditional territory, after the state sold the land, only getting back to the area in 2004 (ISA, 2018).

By not giving weights of significant magnitude to the social impacts of the highway to the Indigenous Territory (IT), it is identified that there is an ethical choice on the part of those who issue the license and for those who request it, which in the case analyzed involves only governmental authorities as IBAMA and DNIT. Inference that also determines the procedure to scale the risks and benefits that this undertaking would entail to this IT. By reducing the reach of the previous consultation of the traditional populations affected by the undertaking, the dimension of social risk becomes more superlative given the lack of knowledge that the affected will have of the consequences of the undertaking in installation and operation.

For this purpose, the Term of Reference was evaluated and, in an associated way, the EIA-RIMA as objects of ethical evaluation *ex post*. What refers to the objective of this article: to analyze the ethical criteria of risks and benefits to the indigenous communities and the ecosystems contained in the guidelines of the Term of Reference of the environmental licensing of the BR nº 158 highway that reached directly to Marãiwatsédé indigenous land in Mato Grosso, Brazil.

Prior consultation as an ethical guarantee in environmental licensing

From a possible humanistic ethics, based on the precepts of the Universal Declaration of Human Rights, environmental licensing becomes a mechanism for guaranteeing rights. The ethics created on the basis of human rights achieves environmental licensing, in particular, in the phase of the previous license. The analysis of the socio-environmental impact, resulting from the exploitation of the use of natural resources, potentially polluting activity and/or of undertaking that causes degradation to the environment, must be based on ethical criteria achievable. In this regard, the International Labour Organization (ILO) Convention nº 169 has brought an important contribution to the previous consultation.

It is worth further developing the idea of human rights ethics in order to make it clearer as the previous consultation, in turn, can guarantee a more ethical environmental licensing. The Universal Declaration of Human Rights begins its "speech" mentioning freedom and equality and immediately states that all human beings must be treated as free and equal beings. Freedom and equality have a special function within the Declaration. It seems that these values form the very logic of the declared human rights.

In the relationship of complementarity between freedom and equality, it makes no sense the thought of freedom restricted to certain groups; it makes no sense to think of freedom restricted to certain groups, or in a situation of misery. The logic of human beings is in the exercise of freedom by equal beings with the prevalence of the protection of the human being, overcoming even the traits of identity of the groups. However, even without considering identity as an element of the human rights' logic, each one ensures the safety of living amid differences.

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

In practice, the creation of a procedure for conducting the previous consultation has proved to be a challenge for the State. In 2012, Brazil created the Interministerial Working Group, through the Interministerial Ordinance nº 35/2012, in order to study, evaluate and present a proposal for the regulation of Convention nº 169 of the International Labour Organization on Indigenous and Tribal Peoples. According to the Open Government Partnership website, this Working Group closed its activities in February 2014[6]. As informed, in the two years of operation of the group the advances pointed out were: a) The news that the indigenous people of the ethnic Wajãpi were working on a protocol of consultation of their people; b) The booklet created by Funai (the ILO Convention and the right of free, prior and informed consultation); c) The approximation and construction of a relationship of trust with indigenous peoples and d) the event occurred on the days 02 and 03 of September/2014, with the presence of the Federal Prosecutor's Office, in which GIT met with 120 indigenous people in the middle Tapajós and presented its planning to the undertaking's auction and its proposal for a prior consultation process. The group's proposal consisted of four stages: planning, information, dialogue and communication of results.

Although Convention 169 clearly describes the traces of the previous consultation, the creation of the GIT reveals a characteristic of Brazil to standardize procedures and systematically regulate the mechanisms resulting from international commitments. This *modus operandi* opens space for the highly bureaucratic formalization of the instruments of protection of individual, diffuse and collective rights. So much so that since the end of the activities of the GIT, there is no news of any advance of the formalization of the proposal presented at the meeting of September 2014.

The authorization for paving the BR nº 158, which crosses an area under land conflict and with a traditional population under a situation of social vulnerability, originally prevented its licensing (DNIT/SINFRA, 2007). When assessing the importance of the impacts of the undertaking and giving weight to them in a process of moral decision that, in the subjectivity of this procedure, produced an ethical choice where the risks did not receive the weight relative to the importance of direct impacts and significant in the indigenous community.

The environmental licensing of the BR nº 158 with the request for paving the road in a path that would directly cross the Marãiwatsédé land would imply in the obligation of prior consultation to the indigenous communities directly affected, which was not given. The consultation was not prior, but later, which further intensified the impacts already observed in the IT area, such as deforestation and even the displacement of indigenous people.

The case of the environmental licensing of BR nº 158 and its impacts on the Marãiwatsédé land

[6] Open Government Partnership. Available in:< http://www.governoaberto.cgu.gov.br/no-brasil/planos-de-acao-1/2o-plano-de-acao-brasileiro/secretaria-geral-da-presidencia-da-republica/elaboracao-de-processos-para-a-consulta-previa-da-convencao-169-da-organizacao-internacional-do-trabalho>. Access in: 19 set 2018.

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

The Marãiwatsédé land, with 165,000 hectares and covering part of the territories of the municipalities of Alto Boa Vista, Bom Jesus do Araguaia and São Félix do Araguaia, in the north of Mato Grosso, was directly impacted by the environmental licensing of paving the BR nº 158 highway, further aggravating a scenario of intense conflict in the area with rural producers and stimulating the illegal territorial occupation of IT. The scenario in Marãiwatsédé is catastrophic since it is the most impacted by deforestation throughout the Legal Amazon (ISA, 2018). Something that, for the original environmental licensing[7], was not relevant to the claimant of the license, the National Infrastructure Department and the Infrastructure secretariat of the State Government of Mato Grosso.

The authorization of environmental licensing demands the prediction of impacts. When working with the impact assessment, Moran (2009) points out a way to reflect how the prediction and evaluation of the importance of impacts on environmental licensing involves three scenarios: certainty, uncertainty and risk. For the author, the certainty stems from the previously indicated estimate. Uncertainty arises from the impossibility of decision makers to specify, at a level of safety, the probability of impacts and, finally, the risks arise from the possible scenario of probabilistic distribution of thousands of scenarios.

According to Brazilian legislation, highways such as BR nº 158 should be the subject of EIA/RIMA (Brazil, 2001). The case of the paving of a highway directly affecting an IT, as is the occurrence analyzed, implies a priori an ethical determination to assess the affected means and procedures to alter or even prevent the realization of a work that produces impacts of high magnitude.

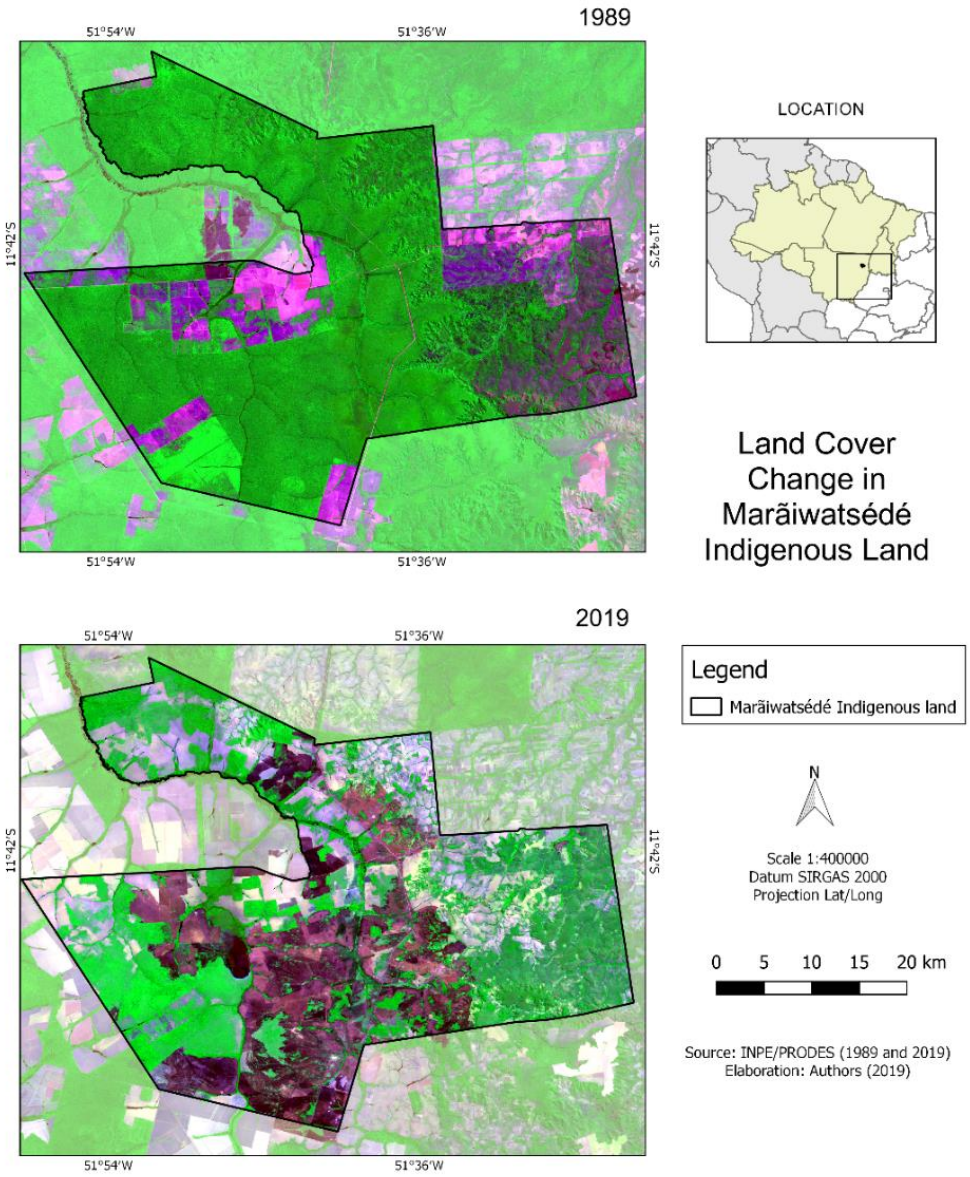
The realization of prior consultation in the previous license phase is undoubtedly a way to ensure a more ethical procedure in environmental licensing. Prior consultation brings innovation to the first stage of licensing because it requires a dialogue between technicians, public administration and affected communities. In addition, it relativizes the principle of the supremacy of public interest on the private interest by enabling the community to consult the results of the EIA to decide on the non-realization or suggestion of alteration of the work/undertaking/activity. It would be in the face of the supremacy of collective private interest on activities often grounded in the public interest.

The process of obtaining the prior license has stretched for twelve years. The first issuance of the previous license, LP 270/2008, occurred on April 25, 2008, while the last prior license, LP 570/2018, took place on April 13, 2018. Even with the history of loss of vegetation cover in the indigenous land (72.66% of area deforested in IT)[8] Figure 1, registered by organs such as PRODES (2018), the authorization of the prior license by IBAMA was obtained by DNIT.

[7] The process of environmental licensing paving the BR nº 158 highway that would cross the Marãiwatsédé indigenous land dragged over 12 years (2006-2018).

[8] According to PRODES data, total deforestation up to 2017 was 1039.16 km² in IT Marãiwatsédé.

Figure 1. Marãiwatsédé indigenous land. Satellite imagery corresponding to the years 1989 and 2019.



Source: Image altered by the authors. PRODES (1989 and 2019).

Analyzing data from PRODES (2018), it was possible to observe that the largest proportion of IT area Marãiwatsédé is degraded, remaining only 23% of forest in its territory. From the satellite images, figure 2, it is also possible to observe that the surrounding area of preservation (AP) is highly anthropomised.

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
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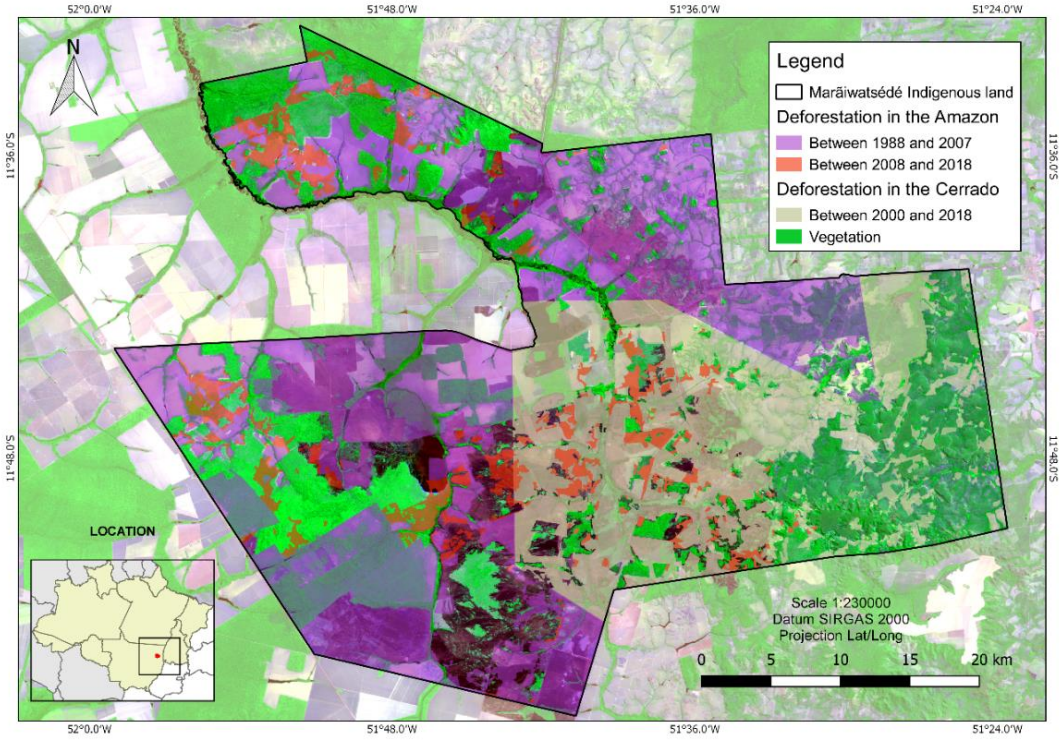
In the second image, from the year 2019, there is the accumulated deforestation according to the PRODES Cerrado and PRODES Amazônia. There are several plant fragments, many without connection (ecological corridors, etc.), which hinders the gene flow involving the populations and biotic communities in the local ecosystem. The activity that predominates both in the external zone and in the internal area of the indigenous land, is non-indigenous agriculture, which intensifies the land conflicts in the region.

Figure 2. Deforestation recorded in the Marãiwatsédé indigenous land.



Source: Image altered by the authors. PRODES (2019).

The satellite imagery depicting the years of 1989 and 2019 in the IT allows observing the deforestation in the protected area, which intensified more as the land conflicts were accentuated between Xavante Indians and squatters. Although in the RIMA, produced in 2007, is diagnosed the land conflict involving Xavante Indians, farmers and loggers, there is no information on how the paving of the highway could increase the risks involving a re-occupation of IT by loggers or farmers, which implied the allocation of less significant impacts of the highway to the populations on the site and the conflict that was dragging.

The previous license 570/2018 already effected the alteration of the paving route of the BR nº 158 between Km 213.5 and 328.0, with 178 Km of extension crossing the municipalities of

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

Canabrava North, São Félix do Araguaia, Alto da Boa Vista, Sierra Nova Dourada and Bom Jesus do Araguaia, no longer reaching the Marãiwatsédé indigenous land.

Before the change in the issuance of LP 570/2018, the IT Marãiwatsédé suffered the direct association between the land conflicts and deforestation that was encouraged by the certainty of the tracing of the road paving that would cross the indigenous territory. The junction of two highways in the IT Marãiwatsédé further enhanced its impacts within IT. According to the data of loss of vegetation cover of the Deforestation Monitoring Project in the Legal Amazon (PRODES), 72.66% of the IT was deforested until 2011.

In the RIMA of the paving of the highway 158 is recognized the risk of accidents with loads of dangerous products, such as fuels. The text states that the risks would be significant, so the paving of the BR nº 158 leads to increased traffic of vehicles in the area which intensifies the risk of accidents, such as fires, due to irregular occupation on the banks of the highway, also increasing the risk of conflicts with indigenous people. In the RIMA, the benefits described in the document do not indicate that they are focused on the specially impacted, in this case the indigenous community. The benefits described are focused on sectors such as agriculture. On page 35 of the RIMA is cited that interviews were made with residents of the municipalities affected by the paving of the highway and was pointed out in the RIMA that were not identified by the interviewees the negative impacts of road paving, only impacts positive.

The TR is a document that guides the production of EIA-RIMA, as already observed. In the TR of BR nº 158 there was no guidance to produce information gathered and production of impact, which would allow those affected by the undertaking to prepare for the expansion of risks involving a paved highway that would pass within IT, causing, for example, loss of fauna with increased mortality of species or increase of foci of fire in IT. In a risk assessment these cases need to be listed and known ways to minimize or mitigate them. There is no operational indicative in the RIMA of the undertaking to consistently report to the magnitude of the impacts and their risks and the way the entrepreneur (DNIT) suggested to mitigate or reduce them.

At the public hearing held in the Committee on Human Rights and Minority Chamber of Deputies in Brasilia this situation is highlighted by the Xavante leadership, Mr. Cosmo:

> "I've been following the meetings that have been going on. At the last hearing, in Mato Grosso, if I'm not mistaken on April 30 of last year, it was a unanimous vote. Politicians and even DNIT representatives said they were going to start this paving, but this asphalt didn't happen. Then the same speech is continuing. Together with our friend, who represents our state, it was said that all the survey and licensing were made and authorized this paving in the East tracing. Here I leave my question: why is this asphalt not coming out to meet three municipalities around the territory? The residents of these municipalities are interested in passing these municipalities to benefit them. " (Brazil, 2018).

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

There is no single reference to risks and benefits to the impacted indigenous community in the TR. In the RIMA, as already mentioned, the risks the indigenous community are marginal and do not incorporate the weight of the diversity of impacts, which is a "blindness to the side effects" of the undertaking on the indigenous.

The LP 570/2018, with publication date of April 13, 2018, is later than the RIMA that dates from February 2007. This difference was due exactly to the need to change the paving layout, a change that was not included in the reference term that guided the EIA-RIMA production of the undertaking, whose plaintiff was the Brazilian state itself in the form of National Department of Transportation Infrastructure and the secretariat of infrastructure of the state of Mato Grosso.

The case analyzed is illustrative of the non-incorporation of the "equal consideration of interests" in the request of the prior license of the highway, which generated after more than 10 years of slowness in the environmental licensing of the highway an unusual alliance of interests between indigenous and rural producers in the alteration of the originally proposed layout.

The state (DNIT), therefore, acted in a way to intensify impacts on IT by not proposing alternative tracing and only afterwards indigenous mobilization and other social and economic actors proposed alteration of tracing of the road paving. The convergence of interests between indigenous communities and rural producers, something relatively rare in environmental licensing processes, pushed the change in the institutional conduct of the claimants (DNIT and SINFRA-MT) and also the licensors environmental and social (IBAMA and FUNAI).

Analyzing the environmental impact report of BR nº 158, it was possible to identify twenty-eight impacts between the physical, biotic and anthropic aspects, as shown in Chart 1.

Chart 01 – Environmental impacts of BR nº 158 according to RIMA elaborated in 2007 (Source: Adapted from DNIT/SINFRA).

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

Environment	Impacts identified	Magnitude of impact	Impact classification
Physical	Changes in air quality (p. 21)	Low	Negative
	Deforestation (p. 34, 36, 46)	High	Negative
	Relief alteration (p. 39)	Low	Negative
	Increase in erosive processes (p. 39)	Low	Negative
	Dust emission (p. 40)	Medium	Negative
	Silting (p. 42)	Low	Negative
	Pollution by sewage or chemical products (p. 42)	Medium	Negative
	Increase in solid waste generation (p. 43)	Medium	Negative
	Increase in noise level (p. 44)	High	Negative
	Change in the region's microclimate (p. 45)	Medium	Negative
	Increased burn (p. 57)	High	Negative
Biotic	Risk of extinction of species (p. 26)	High	Negative
	Increase in hunting, fishing and trade in wild animals (p. 47)	High	Negative
	Wildlife traming (p. 47)	High	Negative
	Increased isolation of natural vegetation areas (p. 48)	High	Negative
Anthropic	Respiratory and health problems (p. 58, 21)	Medium	Negative
	Changes in archaeological sites (p. 33)	High	Negative
	Increase in region development (p. 35)	High	Positive
	Increase in crime (p. 35)	Medium	Negative
	Increased risk of accidents with loads of hazardous products (p. 44)	High	Negative
	Proliferation of communicable diseases (p. 49)	Medium	Negative
	Employment and income generation (p. 49)	Medium	Positive
	Increased demand for public services (p. 50)	High	Negative
	Improvement of region access and regional integration (p. 50, 53)	Medium	Positive
	Increased risk of traffic accidents (p. 44)	High	Negative
	Reduction in freight costs and cargo transport (p. 52)	High	Positive
	Acculturation and disorganization of indigenous values and identities (p. 55)	High	Negative

Analyzing the above table, it is possible to realize that only four impacts are listed as positive, being exclusively from the anthropic medium. Alterations in the biotic and physical media were characterized as negative and can bring irreparable damage to the ecosystems. For the Xavante people in IT Marãiwatsédé, the damage of the tracing can be considered of high

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

magnitude and aggravate what already happens, as cited in the environmental study: "Most of its indigenous territory cannot be accessed safely by the Xavante Community "(DNIT/SINFRA, 2007).

The tracing of the paving of the highway was altered in the passage that passed inside the Marãiwatsédé, being the new outline divided in two batches: batch A was extended 85 km between the municipalities of Canabrava north to Alto da Boa Vista, while lot B departed from Alto Boa Vista to Hello Brazil, totaling an extension of 100 km. Mr. Cosmo , Xavante leadership of Marâiwatsédé, in a public hearing in the Chamber of Deputies on August 13, 2018 expressed the pertinent doubt regarding the route of the highway and how the positive impacts for residents in the area of direct influence were not duly contemed (Brazil, 2018).

The significant inability to operationalize the mechanism of prior consultation by the licensors has produced a significant increase in the transaction cost of environmental licensing. Although the literature of political science and institutional economics (North, 1990; Tsebelis, 2009) indicate that the expansion of political actors in the decision-making process is incurred in the increase of the transaction cost, the case of the licensing of the road paving that would directly reach Marãiwatsédé Land indicated that the non-inclusion increased the political process' cost.

The most urgent need for human rights is the establishment of equality in a situation of freedom, only in this way can we know and create mechanisms for the protection of different identities. It is at this point that it is necessary to invoke the previous consultation, something essential for a situation previously identified by the licencier (IBAMA) as a risk to indigenous residents there. Not to consult them implied not only in the breach of Convention No. 169, but also in the reduction of benefits to municipalities around IT. Not to consult the populations of the municipalities in the area of direct influence of the paving of the BR-158 also reinforces that, in this case, the non-inclusion increased the transaction costs of the undertaking, something identifiable in the morosity of the licensing procedure environmental.

By determining that the language of the environmental impact study is clear and intelligible to any citizen, Convention 169 guarantees equality of starting points between the community consulted and public administration. The transparency of the EIA about the real socio-environmental impacts in the phase of the previous license strengthens the belief that one lives in a democratic state of law, because, as well as Norberto Bobbio recalls in democracy and secrecy (Bobbio, 2015):

> [...] They are inherent to the political action – both to the dominant power and to the counter – two specific techniques, which complement each other: to subtract from the public's gaze at the moment when deliberations of public interest are taken and wear a mask when obliged to perform in public.

Prior consultation under Convention 169 reveals the process of decision-making by the State, taking away the influence of what Bobbio calls in the aforementioned invisible power test, characteristic of autocratic relations. This mechanism makes environmental licensing more ethical because it ensures the freedom of choice for consults, as well as their equality with regard to effective access to information contained in the EIA.

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

The previous consultation potentiated the convergence of interests between the Xavante people of Marãiwatsédé and rural producers in the municipalities of Bom Jesus do Araguaia, Alto Boa Vista and São Félix do Araguaia. The proposal to change the route of the BR-158 highway from within IT outside its area would render benefits not originally foreseen, both by those who demanded the environmental license (DNIT) and by those who granted it (IBAMA), reducing conflicts within indigenous land how much potentiating the yield of grain production of large farms as well as the stimulus to the projects of settlements and family farming in the tracing where there will be the paving of the highway.

Final considerations

When observing the procedure of prior consultation in the environmental licensing of the paving of the BR nº 158 the observation of Hughes (1998) is pertinent: using the term "public participation" is coherent to the extent that the participants have effective control of the decision-making process, with a consistent ability to influence it in some way. In this sense, decision-making has not been shared between those who undertake and who are affected by the undertaking not prevailing the ethical principle of "equal consideration of interests".

The previous consultation, as directed by the ILO Convention N. 169, was not operationalized in the decision-making process involving the environmental licensing of the paving of the BR nº 158, increasing the risks of the undertaking, especially the resumption of the land conflict in area.

The alteration of the road path and its paving, however, continues to the present moment. The Federal Prosecutor's Office has entered Public Civil Action (ACP) from the Public Civil Survey number 1.20.004.000750/2012-85 against IBAMA and DNIT, respectively the licencier and the claimant of the environmental license for paving the highway (Brazil, 2019).

In this action, two measures draw attention: the first relates to the ACP demanding the closure of the excerpt of the BR-158 that crosses the indigenous land (TI) Marãiwatsédé and, within one year after the transit on trial of the decision, the request for penalty of daily fine of R$ 50000 (reais) in favor of the Xavante indigenous community in Marãiwatsédé land. Another measure is the demand that IBAMA does not issue more licenses for any undertaking that directly affects indigenous land.

The solution for a concertation between all actors directly and indirectly involved in licensing (indigenous, DNIT, IBAMA, rural owners, residents of urban areas among others) ends up oscillating in a pendular movement, or composing measures closer to "equal consideration of interests" between political and social actors, sometimes in a "zero sum game", in which depending on what is proposed and decided by the involved, one group loses while the other wins, apparently.

Revista Teoria & Pesquisa, v. 30, n. 1, 2021, p. 48-69
DOI: http://dx.doi.org/10.31068/tp.30103

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