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Mestrado em Gestão e Valorização do Património Histórico e Cultural -

Master Erasmus Mundus TPTI

(Techniques, Patrimoine, Territoires de l'Industrie: Histoire, Valorisation,
Didactique)

Hydropower Plants: A Mosaic of Landscape Heritage

Nádia Matioli Yazbek Bitar

Orientador / Sous la direction de **Ana Cardoso de Matos**

Évora, setembro de 2018 | Évora, septembre 2018

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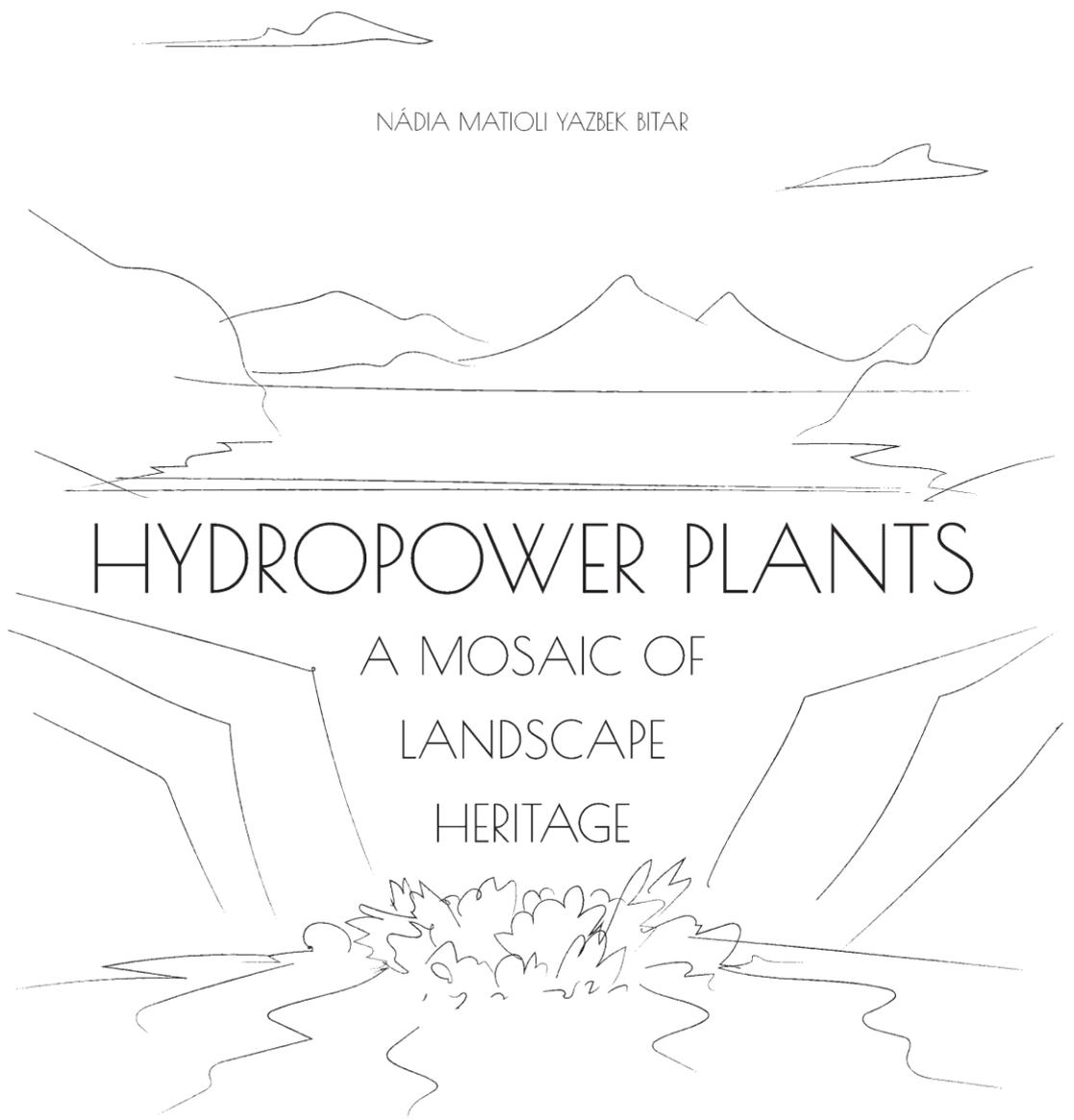
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HYDROPOWER PLANTS

A MOSAIC OF
LANDSCAPE
HERITAGE

LES CENTRALES
HYDROÉLECTRIQUES: UNE MOSAÏQUE DU PATRIMOINE PAYSAGER



UNIVERSIDADE
DE ÉVORA



PANTHÉON SORBONNE



UNIVERSITÉ
DE PARIS

Les centrales hydroélectriques: une mosaïque de patrimoine paysager

Resumé: Cette recherche a abordé différentes manières de penser et d'agir sur le paysage des centrales hydroélectriques. Il vise à identifier comment des paysages particuliers (et compris en tant que patrimoine) sont traités dans différents cas et situations dans le monde où l'industrie des barrages s'impose et se réinvente. Pour cela, le travail reprend les concepts de paysage présents dans les débats théoriques de la géographie, mais en dialogue avec d'autres domaines, tels que les arts, la littérature ou l'ingénierie, compte tenu du potentiel de ce concept à catalyser des approches interdisciplinaires. La méthodologie proposée est basée sur l'inventaire des différents cadres (politiques, esthétiques, écologiques, éthiques) à un exercice à l'identification des particularités, mais aussi des déterminations générales qui se chevauchent l'espace habité (écoumène) face à des projets d'une telle ampleur. Ainsi, la proposition d'une mosaïque de paysages hydroélectriques destinés à évoquer la discussion entre le local et le global; exposer des scénarios critiques qui se répètent dans le monde et qui, d'un autre côté, ont permis de révéler des expériences et des sensibilités qui indiquent d'autres perspectives, peut-être plus encourageantes.

Usinas Hidrelétricas: um mosaico de paisagem e patrimônio

Resumo: Este trabalho abordou diferentes formas de pensamento e atuação sobre a paisagem das Centrais Hidrelétricas. Procurou identificar como uma paisagem tão singular (e entendida como um patrimônio) é tratada em diferentes casos e situações no mundo onde a indústria das barragens se impõe e se reinventa. O trabalho resgata conceitos de paisagem que estão presentes nos debates teóricos da geografia, mas que dialogam com outros campos, como as artes, literatura ou engenharia devido ao potencial deste conceito em catalisar abordagens interdisciplinares. A metodologia proposta baseia-se e inventários feitos em diferentes contextos (político, estético, ecológico, ético) como exercício de identificação das particularidades, mas também de determinações gerais que se sobrepõem ao espaço habitado (ecúmeno) pressionados em face de projetos de tal magnitude. Assim, a proposição de um mosaico de paisagens de hidroelétricas procurou despertar a discussão entre o local e o global, expondo cenários críticos que se repetem no mundo e que por outro lado também permitiram revelar experiências e sensibilidades que apontam para a outras perspectivas, talvez mais animadoras.

Hydropower Plants: A Mosaic of Landscape Heritage

Abstract: This research approached different ways of thinking and acting on landscape of Hydroelectric Power Plants. It aimed to identify how a landscape so unique (and understood as a heritage) is treated in different cases and situations in the world where the dam industry imposes and reinvents itself. For this, the work rescues concepts of landscape present in the theoretical debates of geography, but that dialogue with other fields, such as the arts, literature or engineering, given the potential of this concept to catalyze interdisciplinary approaches. The proposed methodology is based on inventories of different framework (political, aesthetic, ecological, ethical) as an exercise in the identification of particularities, but also of general determinations that overlap the inhabited space (ecumene) in the face of projects of such magnitude. Thus, the proposition of a mosaic of hydroelectric landscapes intended to awaken the discussion between the local and the global, exposing critical scenarios that are repeated in the world and that, on the other hand, also allowed to reveal experiences and sensibilities that point to other perspectives, perhaps more encouraging.

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As the main challenge I observed a coup d'état (even of apparent legality) and the installation of an exception regime in my country right after I left it in 2016 to start this master's degree. Yet "resist and flourish." It is hoped this work may have continuity, once that faced the several obstacles of the path taken endless opportunities are sighted in new and near horizons.

Above all I dedicate to my parents, Maria and Omar and to my brother Gabriel, for the support and unconditional love.

II. PREVIEWS NOTES

The idea for this research results from the personal trajectory that has a turning point in 2015 during work performed as socio-environmental analyst in a consulting company, aimed on issues of environmental and socio-territorial impacts. The focus of action of this company was the granting of licensing and legal permits for industrial enterprises, ports, mining, constructing in urban sites and so on. From a personal point of view it was a *trajectory-process* of knowledge achievement and acute awareness, concerning irreversible impacts on communities and ecosystems.

In the year quoted, a case of construction of a hydroelectric power plant in the Amazon region was the fuse to raise certain worries/*inquiétude*. This specific project aroused and consolidated the interest and the importance to set up a view - usually not taken into account - that could bring the landscape to possible category of analyses, in line with its historical, symbolic and practical expression. Alongside with it is a perspective of analysis that allows to re-think the logic commonly accepted in the environmental licensing studies that contains: impacts *versus* impacted; diagnoses of the physical, social and biotic environment *versus* mitigations; compensations and negotiations and so on. Moreover, on those surveys, we very often find a dichotomy between material and immaterial heritage between natural and cultural heritage, that we also believe that should be overcome.

The project in question was the construction of a hydroelectric power plant (with more than 6300MW) that would flood - and consequently remove - acknowledged Indigenous Lands (which had not yet been finally approved in the legal procedures by the executive power) in the Tapajós River, Pará State, in Brazil. That area had already been prospected and designated in the plans of energy expansion since the military government, during the seventies.

In that instance, the objective was to analyze the main political and strategic aspects for the Brazilian energy sector, as well as juridical and anthropological aspects related to the demarcation of the Munduruku Indigenous Land. This took more than a decade to be developed due to slowness (and at some point deliberate lack of interest) by the high-level government to regularize the indigenous territory. The Indians were simply taken as

"risk factor" for the business of the companies which had interest in the implementation of the construction of this hydropower plant. Not only in the production and commercialization of energy, but also in the managing of hydrographic resources, the use of water and so on. This land, with a great hydropower potential, is a *river-frontier*, still unexplored in the Brazilian Amazon from the point of view of big dams. Therefore, the land of the Munduruku people represented an obstacle, a barrier to the plans of companies and government.

In the socio-environmental approach, we had the support of theories of Anthropology and Biogeography, Physical Environment, in addition to the studies of stakeholders involved with this large river. Therefore, it was understood that new possibilities of analysis was in need, and that we should start to discuss another paradigm for multidisciplinary surveys. Nevertheless, we should consider the fact that these decisions must be taken with greater social participation and in a transparent way, since they involve internal and external interests towards a nation. In this way, the discussion about hydropower plants in the Amazon region enters into the ethical field in order to guarantee the universal values of social justice. The discussion also involves the ideas of how, as public interest, we imagine that the energy matrix should be set up in a country, introduce the question if the water resource is really a clean one, in an overview that discusses why we build and implant the hydroelectric power plants the way we do.

In that occasion it was possible to perceive the model in which the country was planning its large dams. It is desirable then to confront this picture with variable experiences in other countries, in order to think critically over the reality seeking to understand under different scales and aspects of analysis, problems and its solutions were adopted, notably: to have the landscape heritage approach as paradigm.

III. II INTEREST IN THE SUBJECT

The choice to go to geography at the university was a childhood choice. But the contact with the concept of landscape occurred only in the adult life, at the University of São Paulo. There it was possible to understand other meanings of the landscape studies, such as: being the result of social and environmental crisis, of human creations, much more than the "field of vision" or just "the view" from a tall building in the centre of the city, being the landscape only what I could draw from there.

During the masters degree it was possible to meet authors who problematize the universality of the landscape, the selectivity of which its meanings have been used, and even incorporated into the world of the commodity (by the tourism industry, for example), becoming another object of consumption. *En revanche*, it is promising to look at Cultural Landscape as an effective view that can support and consolidate local knowledge and management of landscape, as it is already no doubt in vogue.

1. INTRODUCTION

“A paisagem é, sobretudo, produzida por não paisagistas, a partir de “pedacinhos”, construções isoladas” (SANTOS, 1995)¹.

The general perspective of landscape analyses in this work is to identify the ways in which the industry of hydroelectricity and dam engineering has been operating in the space, how the landscape transforms in this context. Its actions modify natural, historical and cultural landscapes, result in a denying of the original landscape. The explanations and reasons in the economical, political and cultural background, although accepted, corroborate in the modification (in a very incisive and dramatic way) of the natural process of constitution of what we call landscape, in those very special locations. More important than this, it appears that the areas of rapids, canyons and waterfalls, known as *acidentes geográficos*, are targets for the constructions of hydroelectric plants. These areas have the particular characteristics: frequently areas of contact of different soils, due to geomorphology, differentiation of fauna and flora species, and because of the strength of scenic beauty, often sacred sites for ancient societies. As its contain its marks, they are therefore also potential archaeological sites.

To the unveiling of this process that installs a power plant in a determinate locality, is important to deal with notions that are in the “invisible level”, such as identity, feeling of belonging and identification with a place, or as trajectory of knowledge. Also, it is relevant to assess the historical determinations in the built narratives, as well as the status of problems that were overcome given the possibilities available; generated in the relationship between society and space. The social values produced in a landscape indicate the notion of heritage and in this way, the landscape heritage. Therefore, in one side is the importance of the natural aspect for some people, usually distant from this reality, and in the other side is the history and the memory of the people at stake, which is very important for others groups.

¹ “ the landscape is mainly produced by non-landscapers, from "little pieces", isolated constructions” SANTOS, 1995. Milton Santos speech in a conference in the II National Meeting of Landscape Planning Teaching into Brazilian Architecture and Urbanism Schools, at the happened in São Paulo University Architecture and Urbanism School, on 1995.

Fundamentally, the debate about landscape is found mainly in the academic instances of Geography, Ecology, and Architecture. The international scene embodied by the United Nations Educational, Scientific and Cultural Organization - UNESCO in many occasions, and by the European Convention of the Landscape or the “Florence Convention” starting in the 1990’s - had made this knowledge rise into the political level. From this process on, we find today a relevant amount of institutions able to speak “in name of” the landscape. Organizations concerned with the endless exploitation of nature are promoting and defining conventions, encouraging the cooperation between the nations (what can represent problematic differences when changing from one country to another), and introducing principles of protection managements. Hence, effectively planning the landscape, and with time, caring not only to the “outstanding landscapes”, usually flagship of what the valorization of landscape through tourism offers.

Currently, such efforts in Europe is to adopt specific measures set out by the Florence Convention, regarding the needs to recognize landscapes in the law as essential to the communities surroundings. The diversity of the shared heritage tie, both to cultural and natural component, should be presented to the common sense as the main factor for the identity of the people. The Florence Convention advocates also the importance to establish procedures for broad popular participation, so far limited in the institutions and governmental arenas.

In Brazil, the preservation of the landscape was fixed by federal decree already in the 1930s, when the National Institution of Protection of the Historical and Artistic Heritage (IPHAN) was created. The renewal of the practices were substantiated by several institutions, acting on the landscape issues, together with the UNESCO efforts and standards. It is possible to visualize effects from the federal regulation, as well as the stimulation of the for greater permeability in local laws. Those are due to the efforts of professionals and academics that work with this subject. In the other hand, as the civil rights are shut down currently (in Brazilian case), the standards concerning the use and preservation of nature appear absolutely fragile.

In this research, cultural landscapes – related to the hydropower industry - take cases of study under different themes. The notion of Cultural Landscape promoted by UNESCO²

²In 1992 the World Heritage Convention became the first international legal instrument to recognize and protect cultural landscapes. (...) cultural landscapes represent the "**combined**

is a pertinent starting point to approach the heritage values, since it allows a sensible gaze towards the territory, and safeguards the very singular relations men/nature inserted in those landscapes, as a central aspect.

However, the criticism that goes beyond what can be named an organic perspective in this landscape morphology (also ensured by UNESCO's standards) is that it does not allow its appreciation through metaphors, which could understand landscape as political or ideological, for instance. In this sense, culture appears as an entity with no concrete social agent, placing the landscape in a harmonic framework. Having that in mind, it seems important to analyze and criticize the views that consider this a sufficient way to approach the theme in study.

The renewal of the concept of landscape that goes from Carl Sauer to Denis Cosgrove will emphasize the experience that landscape offers, making possible the creation of meanings. Landscape is not only morphology, but also inserts itself in the world of meanings, being impregnated with symbolism. (COERREA, 2014).

Subsequently, we can consider that the *patrimonialization* of the landscapes has operated over time through some main paradigms: one is the landscape object of patrimonialization, in which the *pittoresque* can be equivalent as piece of art. Another paradigm is the landscape as environment, that must have its main matrices classified and identified in the perspective of their management. And finally, the cultural view, that places the landscape in a dynamic and interactive position between the natural and social aspects (BOUNEAN and VARASCHIN, 2012).

Although the reports remain related to the studies on the beauty of nature or on its remarkability and picturesqueness, the traditional approaches had made Industrial landscapes part of Cultural Landscape, also under UNESCO's and other entities brand. Thus, a way of thinking the hydroelectrical landscapes will be in discussion in this

works of nature and of man"(..) They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal. The term "cultural landscape" embraces a diversity of manifestations of the interaction between humankind and its natural environment. Cultural landscapes often reflect specific techniques of sustainable land-use, considering the characteristics and limits of the natural environment they are established in, and a specific spiritual relation to nature. (emphasis added, Source:whc.unesco.org).

research. This work seeks to dialogue with this process, with numerous different approaches, that operated the intention of re-signification and re-use of old industrial spaces, which multiplies in the western world since the process of deindustrialization had become so powerful in terms of landscape analyses all over the world.

A field of research, which announces itself, was conducted “timidly” by the historians during the 1980s, and it was known as the Technological Landscapes. It was established in France, and some examples of its precursors are: Cristhophe Bouneau and Denis Varaschin with the work: *Paysages de l'industrie, Ruhr Wallonie-Région du Nord*, and later, the studies of Jean-Robert Pitte on the landscape of electricity, with his work *Histoire du paysage français*. Pitte, in 1983, strongly considered the need in the twentieth century to look at the power plants and its relative structures as “(...) *un space instrumental impensable, subi et inapropriable par l'individu*” (“BOUNEAN & VARASCHIN, 2012, p.10).

This idea is summarized in the section quoted:

“Le paysage électrique est une construction culturelle, qui est le produit d’une technique et d’une société, toutes deux relatives et en mouvement. Le paysage étant un miroir de la société, au de-là de la conflictualité remarquée, au-delà des polémiques et de la caricature, la recherche du consensus, de la construction ou du simple compromis ne serait-elle pas l’utopie d’une autre utopie?”(...)“Ce nouveau système paysager, dont la signification recueillait tous les signes ambivalents de la modernité, avant d’être aujourd’hui en certains cas patrimonialisé, a produit des figures extrêmement diverses (...) (BOUNEAN and VARASCHIN, 2012 apud Gouy-Gilbert C, 2011.p.12 **emphasis added**) ”.

As the authors above also consider, the landscape of hydroelectricity is a *système paysager* among other cases (nuclear power plants, thermoelectric power plants, *éolien et solaire paysages*, urban networks, etc).

This research is dealing with cases from France, Portugal, Italy, and Brazil, countries where the classes of the masters Erasmus Mundus TPTI were conducted, as well as the country of origin of the author. In these four countries it was possible to have access to primary sources and observations and experiences “with the landscape” *in locus*. The mosaic announces the possibility of treating the objects seen in the landscape in a systematic and globalizing way, while the landscape analysis is the main objective in each case of study. Each case will be studied according to its own periodization and *landscape meaning* that we seek to identify, but also following a common thematic method.

We propose to face the problem: Could different case studies (presented as inventories), contribute to a better landscape planning? Once the inventories addresses different views of the landscape, they can expose better *mise en paysage* cases in current and future practices, one from the other? Is currently landscape management practices in the context of hydroelectric plants considered sufficient to solve the problems that these landscapes "personifies" in particular localities?

Résumé d'introduction: L'introduction établit les principales problématiques liées à l'analyse du paysage, notamment des paysages des centrales hydroélectriques. Les impacts de ces constructions sur la nature modifient la réalité locale, les modes de vie, les références pour certains groupes sociaux, donc: le contenu patrimonial. Au fil des éléments naturels, les caractéristiques très particulières de la rivière sont changés par l'industrie hydroélectrique et de ses installations. C'est en raison des spécificités géo attributs (géologie, l'hydrologie et la géomorphologie, ainsi que la faune et la flore, etc.) de chaque rive, cascades, rapides et canyons qui s'étendent le long de la rivière, que plusieurs sociétés ont construit leur culture et de l'histoire. Les tensions et les conflits sont établis une fois que l'intérêt de la production électrique remet en question les significations des groupes anciens et actuels, donc des lieux où un patrimoine commun de ces populations est en jeu.

La présente étude est basée essentiellement par l'approche géographique en interliaison avec d'autres disciplines qui, elles aussi s'occupe du paysage et de la culture de ces régions avant et après le barrage, et de la qualité relationnelle et ambivalente que le paysage évoque. Comment est-il possible d'aborder le thème de la planification de l'entreprise avec les horizons des politiques du patrimoine ?. Pour essayer de le comprendre est important de considérer différentes expériences portant sur des cas de la France, du Portugal, de l'Italie et du Brésil. La mosaïque annonce la possibilité de traiter les objets vus dans le paysage de manière systématique et globalisante, puis, en essayant de parler d'une meilleure mise en scène du paysage dans les pratiques actuelles et futures.

2. OBJECTIVES

The general objective of this research is to analyze and discuss the landscape of hydropower plants as subject of historical and cultural heritage. Seeks to identify aspects of cultural heritage both natural and anthropic present in a landscape that was modified by the hydropower plant. Its significations, symbols, different meanings of interpretation, thus, been able to understand landscape through the history of the relationship between the nature and society, as reflex of this relationship.

The approach deals with geographical exceptionalities (as is the natural aspect of the land geomorphological and its geological formations); archaeological sites, traditional old societies, memory of civil conflicts, human tragedy, representations through art, urban scales, architecture, production and consume of space; territorialities of electricity and so on.

The study cases proposed, deal with different kinds of projects and scales but all attending, *a priori*, to one basic need: the energy production through hydroelectric plants. While suspecting that the dam construction can serve to others proposes rather than electricity for the common public, it is also intended to find out what is at stake in the roll of action of this industry.

Secondly, the goal is to investigate if there is practices to preserve the landscape heritage in those sites. So, evaluate the understanding of landscape as cultural heritage in the context of conception and development of hydroelectric power plant projects, and in the sites surroundings. Discussing then, the impacts of the site construction in the landscape and the perception of this landscape to the community. In other words, the mosaic will be an analytical synthesis about the forms and practices of landscape recognition in the areas affected by dams and lakes.

Is the main objective of this thesis to answer questions like: how was treated the subject of conservation of landscape? And the preservations of the memory of the place? What is the social significance given to the site? What can be speak about this landscape today? What about the future landscape?

In order to attend these goals, a set of four cases is analyzed following a specific methodology, plus an extra analyses in the conduction of hydropower basin inventories

are proposed, they stayed understood as components of a mosaic of landscapes heritage of sites of hydroelectric plants. The mosaic intends to interpret (tries, at fullness of meanings) the physiographic aspects of the site, the human particularities; from their origins and experiences, the material and techniques and the social relation in which objectively/subjectively the landscape reveals. Therefore, unveil the historical importance of those sites and diagnose the corresponding memory preservation, rising the information of their state of organization and conservation. Including not only the industrial heritage and the material culture, but above all, discussing trying to grasp an identity and a symbology of the landscape, allowing the thought to deal with the heritage field in a more vivid and active way.

Dealing with diverse and different perceptions about landscape, it is need in the bibliographical review situate the trajectory of knowledge and the multiples understandings that has put landscape as a symbolic representations of a society, as reflex of its culture. Same time, as is assuming the character of an object, and so, something that can be shaped according the needs and intentions of certain groups that prevails over time.

Meantime, the method for the investigation has put the landscape as a frame for territorial polices and landscape management with critical eyes. For that, the work seeks to construct a possible understanding of the landscape beyond the ecological approach, as its perhaps can detached the natural process from the culture and history of a place. In all the cases, it is put in dialogue the hypothesis that the environmental discourse disguise or leaves aside several aspects of social conflict that is almost always present in term of hydropower plants landscape. However necessary and important the ecological approach is, it can be antagonistic to social reality and therefore, alone, can be considered insufficient in terms of landscape analysis.

Along the research, the landscape is perceived as is constantly changing and assuming new forms as the society changes, because it is never quite adjustable to the paradigm of singular identities based on ancestral ties between communities, languages, traditions and lands". (CLAVEL-LÉVÊQUE et all, 2009.p.27). The thinking about this particular field of heritage must be attentive since it is a real risk to crystallize patterns getting distance from it, forgetting that the landscape is a historical synthesis of multiple ties that connects at the same time past and present.

To summarize, we are looking to expose in this work:

- (i) the reason for the construction of the power plant and the solutions adopted (origin, argument, justification); and compare this to the picture today;
- (ii) how the works modified the landscape (the analyses of the aspects of vegetation, the hydrographic system, geomorphological dynamics, land uses etc. - or physiographic changes in the landscape;
- (iii) the main aspect of landscape heritage: that has been preserved /that has been lost - and why;
- (iv) Evaluate the heritage management in these localities; - its political framework and stakeholders;
- (v) Evaluate possibilities and difficulties for preservation (level of daily life of the community, medium term, decommissioning of the hydroelectric plant);
- (vi) Evaluate or built a possible significance of the landscape;

Résumé des objectifs: L'objectif général de la recherche est d'analyser et de discuter du paysage des centrales hydroélectriques en tant que sujet du patrimoine historique et culturel ; (à la fois culturel et naturel une fois que le paysage peut réunir ses deux qualités). Les cas d'étude proposés traitent de différents types de projets et d'échelles, mais tous s'intéressent, a priori, à un besoin fondamental : la production d'énergie par les centrales hydroélectriques. Pour cette raison un des objectifs de ce travail c'est discuter alors des impacts de la centrale hydroélectrique

Afin d'atteindre ces objectifs, un ensemble de quatre cas est analysé selon une méthodologie spécifique (pour tester cette méthodologie) ainsi que des analyses supplémentaires dans la conduite des inventaires hydroélectriques et des principes de sélection des sites. Surtout, entend discuter de différentes approches identitaires et une symbolologie du paysage répondre aux questions liées : aux motivations qui ont amené à construction des barrages ; à la façon comment les travaux ont modifié le paysage ; à l'évaluation de la gestion du patrimoine ; à l'estimation des possibilités et difficultés pour la préservation du paysage, et construit une possible signification du paysage.

3. JUSTIFICATIONS

It seems hard to think that the current challenge posed to hydropower plants³ will be overcome only by a practical issue in terms of construction engineering and technological innovation. It is also very difficult to separate the social production as active in the industrial sites (the landscaping phenomenon); from the production of a theoretical thinking about this spaces.

As said the philosopher: theorizing does not suppress the problematic of the modern world, it helps to put the questions more strongly (LEFEBVRE, 1996). Thus, it is pointed out the need to re-unite in a study - different forms of heritage of hydroelectric landscapes, that can reveal real examples of memory, oblivion and permanence. Trying to grasp and unveil the *totality*⁴ of these landscape production (perceived in the discourse arena) as well as the possibilities of contributing to the knowledge of history and social practice related to these projects.

Thus, it is possible to escape the reductionism, which places the landscape of dams uniquely as a technical and industrial context and reduce the social “intelligences” that this landscape contains. It is also assumed that the analysis of the landscape of dams must pass through the scope of the interdisciplinary approach with a critical analyse that can address the technological and economic crisis, as well as the practical crisis and the environmental crises.

³ Hydraulic machineries today face the challenge of flexibility. The electricity markets short-term issues together with the development of versatile wind and solar energies are demanding the hydropower plants to provide more and more flexibility services. The highly unsteady regimes associated with these services are hard for the machines, and are bad for the aquatic environment (VIOLLET, 2017).

⁴ “The totality, according to Kant, is "plurality considered as unity" or "unity of diversity," according to A. Labriola (1982) and E. Sereni (1970)” (SANTOS, 1988). Understanding the totality as adopted: “When I work with the world, I use all of its variables at a given moment. But no place can accommodate all the same variables, the same elements and the same combinations. Therefore, each place is unique, and one situation is not similar to any other. Each place particularly combines variables that can often be common to various places. It happens globally, selectively, in an odd way, although always controlled by the totality, and this is what leads us imperatively to the need to pay attention to the concrete history of today, of the human community, its actuality, no matter the particular place where the new shows. (SANTOS, 1988). Theorizing depends on an effort of generalization and an effort of individualization. Generalization gives us a list of possibilities; individualization tells us how, in each place, some of these possibilities combine.

We consider that from the knowledge about the preservation practices related to landscape it is possible to think of them in dialogues with each other – the perception of the landscape from of its ambivalence between material and symbolic enables us to build a multiple view of the reality that allows us to compare and bring together different visions and knowledge. thus doesn't subjugating them to previous standards. It is understood that this approach can bring strength to the preservation of landscape, memory and social practices as recognized as a whole heritage. Several concerns have arisen; among them we are dealing with:

- The right to the landscape: the ethical and justice issue (universal values);
- Limits of the thinking about the water resource as a clean source - due to the practices of planning and management by the industrial forces of hydropower plants: discussion between public and private interests;
- Cultural Landscape as view that can establish and defend that local knowledge and local management of landscape. (The “invisible level”, such as the feeling of belonging and of identification with a place, or such as the trajectory of knowledge, historically determinate and also outcome from the possibilities, generated in the relation between society and a place);
- The values produced in a landscape indicate the notion of heritage and so, landscape heritage. (Discussion about the process of patrimonialization of the landscapes and its main paradigms). The treatment given to industrial landscapes; the notions of landscapes of hydroelectricity as a *système paysager*.

Résumé des justifications: Les cas qui nous nous proposons d'étudier peuvent révéler de véritables exemples de mémoire, d'oubli et de permanence. Les études doivent passer par le champ de l'approche interdisciplinaire avec une analyse critique capable de répondre à la crise technologique et économique, ainsi qu'à la crise pratique et aux crises environnementales.

Le souci de de l'ambivalence du paysage, qui est au même temps matériel et le symbolique, nous permet de construire des points de vue multiples sur la réalité et nous permet aussi de comparer et de rassembler différentes visions et connaissances. Il est entendu que cette approche peut renforcer la préservation du paysage, de la mémoire et des pratiques sociales, tel qu'elles sont reconnues comme un patrimoine.

4. METHODES

This research addresses landscape as a concept from Cultural Geography. Luckily, as the concept does not belong exclusively to this discipline the attempt is of dialogue. Enlighten the contemporaneous focus given by Ecology, Social Sciences - Anthropology, Philosophy; Architecture and History, we enter in this interdisciplinary field - Heritage - with a good deal parsimony. As Milton Santos once said, we must be aware that a concept elaborated in one discipline has rarely the same understanding as a concept for another discipline, thus we deal with a problem of appropriation of the concept that must be faced in a rigorous and generous way at the same time.

Indeed, it is challenging and inspiring to work from a science that has no consensus on its object of study (geography), to use a concept that has no consensus on its definition (landscape). The notion of 'landscape mosaic' is the proposition of a methodological framework, but even in landscape ecology (of which this notion comes from and has been largely applied); still today there is no consensus on whether or not to involve the human (with its cultural and economic scope) in landscape studies.

Any study that is situated, located, circumscribed in time is product of the relationship between society and nature through the space/environment/place/territory/area/region and a **landscape**.

This is undeniable, but the concept of landscape carries this dialectic relation⁵ in an unmistakable way; and offers a possible rapprochement through its multiple meanings substantiating the analyses of landscape heritage. Landscape analyses means also to assemble a puzzle (it will form a temporary, localized and not universal picture). This reasoning allows to bring together those singular experiences/pieces - that individualized and separated from each other has little expression for the analyses and results, but together constitute an important symbolic unit - and a possible explanation; as a mosaic.

⁵ For the understanding we adopted" definition offered by G. Bertrand: "Le paysage n'est pas la simple addition elements géographiques disparus. C'est, sur une certain portion d'espace, le résultat de la combinaison dynamique, donc instable, d'éléments physiques, biologiques et anthropiques qui en réagissant dialectiquement les uns sur les autres font du paysage un ensemble unique et indissociable en perpétuelle évolution. La dialectique type-individu est le fondement même de la méthode de recherche" (BERTRAND 1968 apud PRIVAT 1993 p.102) Definition published originally in the text: Paysage et géographie physique globale in Revue Géographique des Pyrénées et du Sud-Ouest, Toulouse, 1990.

The production of space *stricto sensus*, the "Semiotics of places" or, an "ecological approach in visual perception" among many others conceptions, this work will shorten the theory about the landscape due to strictly practical purposes. The methodological path of this work derives from cultural or humanistic geography, which signals the intention to identify the meaning contained in the human landscape, intending to overcome the acquisition of demographic data on the populations or to reduce the landscape to an impersonal element. Understandings that can end up cover traditional economics models. In fact, there is an appeal *in scene*: the landscape seen as equivalent to the environment, and therefore or because of that, must be preserved.

Aiming at "sustainable development" the landscape had been incorporated, or should be said: has been incorporating value into the places. Governments and companies raise the flag of nature but from policies and analyzes increasingly sectoral, fragmented and pragmatic.

"The idea of applying to the human landscape some of the interpretive skills we have in studying a novel, a poem, a film or a picture, treating it as an intentional human expression composed of many layers of meanings is clearly strange to us. This is what I propose to explore" (...) "landscape reminds us that geography is everywhere, that is a constant source of beauty and ugliness, of right and wrong, of joy and suffering, as much as it is of gains and losses. (D. COSGROVE, 1989. P.97 -99).

Substantiating the intention of Cosgrove the landscape resides in a social science and it is a part of the humanities, this will be a reference applied to the work. With Augustin Berque we present the method guidelines of the research, therefore applied in the investigation on the presented case studies, as well the research *in situ*, of cabinet, libraries and archives. The development of this dissertation occurred in different steps:

First of all, during the exercises and formulation of projects in different subjects during the three semesters: in Paris, Padova and Évora; where it was possible to anticipate some of the approaches on industrial heritage and landscape been in discussion in the respective academic tradition and new approaches in these countries and around the world. As well that the bibliography has gathered texts in English, Portuguese, French, Spanish and Italian.

Above all, the work is based on the existing bibliography about the matter, on classics in human sciences but also in the contemporary analyses; and it was possible through them, join up various meanings for interpretation of landscape and landscapes of dams.

Other important data base is the works done by the persons (personalities) and companies that built the hydropower plant; through the bibliographical review available. The concern was especially in contemplate the landscape assessment theme, the decision making by the companies and the state, as well as the legal instruments aimed at the protection of the heritage in each case studied. The focus was also, on the ‘planning and management’ of the assets in the role for the hydroelectric power plant. In addition, studies with documentary analysis (archives of government and the building companies, public opinion, academics) and with fieldwork projects.

The research also included what is considered essential to the study of landscape that is the field work, visits to the proposed study areas, informal conversations with the locals and occasional interviews.

Landscape studies in this work seek to go beyond morphology of the environment and a psychology of the observer (that means a way of looking to landscape in which the personal life experience and education will influence its interpretations). We especially adopt the theoretical-methodological perspective brought from Cultural Geography based on the work of the French Augustin Berque and others. For this, we consider that in each study case there is ambivalent relation (between the material and the symbolic aspect). Also, it’s assumed from the beginning, although, that landscape can be also interpreted and represented by the lenses of this observer who is the interlocutor in this text.

The synthesis proposed to be with the mosaic idea allows us to describe and create a survey that starts from a critical view about the landscape in question, assuming that there is no “only materiality” as is in matters of planning and polices. By describing and quantifying, making articulations, associations, exclusions, classification of functions, of structures etc. Often it’s in line the risk to get distant from the initial object of the proposal: the landscape as a sensitive and abstract record and therefore concerned with the cultural and historical component – of which the landscape inherited and manifests.

There is more about Augustin Berque further in this research, as he advocates to build *une pensée paysager*. To him, the study of the *ecumène* and therefore the landscape cannot be seen as a universal object as do the earth sciences or natural sciences. Tells us, that these sciences often abstract the means of history. Thus, to reach an objective

knowledge of the terrestrial surface (of the ecumene⁶ in the landscape); its requires the sense that the human history gives to it.

It is understood that the senses of a landscapes always differ according to societies, which project their ways of seeing, subjectively, objectively inscribing the surface of the earth with their actions. This ambivalent, (partly objective, partly subjective) relationship is the human reality, the ecumene itself⁷. (Maria, 2010 apud Berque 2000). In this work, the very singular and symbolic sense identified in a landscape in view, will foster the discussion about the landscape heritage.

Having this in mind, here we reproduce the steps he has described as schematic procedures for the study of landscape, published in the text named: "*PAYSAGE-EMPREINTE, PAYSAGE -MATRICE Eléments de problématique Pour une géographie Culturelle*": in 1983, when he was applying this on his studies in Japan:

1) **L'inventaire éco-géographique** /comment et à quel degré telle société (par l'agriculture, l'habitat, etc.) a-t-elle transformé la nature de son ecumène?

2) **L'inventaire des représentations** /comment tel paysage est-il perçu? Comment telle société évoque-t-elle et idéalise-t-elle son rapport à la nature (peinture de paysage, littérature, jardins, etc.)?

3) **L'inventaire des concepts et des valeurs**: comment telle société conçoit elle et juge-t-elle le naturel, l'artificiel, le surnaturel, la nature humaine, la nature tout court, etc. Comment ce cadre mental se traduit-il dans les projections de l'oecumène (plans d'architecture, d'urbanisme, d'aménagement, utopies)?

4) **L'inventaire des politiques**: comment telle société gère-t-elle effectivement son patrimoine éco-géographique? De quelles institutions se dote-t-elle pour aménager son ecumène, et quelle est l'efficacité de ces institutions?

⁶ Ecumene is the "human set of means" defined by the relation of humanity to the earth's surface according to Jean Marc Besse. To Milton Santos is exactly "the inhabited space".

⁷ To Augustin Berque, the landscape is a sensitive and symbolic dimension of the means; it is an expression of (Médiance); this, in turn, will give a meaning to the environment (the environment is the relation of a society with space and with nature simultaneously physical and phenomenal), is at the same time an objective tendency (sensation and perception) that offers meaning of such a medial relation, as will be demonstrated in the bibliographic review chapter.

5) **L'examen synthétique de ces diverses rubriques considérées dans leur éclairage réciproque:** éclairer le politique par l'éthique, celui-ci par l'esthétique, celui-ci par le psychologique, celui-ci par l'écologique, etc. et dans tous les sens. Sans désespérer devant la difficulté — le tout est de ne pas oublier que, si de tels liens n'existaient pas, il n'y aurait ni société, ni culture, ni paysage.

We had assumed that **L'inventaire éco-géographique** intend to investigate the changes in the landscape that are manifested in technical investments, what was the main functions of the land before the power plant (land uses); presenting the discussion about the habitat and the every-day-life. The principal intentions is to demonstrate how the electric industry act in those places. This is going to be the study case of Alqueva dam, in Portugal. Regarding the *ecoumène*, Augustin Berque is inspired by the Japanese philosopher Watsuji Tetsurô. It's understood as the " set of human resources", defined by the author as the relation of humanity with the terrestrial surface. This relation is established concretely in space and time, or in a means and in a history (Berque 2009. Apud Maria, 2010).

L'inventaire des représentations seeks to gather the information on how the landscape can be perceived and communicated, taking in account its meanings and symbolism. Been allowed to think the heritage matter once the landscape approach literature, arts and so on. This is go to be the case of the analyses of the dam Vajont in north of Italy.

L'inventaire des concepts et des valeurs was understood as an inventory of concepts and values in which all the groups in a society as whole can make a mark. But in practice is the union of the eco-geographical and the representations inventory. This is because it will traduce the ideologies or utopias that assure the continuity or rupture movements regarding structures and parameters that has impact the society in question. This will be the case analyses of Belo Monte dam, in Brazilian Amazon.

What appears to be extremely pertinent in this method of study is what is set by **L'inventaire des politiques:** in which is present the eco-geographical heritage aspect as whole. In our case this is put in crisis by the implementation of a hydropower plant and a dam, been protagonist of the engine of the changes in the landscape and ways of life under study. This will be approached in a form of an essay about the French context.

t will be, then, the construction of these inventories the common exercise applied to a few cases in the world. As for practical reasons (the size of this text has limits), it wasn't viable to research further (to complete all the inventories proposed to each case), so, it was conducted one inventory to each study case. In the last inventory, the overview of this experience of learning related to a method is synthesized and propose the mosaic approach, corresponded (in our adapted approach) to **“L'examen synthétique de ces diverses rubriques considérées dans leur éclairage réciproque”**.

Having in mind the objectives of the work and using as a guide the steps suggested by Augustin Berque, The final chapter, will be indeed a synthetic examination of those items, as in relationship one to the other “the mosaic analyses” puts in perspective similarities and differences of processes, contradictions and good practices that point out new ways of thinking and acting on the matter. Proposing after all, that they contain and offer different ways of hydroelectric as matter of landscape heritage, thus as heritage to society.

It was need also to investigate the process of the dam construction as the driving force acting on the landscape that's way the chapter about the inventories on a river basis. Not forgetting that we have in mind the goal in verifying how the landscape aspect was treated before and after the dam construction. Then the exercise was also to resume the information on the subjects linked to the history of the hydroelectric plant construction and the practices of preservations of the landscape (that was understood as heritage) during all process and in the current times. Beside this, it is understood that the strength of the construction industry and dam operation obeys a logic that is universal⁸; for this reason, the problem also resides and results in an analysis of politics and economy that also prints on the landscape a mark that is repeated in several places of the terrestrial face as in the inventory of politics that places this subject more clearly.

⁸ “All societies to reproduce themselves create more or less durable forms on the terrestrial surface, because of that, occurs the universal condition of the process of *valorization of the space*. (Moraes, Costa, 1984) According to Professor Moraes, they are "Forms that obey a given socio-political order of the group that constructs them and that functionally respond to a current society, which regulates the use of space and the resources contained therein, defining their own modes of appropriation of nature. Therefore we deal with the full and exclusive character of the social process, (which, in a certain sense, imply a certain amount of value (dead labor) incorporated in the soil, "Rugosities" that last longer than the stimuli and objectives that gave them origin"(Moraes apud Santos, 1978, p. 56).

Starting from the understanding that the object of study of geography as a social science is the universal process of the appropriation of terrestrial natural means and the construction of spaces by the different societies in the course of history (MORAES, 2014); and following this reasoning, there is the possibility of identifying that such process manifests itself in the way a hydroelectric plants installs and operates. The chain of this industrial sector must therefore be analysed as a source of knowledge about society. Such a process itself is a mediator in the analysis of historical phenomena, and in such a way, it is understood that the landscape can reveal reality. We might find that this is essentially a geographical investigation, but facing this method, it definably enters in the multidisciplinary analyses role.

Along the research it was shown the importance to examine the projects associated with landscape management present in the 4th inventory that we discuss the French context, where is possible to Identify the relation between community, company and government. Trying to grasp if is a case where the discourse with which sustainability and ecological equilibrium are grounded, it can be seen, as an example that the tourism marketing is behind the process of patrimonialization of natural heritage – landscapes, and also industrial heritage. The political aspects are easily shown due to the imbalance in terms of representativeness between the countries (cases of recognized heritage by Unesco), exposing a conflict between public and private interest and demonstrating that the political arena is indeed actually very active in the heritage field.

For this exercise, (to assemble a method to landscape analyse) many other options were thought out. It seems very challenge to build it, once will depend: “landscape is what is spoken of, when people talk about landscape” (DOMINGUES, 2013.p.241). The tortuous paths isn’t only caused by different understandings of what is a landscape, but also because each landscape in analyses has its own language, in the sense that will reflect the changes of space and time as a heritage. All the *connaissance* about it, will represent an ended frame, a dated portrait. In that sense, heritage and landscape are able to provide valorisation and preservation, in other words, deal with the future outlook?

<p>NAME AND REGION of the dam/hydropower plant</p> <p>1: Eco-geographical <i>inventaire</i></p> <p>2: Representations <i>inventaire</i>:</p> <p>3: Concepts and values <i>inventaire</i>:</p> <p>4: Policy <i>inventaire</i>:</p> <p>5: Mosaic synthesis</p>	
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FIGURE 4.1 demonstrative scheme of the method (inspired in Augustin Berque) that was the initial intention to applied to each study case.

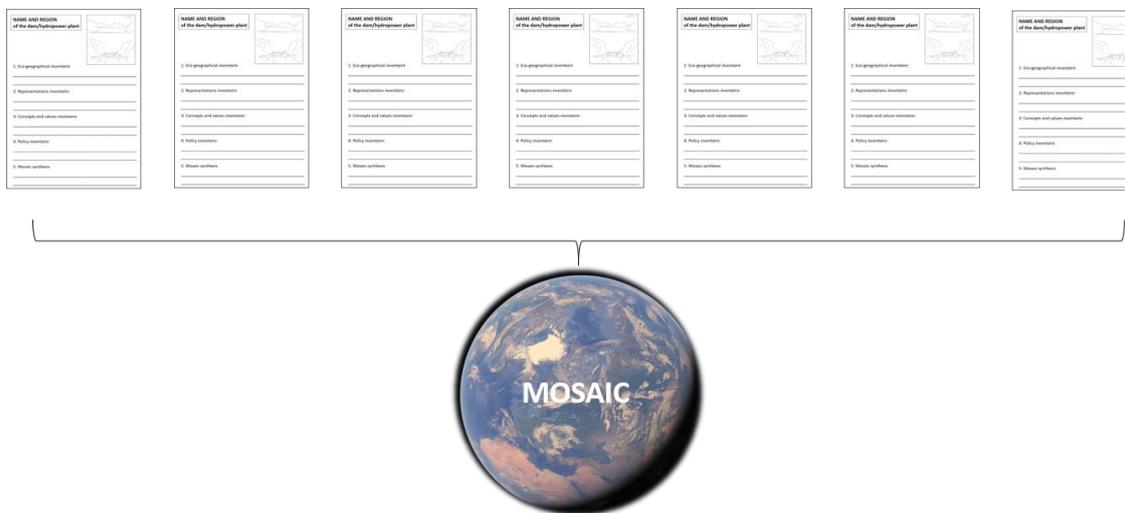


IMAGE 4.1: Each case of studies are explained in a "universal landscape of dams" that was the main initial idea that we propose, that still can be conducted in the future. In this research we are verifying only the gains and the limits of this method of approach landscape (once it was partly applied) .

Résumé de la méthode: Cette recherche aborde également le paysage en tant que concept issu de la géographie culturelle. Éclairer le contexte contemporain donné par Ecologie, sciences sociales - anthropologie, philosophie; Architecture et Histoire, nous permet d'aborder dans une vision interdisciplinaire du Patrimoine. Le travail rassemble ces expériences / pièces singulières - individualisées et séparées les unes des autres, qui expriment peu les analyses et les résultats, mais constituent ensemble une unité symbolique importante - et une explication possible; comme une mosaïque. Pour ce travail nous avons suivi les lignes directrices de la méthode de recherche Augustin Berque, appliquées à l'investigation des études de cas présentées. Avant tout, l'étude de l'écumène et donc le paysage ne peut pas être considéré comme universel. Cette relation ambivalente (en partie objective et en partie subjective) est la réalité humaine, l'écumène. dans le texte « PAYSAGE-EMPREINTE, PAYSAGE -MATRICE Eléments de problématique Pour une géographie Culturelle » à partir de 1983, nous extrayons les principaux idéaux d'Augustin Berque pour les Inventaires (méthode d'analyse du paysage: L'inventaire éco-géographique; L 'inventaire des représentations de l' inventaire des concepts et des valeurs L 'inventaire des politiques - respectivement a été étudié avec des lignes directrices de Berque: le réservoir à Alqueva au Portugal le barrage de Vajont Au nord de l' Italie, le cas de Belo Monte en Amazonie brésilienne et, et, dans le France.

5. BIBLIOGRAPHIC REVIEW

“Our task is to surpass the landscape as aspect, to arrive at its meaning. The perception is not yet the knowledge, which in turn depends on its interpretation, that will be more valid as more we limit the risk of taking as true what is just appearance”. (Santos, 1988 p.21).

« L'immersion dans le visible a empêché de voir autre chose qu'un spectacle » (C. Raffestin, 1978 p.101).

We have assumed that presenting a summary on the landscape concept or to exhaust the definitions throughout its history is already widespread and settled. This text approach few authors who contributed to the subject by adding aspects that can escape, perhaps, from the current academic and professional languages. It is believed possible to think critically about landscape bringing up a subjective (in the sense of poetic)⁹ look.

The second part of this chapter, approach landscape as subject of heritage practices and more specifically, approach the knowledge on what is called the electric landscape. Further up, the cases exposed in the mosaic allow us to evaluate the relevance of the contributions set out in this review.

5.1 The visions of landscape: from the landscape in art to landscapes of hydroelectricity

“There are then two cases to consider: either nature is united with the scene, the sweetness of the atmosphere, the torrential glow of light, the pathetic twilight corresponding to the sweetness of the gospel parable, the passionate or dramatic expression of the characters; or, on the opposite, the landscape contrasts with the subject, to which, by this opposition itself, it emphasizes” (BASTIDE. 1940, p. 422).

The studies carried out had shown that landscape concept can be approached from two great epistemological lines: the symbolic and the objective. Such duality, already widely discussed by the theorists can also be presented as real landscape (corporeal, physical-

⁹ As Henri Lefebvre thought: "In space are the objective gap (socio-economic) and the subjective (poetic) gap. In space are inscribed, and more, are 'realized' the differences, from the smallest to the extreme. Unequally illuminated, unequally accessible, full of obstacles, obstacle itself to initiatives, modelled by them, space becomes the place and the means of differences (...). (Lefebvre, 1975 in Carlos, 2007 p.13) We find possible to think like this in levels of place and landscape.

material and social) and a metaphorical landscape (theoretical and symbolic-imaginary creation) as discussed by (FORTUNA, 1995 Apud de CERTEAU 1977; 1990).

Presenting the notion of *géostucture*¹⁰ Claude Raffestin stresses the idea of representation as an intelligible device; therefore the landscape is lived as an order of representations which includes the contradictory and implies the search for “similarities and differences; of the simple and of the complex; of the unique and of the multiple” (C. Raffestin, 1978,p. 97). The example of the *Géogramme* is useful in a didactic aspect. No more than a model of the *géostucture*, the *géogramme* implies the result of a codification, the creation of systems of representation of the real, starting from a language (*de signes/plan sémiologique choisis*). (RAFFESTIN, 1978, p. 92). From the need to communicate the reality a model compose by signals and perceptions leads to an elaborated message. But what he claims isn't is “to build the history of that message but rather the history of the signs that allowed the development of a particular *Géogramme*”. (RAFFESTIN, 1978, p. 95).

Many thinkers have discuss the notions that assume the existence of an "no visible side"¹¹ that the landscape express. One way to approach a symbolic perspective that landscape evokes is set by *forged identities of places* that gains strength, same time the cultural expressions and historical dimensions are being summarized and re-signified by the representations and symbolisms of an "image of a place under construction". An example that deals with the attempt to re-shape and re-model places, to finally appear and signify a "resource of development". This is part of strategies of modernization of the images of places (FORTUNA, 1997) the cases of historical cities been declared by UNESCO as world heritage set this issue. Another forged identity gathered next in this research; is seeing the Amazon region as a single whole inhabited place, source of endless freshwater.

¹⁰ "(...) le paysage dénote une portion de terre, aménagée ou non; il dénote une fixation, un enracinement tout autant matériel que spirituel et, depuis le XVIIe, à travers son sens pictural, il dénote l'idée de tableau, de vue d'ensemble, de globalité visible. Le paysage a donc été vécu par les géographes comme l'expression complète d'un tout naturel et culturel, c'est-à-dire d'une *géostucture*"(RAFFESTIN, 1978 p.96)

¹¹ To Claude Raffestin : « Qu'il s'agisse du paysage ou de l'espace, ceux-ci apparaissent comme des spectacles de la *géostucture* « mis en scène » par le travail. Spectacles dont les messages sont ambigus, dans la mesure où ils ne communiquent qu'une face des choses, à savoir le modelage résultant d'une action, considérée d'une manière univoque, à partir des besoins supposés d'une collectivité. En fait, l'autre face, non visible, est celle de la manipulation du travail par le pouvoir qui, à travers des stratégies combinant énergie et information, satisfait des besoins qui n'ont rien à voir avec la collectivité dans ses nécessités profondes ». (RAFFESTIN, 1978 pag. 103).

One out of other ideas that justifies, its physical appropriation and the control of the territory (BECKER, 2001).

As many authors had discussed, heritage practices can be successful in safeguard certain objects, facilities, or protected and conservations areas. In the other hand they are also changing social pacts. The centralized decision making can reflect in the landscape as focus of tensions and conflicts. The earth's surface modified by technical and political macrossistemas of the electric industry places the discussion about the hydropolitical geography¹². As we know, planning and management of the landscape consequently addresses the scope of public polices even when the private sector assumes all the roles of decisions. In that curtain of smoke - in which what is public and is interest of all can be subtracted or hijacked depending on the needs of capitalization and profit maximization of its considerable very small groups – is possible to reveal often incompatible actions and distortions expressed in the landscape. Meantime, the meaning of a collective identity and the memory of the local tradition of a people, are converted or refunctionalized by tourism, or the sustainability discourse. This path leads to shape frozen, meaningless or an-historical landscapes. As more the landscapes become merchandise (in the sense that they can be sold in the market of that tourism for example); then, denying or disregarding other points of view, the paradigm of the landscape crisis is placed.

To offer others points of view that are in dialogue with landscape as heritage, we approach the landscape concept as matter of artistic language. From now starting with the literature. Good part of the texts of Machado de Assis are of concise genres, (the novel, the short story). Intending to summarize the drama and what is essential, the landscape would be dispersion, therefore secondary. His texts, to the unsuspecting public has an absent landscape; however "terribly present." (BASTIDE, 1940. p. 418). In analysing his writing style, identifies a nativist claim¹³ so important to understand the place of speech of the

¹² This is drawn once that the territorial diffusion of large technical systems (as the hydropower plants in Brazil) does not take place without the centralizations of political and economic power based in the Generation, Transmission and Distribution; according to Márcio Cataia from UNICAMP (State University of Campinas); "the unequal technification of the territory imposes new social and territorial pacts" (CATAIA, 20014). His work attempt to expose the discussion about the monopoly of companies and the transformation of energy into commodity.

¹³ In short is "the desire not to fall into exoticism, because exoticism is to see the country itself with foreign eyes - the will to express what the eye sees used to the landscape, the eye of a writer who never left his land , which does not have to make comparisons, which records the whole, and

writer in which the explanation meets the landscape. One case is "the street". The changes in the society explains the openness to critical eyes in the sense of overcoming the precursor Brazilian Romanticism, that one of sentimentality in which nature is preponderant¹⁴. This new scenario speaks about the born of an urban society, this time, open to the "art of the dialogue" through the street. This goes in opposition to *"having the Brazilian nature in what it has of more tropical, of more anti-European" what would be a real case of "illogical nativism"* (BASTIDE, 1940, p.420- 421). By placing the denial of the exotic and tropical images, landscape appears as ironic humour, as "excuse for banal epithets" and "as a reference to the romantic clichés". In short, for Bastide, in Machado de Assis "nature is everywhere" (BASTIDE, 1940, p. 421-422). The author gives the landscape materiality and presence same time facing absence of description, frameworks and notions of distance. The landscape appears as an affective relationship that must be discovered in the lines of his novels, "present in the form of the atmosphere that bathes the people, hastens their gestures, transposes them in the words "(...)" the whole style of Machado de Assis becomes maritime" (Bastide, 1940 p..426).

not the picturesque of certain tropical details. " (Roger Bastide in Machado de Assis Paisagista originally published in Revista do Brasil, 1940 p.421).

14 "The context is of Brazil marked by the stability and continuity of the imperial government, and by the romantic ideation of a nation defined by its identification with nature, thus separated from the field of History." (MURARI, 2007, apud Barros, R. S. M, 1989). Evolutionist and positivist scientism were the bases of Brazilian thought, but at the end of the nineteenth century the abolitionist and republican movements were being established.



Desmons.
Panorama da cidade de Rio de Janeiro tomado do morro de St. Antônio a vô de pássaro.
[1854].



Joseph Alfred Martinet.
O Passeio Público. 1847.



Eugene Cicéri; Philippe Benoist.
Rio de Janeiro tomado de Boa-Vista da Tijuca. [1852].

IMAGE 5.1-1: Landscapes of Rio de Janeiro in the time of Machado de Assis. Extracted from the catalogue of the exhibition held at the National Library Foundation - Rio de Janeiro in 2008 named: "100 years of an unfinished cartography". In the middle image, it can be notice a black man in charge of manual labour, a slave working in the background of the image, that usually is un-notice or naturalized.

Such as the writer, the painter places deconstruction and rupture. Is what occurs with great authors such as Paul Cézanne that "held the nostalgia for an ever closer union between man and things, a sort of mystical participation of the human with the telluric" (Bastide, 1940 p.. 423). Cézanne human paintings exchange with nature "so many signs, so many

messages, so many influences, so many mutual commitments with it, that, like the still-lives, these portraits are, at deep, landscapes” (d’Ors, s/d apud Bastide 1940 pag. 423). Such a fusion: "man-landscape" will also be found in Machado de Assis's literature, once he has his “woman-landscape”¹⁵.

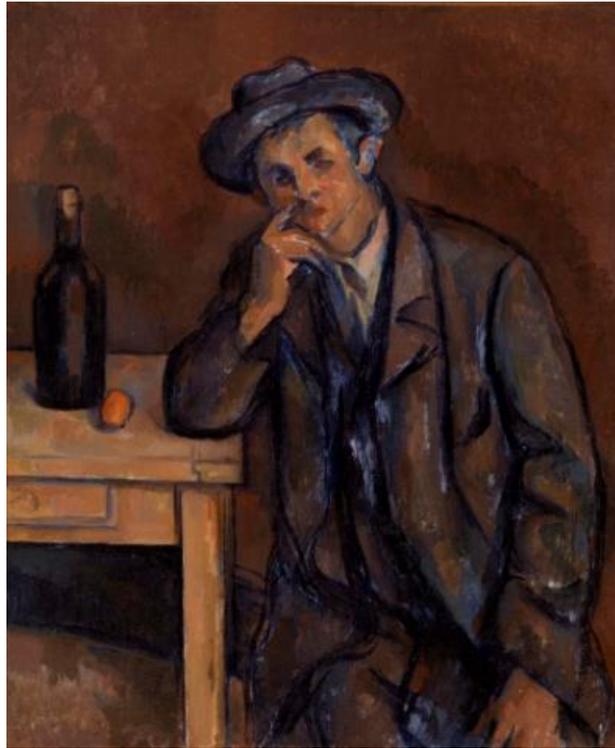


IMAGE 5.1-2: An example of an “portrait-landscape”. Paint: Le Buteur, 1898-1900. Artist: Paul Cézanne (1839-1906); Location of painting and credit: Barnes Foundation, Philadelphia US.

¹⁵ And if in Europe the poet was able to say that "Les yeux des femmes sont des Méditerranées, the eyes of the heroines of Machado de Assis, green eyes, hangover eyes, scum eyes with iridescent reflections, are made of the color of the ocean itself which bathes the beaches of Brazil (...)" (Bastide, 1940 p.424).

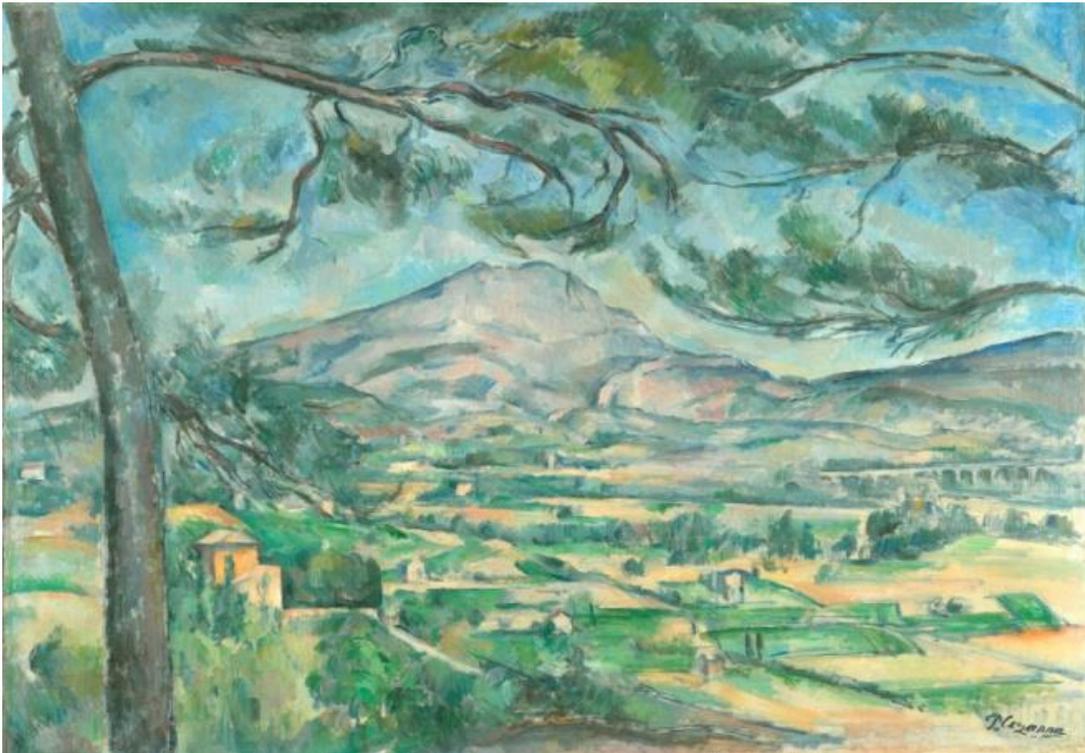


IMAGE 5.1-3: Landscape at homeland of Paul Cézanne that as Roger Fray, exhibition curator: *Monet and the post-impressionists at 1910* in London. Shows the opening to colour given the simplicity of the Modernism movement, that allowed as example the introduction of a new resource that is the abstraction. Paint: *Montagne Sainte-Victoire with Large Pine*, 1887 (around). Artist: Paul Cézanne (1839-1906); Location of painting and credit: The Courtauld Gallery, London UK.

Regarding painting, Anne Cauquelin expose a trajectory that reduce landscape to a figurative representation intending to seduce the observer's look making use of the illusion resource. Infinite natural riches have meet the privileged harmony of what is "framed" literally. For her, it is at this moment that all aspects of nature are brought to light, as if a whole another reality can be access through the painting. (CAUQUELIN, 2007).

In short, the landscape acquired the consistency of a reality beyond the picture, a completely autonomous reality, whereas at first it was only a small part, "*an ornament of painting*". It can be notice then numerous cases where the landscape framing acquires a discourse independent of reality. The creation and the use of perspective feature would be the key to understand the subjective aspect of the landscape, since it is through the notions and prisms provided by this technique that a discourse (the ideas) can emerge to debate (CAUQUELIN, 2007). It surpasses thus, the field of thinking related to art, then

entering into several themes, which in turn exchange with the domain of social sciences in a more explicit way (but no less dialectical) than literature.

Anne Cauquelin who writes about the invention of the landscape find in the Greeks, the importance of mediation between men and gods conceived over language. At all levels of social relations in the society of ancient Greece, appear the resources of persuasion. The conviction which in, arranged - elements of the scene – brings at the same time history, legend and myth. She also presents the understanding of Pliny (the old) and Aristotle, who, understand that nature (what is spoken of the elements of the landscape); appears as an economic factor, associated with the supply in which man can enjoy and manage¹⁶.

It is with Joachim Ritter that Jean Marc Besse explains the emergence of the expression landscape in modern Europe as correlates to the development of an **aesthetic consciousness of nature**, in the sense we had talked about Machado de Assis previously. Thus, the concept of landscape in the western world has its construction during the modern age also to Javier Maderulo on his *Historia de la mirada*. He finds between the years 1296 and 1603 the first episodes of "landscape exercise" as a portrait and as a concept (MADERULO, 2005). Painting is one of the cultural symptoms with higher explicit content. Together with art historians, he finds that in Europe the first expressions of landscape can be seen in the frescos of Giotto in Assis (San Francisco Church). Moment in which the “long period of conceptual evolution and perceptive learning begins”. (MADERUELO, 2005, p.255).

¹⁶ A vocabulary that connected nature to the economy, where the "forest will be deep", "the plain will be vast," and so on. With Martin Heidegger, it shows that in tales and narratives the scenic element is secondary, since there will only be place if it is a place of speech (lexis) for the Greeks. Thus The perception of nature by the "sensitive" was, at that moment absent, omitted, forgotten. (JACOB, 1982 apud CAUQUELIN, 2007 p.52).



IMAGE 5.1-4: Giotto e Atelier - Fresco - c. 1288 Basilica Superior de Assis, the image easily reference something that became symbol of Giotto work that is the representation through the perspective of architecture.

From the moment that the human figure or the still-life (*naturaleza muerta*) is no longer the object of representation, it is possible to deal with the non-hierarchy of the narrated scenes (this occurs from the seventeenth century on). When its placed a neutral environment in which values no longer meet a pre-established order (POESTER, 2003, p.6). Thus, the understanding is that the perspective becomes functionalized in benefit and in the intention of the unity of the whole. In this way, linear perspectives are crossed by other more delicate visual sensations. The use of colours and effects and techniques of light and shadow, express, for example, the deepness of the drawing, which challenge the basic geometric scheme of the classical perspective. (ARGAN 1992 Apud POESTER, 2003).

To Cauquelin the landscape is a construction of and is evoked as an icon of modernity. It is through the landscape that it is possible to unite science with art, interrogations about "an immortal nature" and concerns with "an history subjected to time". For her, the invention of the landscape is, above all, the invention of a culture. Further, the values

heightened in the act of thinking landscape, will address existential and emotional matters, and discuss the volatile presence of that which is changeable and ephemeral (the notion of the instant arises to debate). For her, the thinking about the landscape is most of all, essentialist. "The landscape as a privileged figure of nature has the power to combine differences, to join the opposites, to make the unity of the world sensible, since the contemplation of the landscape incites the peace of the soul and its elevation." (CAUQUELIN, 2013.p.21).

In the nineteenth century another artistic movement of rupture is announced. The Symbolism movement emerged as an attempt to overcome the "visuality by itself" spread by Impressionism. It was seeking the intersection with spiritualism where the goal was to reach unscientific thoughts. It was also an attempt to transcend the analytic reason to discuss other values; art for the return of the passion, of the dream, of the fantasy, of the mystery and so on. The landscape present in painting is re-discussing this matter.



IMAGE 5.1-5: To Alfredo Bosi in Paul Klee the science of vision exist through paintings, is formulated a true method that allows to see at the very moment that the object of the look is visible. "Always preoccupied with the ring of words, titles played a major part in his work. Whether ironic, poetic, irreverent, deadpan, flippant (...) his titles set up the perspectives from which he wanted the works to be seen" (Rewald, Sabina 2004). Paint: Black Columns in a Landscape. Date: 1919 Artist Paul Klee (1879-1940). Location of painting and credit: The Berggruen Klee Collection, Berlin Germany.

Through oppositions between subject and object, between actor and spectator between interior and exterior in the "scene," lies the theatrical metaphor attributed to modern cartography as it will ground what Heidegger said referring "to the conquer of the world as a conceived image". This because this subject-object relationship implied in the landscape explains formal resources of representations of geographic language – cartography, as example. (BESSE, 2006 apud HEIDEGGER 1962).

In the landscapes of Pieter Brueghel, its present the symptoms of the representation of "what is thought to be the world" or "of what is a possible view of the world" and demonstrates that there is an exercise or a practice in which to "step outside" or "to detach" from the place is required to observe it. (BESSE, 2006).



IMAGE 5.1-6: “Certainly the earth surface is placed on the scene by the artist as an image to be contemplated from above and in the distance of a foreign look”. (Besse, 2006 p. 38). Drawing: Pieter Bruegel (the ancient). Date: 1560. Driots: Museul Boijmans Van Beuningem, Rotterdam. From the collection: Musées royaux des Beaux-Arts de Belgique.

Above all, the investigations of Besse in the work of Dardel caring about the deepness of the landscape as deepness of existence, real or imaginary that opens up, starting from the look. The landscape is to him, first and foremost, an expression of existence - before the visual experience or the spectacle is conceived.

5.2 Overview: Hydropower plant industry and landscape

“Isn’t too bad to repeat: susceptible to irregular changes over time, the landscape is a set of heterogeneous forms, of different ages, pieces of historical times representative of the various ways of producing things, of building space” (SANTOS, 1988 p.24).

The history of electricity has landscape as a concrete data that will incorporate in each moment the set of techniques and instruments of work employed on it, and in correlation, as subject to a process historically determined by culture, in this case the industrial culture. A possible bibliography shows that the electric industry had developed only when was assured that the promises of profits for those investments had the guarantee of the market - in need to be formed. In this case we may think that in the development of the capitalist economy, this was one of the premises or even values that based the way the industry materialized in space.

According to John Desmond Bernal, the use of the electric power made possible the emergence of a new type of industry that was monopolist¹⁷ from the beginning. Among that, the need for technical standardization and the need to raise a great amount of capital were placed. It was forged the association between scientific development companies and companies linked with commercial exploitation and the national states. (NEPOMUCENO ET all, 2006 Apud BERNAL).

In the end of the XIX a contradiction is revealed: once the concentration of power lead by this sector (both in the hands of industry and governments), not allowing the entrepreneurship spirit or the business independence that has formed the very knowledge about electric energy¹⁸.

¹⁷Historiography demonstrates that it was through the telegraph that a possible economical application of the electricity was verified, thus enabling its wide installation. In his studies, Bernal identified that these companies and after the telephone and cable companies, were the first in the commercial field “purely scientific”. This author highlights the prominence of Thomas Edson, not only in the invention and development of electricity but also as promoter of energy as something that should be paid for (as inherent in the economic system of capitalism). Edison is a central figure to understand electricity as a product and the forward formation of cartels and monopolies.

¹⁸ Each country will react in a different way facing this complex relationship between the state and the companies the universities and the scientific development, history showed the difficulty to escape from the concentrations of the production and capital and the high competitiveness in the sector (basis of monopoly). The logic of the global market seeks to reduce costs amplify profits and increase productivity, as a backdrop for the explanation its placed the liberal ideology. (NEPOMUCENO ET all, 2006 Apud BERNAL).

Is remarkable the innovative diffusion capacity due to the transmissibility and flexibility characteristics of the technical systems developed by and for the use of electricity. The possibility of being transported through space, and the capacity to efficiently convert electricity into other forms of energy (heat and light as example) was relevant changes impacting strongly in the way space is conceived.

A new and greater mobility and independence of the industrial facilities (of various productive branches) was placed. Globally, a new geography of the industry (in a new stage) was drawing. The location of an industrial plant no longer needed to be next to a source of natural resource. Industrial landscapes multiplies fast across the world, as we can see set on the roads and around urban centres the power engineering (electrotechnology) technical systems and so on.

Questions are ask about a statement that is widely accepted: electricity is a technology that has been accessible and made available to all. We know that it is not just for housing that energy is needed. In addition, in spite of the fact that electric energy guarantees greater accessibility to several industrial chains into new territories - expanding its limits - for the electric energy generation sector, in the case of dams, it is necessary to explore a specific location. The hydropower and "geo-attributes" of a hydroelectric plant at a certain level immobilize the whole chain for production, being a decisive factor in the forms of transmission and commercialization.

Also subject of planning is the construction of roads and transmission lines, an entire infrastructure linked to the dam industry that operates in the peaks of its construction and during the operation of the power plant it will be almost forgotten (except by the landscape). Besides a large investment, in capital and labour force, often these projects can spend more than it was planned initially.

It's central to analyse how this industrial segment, to be competitive can shape and reduce into specialties and parts its technical systems. Been one company responsible for the implementation of works in the construction site and another business segment - which with the national state's authority - operates the system. However, throughout history around the world, a split in these sectors can be notice as governments have realised the strategic importance of energy to enable better public services (to take just one example). In this matter, it's with great attentions that it should be consider the campaigns of

denationalization over state companies and transference of part of the system regulation to the private sector. At diverse moments in the 20th century it wasn't unnoticed the nationalization of the companies that produce electricity all over the world. The dams are central in this process.

Also, our analysis needs to be able to distinguish: The expansion of the electric energy industry due to the increasing need of the population for water and in the other hand the production only aiming the profits on a market of purchase and sale of energy. The supply for cities and industrial areas sometimes seems to prefer or depend on the dam industry. It is usual that the decisions about the construction of dams industry are taken out of the context of the local reality of those that inhabit the target place for the project. This is one detail that imposes the contradictions observed and the conflicts between the local population and the groups responsible for the project.

Is just in the late 19th century that hydropower became a source for generating electricity. The first hydroelectric plant of large expression was built at Niagara Falls in 1879 (National Geographic.com, 2010), once in 1881, street lamps in the city of Niagara Falls were powered by hydropower. In 1882, the world's first hydroelectric power plant began operating in the United States in Appleton, Wisconsin, even so, there aren't a common sense about the first place that has operate a hydroelectric plant.

In Brazil, the first hydroelectric plant was built in the state of Minas Gerais in the region of Diamantina in 1886, with the symptomatic name *Ribeirão do Inferno* (Hell Stream) - the name of the same river – providing energy to the diamond mining activities. It wasn't energy for housing the reason for construction, for instance. In matter of fact, nowadays is still a goal of state public policy to provide energy to all population, then considering all the rural areas and communities that are still unattended (The Light for All programme started in 2003, was conceived to provide to poor households - prioritizing beneficiaries of others programs of social inclusion - with electricity free of charges). Currently in the meantime, the principal political aspect related to this economy is that the production of energy and its environmental liabilities (the expression for the social and ecological disasters) are affecting the logic to explore and inhabit the Amazon region since it's the actual mainstream for this projects expansion.

In France des studies about electricity had been carried out by numerous researchers, like among then It is worth mentioning Alain Beltran, who have studied the importance of a cooperative *mise en paysage* regarding electric industry as well caring with the imaginary history and memory in France. In Portugal Ana Cardoso de Matos show how the first world war created great difficulties in supplying imported coal from Great Britain compromising the operation of thermoelectric power plants, this was a decisive factor in the consolidation of interest in hydroelectricity which would then be assumed as an alternative to the thermal energy matrix¹⁹. In this sense, it was observed in the post-war period the multiplication of requests for the concession of waterfalls, obliged the Portuguese state to regulate and to frame such initiatives. (Matos, 2017).

“Thus, in 1919 appeared the "Water Law", which resulted from political awareness of the importance of the role that the State should play in the management of water resources and in the electrification process of the country. The publication of this law was part of a movement to regulate the use of water resources in other European countries”. (Matos, 2017 pag.58).

The proximity with Spain, country that has the spring water of the main Portuguese rivers, had made the bilateral planning an important aspect to think the water management and so a technological landscape in the Iberian Peninsula.

In France the researches in the field show that in the mains tree regions with the hydropower resource installed (Auvergne - Rhône-Alpes, Languedoc-Roussillon - Midi-Pyrénées; and Provence Alpes Côte d’Azur); face the issue to dialogue with the tourism activities also set in this regions.

The “technological landscapes” (BORSI, 1975 Apud MATOS, 2017) are in fact changing the way society observes nature, and this way of thinking (through the landscape) highlights the spatial transformations and ways of thinking that are implicated and “released” around us.

Viviana Ferrario and Amelia Martins who studied the electric landscapes in the Italian alpine valleys, had identified the transformation of a region in a corridor of infrastructure in which, the exploitation of the hydroelectric energy had had as consequence an increase of the exploitation of the natural resources and a significant socioeconomics decline.

¹⁹ About the hydroelectricity in Portugal see also Maria da Luz Sampaio, Maria Fernanda Rollo and Nuno Madureira.

(FERRARIO & MARIS, 2014). They highlight some diverse point of view about the hydroelectric landscape, that we can have as a starting point to think about the subject, been:

- ***“Inscription des infrastructures dans le paysage”***: Considering that there is a singular capacity inherent in the infrastructures of hydroelectricity that can produce new landscapes, but in which is possible to reveal the original characteristics; "electric landscapes" include infrastructural landscapes created by dams or transmission lines (SELVAFOLTA, 1998; PAVIA, 1998 apud FERRARIO & MARIS, 2014).
- ***“Impact des infrastructures et conflit avec la protection du paysage”***: the main theme is the impacts on natural environment and the conflicts unleashed by the hydroelectric development starting from the end of the 19th century until today. The debate was also in the way of think past and future of those projects imposing conflicts in the social and aesthetic level. Caring also the dimensions of these projects once there are placed today the paradigm of the micro hydroelectricity - very competitive - but still, not excluding the serious environmental conflicts. (CARAVAGI, 1998; SOGNINI et all, 2006; apud FERRARIO & MARIS, 2014).
- ***“Patrimonialisation et mise en valeur des infrastructures hydroélectriques » :*** New value is attributed to landscapes especially facing the tourism market. "The new look" directed seeking to safeguard the facilities and structures around these kind of projects as heritage that is considered (When a hydropower plant is facing the decommissioning). (FONTANA, 1998 et All apud FERRARIO & MARIS, 2014).
- ***“Projet énergétique et projet de territoire”***: Concerned with one important problem (seen as increasing) that is the lack of coordination and dialogue between the conception of infrastructural projects and the territorial polices, a problematic is identify also in the establishment of the terms: landscape resources against energetic resources. (BRIFFAUD 2014 et all apud FERRARIO & MARIS, 2014). the questioning that is posed to the authors is prior to the need for safeguarding becoming a natural heritage. The concern lies at the end on the territorial issue, on how to manage these spaces, that is: “Comment intégrer un paysage hydroélectrique très spécialisé, et à quel projet territoire?" FONTANA, 1998 apud FERRARIO & MARIS, 2014).

In the US there is another understanding. According to Allier (1999) the most discussed environmental assets is those with a recreational value and, from this perspective, the environment can't be seen as a supplier of irreplaceable natural resources and services as a condition for production and for life in itself, but as a source of recreational values.

For instance, the "Krutilla criterion" was used in the 1960s to add value to the beautiful landscape of the Hells Canyon, which once was threatened by hydroelectric projects. In the United States, the analyses on landscape consider the recreational value a central aspect in terms of protection. It can be seen easily in the USA maps that the natural reserves are called recreational reserves.

"Krutilla modified the cost / benefit analysis, giving greater weight to nature's recreational value, claiming that electricity production would be increasingly cheaper, while the recreational value of a natural beauty (such as Heels Canyon) would increase over time. " (ALLIER, 1999 apud COELHO & PEREIRA. pag.136).

The follow-mentioned authors is dealing with the historiography in France where the directives applied to landscape as state polices are considered as effective and consolidated already in the 1950's; but the protections of site and natural monuments can be also seen in the turning of the century (XIX –XX). In fact, the bibliography is pointing out that there are very few examples of history of the protection of nature and also the thinking about how landscape became a matter of action in public policies.

“Dans le champ de la recherche en histoire environnementale, les études concernant l'histoire de la protection de la nature et de l'environnement ont connu un essor important à partir des années 1980 (Cadoret, 1985), mais l'histoire spécifique de la protection des paysages n'apparaît encore que partiellement explorée. Elle l'a néanmoins été à travers différentes approches, comme celle de la patrimonialisation de la nature et de l'environnement (Lefeuvre, 1990 ; Milian, 2004 ; Raffin, 2005 ; Mathis, 2012), de l'histoire du tourisme (Savonnet, 1986 ; Bertho-Lavenir, 1999 ; Gauchon, 2002), ou de celle de la construction des identités territoriales (Thiesse, 1997 ; Walter, 2004 ; Lekan, 2004; Armiero, 2013). Rares sont, en définitive, les études concernant l'histoire de sa construction comme catégorie d'action publique et politique” (BARRAQUÉ, 1985 ; MILIAN, 2007; AUDUC, 2009 in HEAULMÉ, 2014,p. 2).

As Christophe Bouneau and Denis Varaschin explain, it is due to the deindustrialization during the 1970s that a more evident association between landscapes and technologies are made, and that this happened late. The industrial landscape of the Ruhr Wallonie region officialises this new field of research.

With regard to electrical landscapes, the authors expose the difficulty due to the complexity involving the subject, in deal with the ambivalence, and think at same time

the landscape aspect and the industrial aspect. Such a issues arises from the challenge in considering features that are part of the landscape but aren't necessarily visible. As well, the complexity of technical systems that "encapsulate landscapes".

(...) Dès la première phase de déploiement de l'innovation électrique au XIXe siècle et de construction d'un système électrique à la fois technique et économique, la nouvelle forme d'énergie s'est en effet immiscée dans les paysages existants, qu'ils fussent métropolitains, industriels ou ruraux. Mais cette immixtion, sous le signe de l'étrangeté de l'appareillage, du bâtiment, des configurations spatiales et des postures professionnelles, s'est progressivement, parfois radicalement, transformée en genèse d'un paysage électrique spécifique. Ce nouveau système paysager, dont la signifiante recueillait tous les signes ambivalents de la modernité, avant d'être aujourd'hui en certains cas patrimonialisé, a produit des figures extrêmement diverses (BOUNEAU & VARASCHIN 2012, p.12).

We are, therefore, dealing with a *technified* landscape that produces signs of modernity, while at the same time modifying an ancient landscape, they create new languages about them. To the international organization The International Committee for the Conservation of the Industrial Heritage - TICCIH the industrial heritage is a method of study, as in the Nizhny Tagil Charter for the Industrial Heritage:

"is the study, analysis and registration of the forms of industrialization of the past, has an interdisciplinary method in order to study all the material and immaterial vestiges²⁰ of documents, artefacts, stratigraphy and urban structures created for or by industrial processes". (TICCIH - Nizhny Tagil Charter, 2003).

Intangible dimensions such as know-how and organization of labour and workers is a complex inheritance of social and cultural practices that have resulted from the influence of industry on people life, under a specific landscape. We can consider the industrial heritage approach as an approach that search to find out about the immaterial vestiges caring with the landscapes of dams and its history. For that, the practices on this field still didn't developed appropriate research methods to increase understanding of these industrial past and present.

²⁰ These assets consist in buildings and machines workshops, factories, mines, processing sites, warehouses, transmission production centres, energy use, transportation means and all their infrastructure as well as the places where social activities related to industry, housing, culture, and education. This field Investigate, therefore, the vestiges of the industrial culture that has historical technological value, social, architectonic or scientific.

Resumé revue bibliographique: Ce texte aborde les auteurs classiques et contemporains qui ont contribué au sujet en ajoutant une définition du paysage, des concepts et des aspects qui peuvent être importants et qui ne sont pas toujours pris en attention par les approches académiques et professionnelles actuelles. On pense qu'il est possible de penser de manière critique le paysage en évoquant un aspect subjectif (au sens poétique). La deuxième partie de ce chapitre aborde le paysage en tant que sujet des pratiques du patrimoine et, plus spécifiquement, aborde la connaissance de ce qu'on appelle le paysage de la production d'électricité. De plus, les cas exposés dans les remarques finales de la mosaïque nous permettent d'évaluer la pertinence des contributions présentées dans cette revue.

6. HYDROPOWER INVENTORY STUDIES: FIRST STEPS OF PLANNING

This text is gathering information of the Manual for Hydropower Inventory Studies of River Basins published in 2007 by the Ministry of Mines and Energy – MME in Brazil, and of the Hydropower Inventory Study of the White River Basin that was also published by a state research company linked to the MME. The first one, it's as document that incorporates the latest concepts, methodologies and technical advances produced in Brazil in the field of dam engineering and its implications in all fields of study. Regarding the treatment given to the subject of the landscape, is important to highlight that new elements have been settled since the latest edition of the manual made in 1997. These elements are the inclusion of Integrated Environmental Assessments – AAI as part of a broader approach, addressing issues of sustainable development. As well, it is placed a methodology that start to consider the multiple uses of the waters in the river basins under study. Analytically, these two new aspects are important as represent a change in the way the surveys are conducted, (with a more humanized concern) so to speak, initially, and also the environmental concern. But as the exercise of research, demand, we take one case, where these guidelines are adapted to see, caring with theory and practice how to get closer to satisfactory answers about our theme.

To discuss the treatment given to the landscapes in the context of prospection of places to build a hydroelectric plant, it was necessary to go back in the previews surveys. The Hydropower inventory studies resume the policy of a country of how to harnessing its hydroelectric potential. Been a result of a relational influence of natural conditions and the actions printed by the society over time, we can say that a particular landscape contrasts with the first steps of planning a hydroelectric plant. As far as the landscape can be seen as a target of the electric industry, new, and others definitions and concepts are used to define it. Those survey poses, therefore, the discussion of appropriation of space, the right for memory and its meanings. An inventory is carried out based on the previous information of the hydrographic basin, this "site selection", thus, can recover ideas of use of territory and its occupation, all the data about the land, natural and mineral resources, along with elements that indicate social control. It is known that during the second half of the eighteenth century and especially during the nineteenth century, Brazil received a large number of foreign naturalists in charge of documenting and discovering the natural assets and its economic potential. Such a period is also important for this analyses,

unfortunately, it's a great work to find out about those registers. Moreover, we would like to find out more about Brazilian Indians, inhabitants of the Amazonian lands, so we jump to currently times.

In the manual in question, it was possible to see that along with many criteria for all inventory studies like energy, economic, socioenvironmental and engineering technique, the multiple water use criteria is the one that carried out the notion of landscape as object of preservation. This is a understand that the use of the water can be taken as non-consumptive use, as the tourism and leisure and the need to maintain the ecological equilibrium due to the environmental conservation areas.

Regarding the ecological equilibrium; among with the criteria adopted for the socioenvironmental studies and its methodological procedures for environmental impact assessments, landscape is a subject that can be quantified once it has qualitative aspects. The landscape is taken as one of the aspects to identify and map out the most sensitive areas of the river basin taking in account the sensitivity, fragility and potentialities; use to systematize the information gathered about the main socioenvironmental issues.

This part of the survey are made after the selection of dam sites and the preliminary identification of cascade options; for that the methodological framework had define synthesis components (adopted to represent the socioenvironmental issues); been: a) aquatic ecosystems; b) terrestrial ecosystems; c) ways of life; d) territorial organizations; e) regional economy; f) indigenous people/ traditional communities. In this manual, all the historical, cultural, archaeological, speleological, landscape and ecological heritage is taken as a characterization element and consequently related to the synthesis components, they aren't taken as synthesis components, but viewed as basic elements for the analyses of all the six synthesis components.

The landscape as a heritage in the survey about to be discussed, is presented in a diffuse way, more than this, we could say that there is no such association or perception. since there is no understanding that it contains a relational aspect between man/ nature. It is present in the survey conducted to understand the territorial organization and also is present in the "ways of life" synthesis component:

"By observing this set of aspects and information about the historical occupation of the land, the main elements can be identified that form the group's socio-cultural identity, its forms of sociality (relationships within itself) and the way it is represented. It is also

possible to identify how these forms of sociality are expressed in space (land) and time, giving precedence to certain forms of mediation and/or certain concrete references (geomorphological heritage, buildings, monuments, etc.), by this process they become representative heritage sites for that social group”. (MME, 2007 p.113)

As well it is present in the manual:

“When it comes to historical, cultural, landscape, architectural, speleological and ecological heritage, what matters here is the value each social group attributes to it rather than any official recognition or legal status it may have. The importance and significance of each heritage site should be characterized as part of the process of cultural production and reproduction of the social groups. By doing so, the meaning of the heritage to the social group to which it belongs is highlighted, and this can be off set against its historical, cultural, landscape, architectural, speleological or ecological value to the whole set of relationships that gives its identity” (MME, 2007 p.113).

Although this understanding may represent progress in the way the studies are carried out, in practice it is not true that what matters is the value that each society gives and perceives in the landscape as opposed to the performance of the institutions of preservation of cultural historical heritage. Even less, nowadays that we see that a large lobby is formed, in order to withdraw the obligation of concern with heritage and environment in the context of large enterprises (we will discuss this later).

6.1 Notes about the case of the White River and the *Bem Querer* Hydroelectric Plant in Brazilian Amazon

This is the case of the Hydrographic Basin Inventory of *Rio Branco*/White River in the State of Roraima in the north of Brazil, made by Energy Research Company - EPE in 2011. Actually in Brazil, the research led by state power as EPE is linked to the Ministry of Mines and Energy that defines the priority projects and areas to be explored by the electric energy industry. Hydropower Inventory Studies among them. EPE provides reports in planning the next steps to be announced by the government in other to meet the demands to come in the future. SILVA FILHO, 2003, classified those surveys as The Studies of Estimation, Studies of Inventory and Studies of Feasibility. The first one is an evaluation of the available energy resource, where an estimation will be made according basically to previous analysis on the physics attributes as geological and topographic characteristics of the hydrographic basins²¹. There is no landscape aspect, not a surprise.

²¹ To summarize, this surveys provide preliminary numbers for hydroelectric potential, for construction sites, for the position of the dam, the costs of the projects and the definition of

The inventory itself define the hydroelectric potential of the river basin, it is basically a study of the “division of falls” and the estimated cost of the use of each one of them according to a “standardized cost budget”. It is an important stage in dam engineering as it will define a site/plant classification according to a cost/benefit ratio. The Feasibility Studies will define the global conceptions in terms of use and the main justification for the project. There is also a stage of the definition of the Basic Project, which derives from the Feasibility Study, which will detail the final budgets, levels of construction, civil works, electromechanical equipment and will result in an Executive Project for the enterprise. This last step is already done by the entrepreneur who will build the plant. So there is an aspect of “competitiveness” in terms of dimensions of the characteristics of the project that is given/transferred to the company that is going to construct and occasionally operate the hydroelectric plant; (SILVA FILHO, 2003).

Environmental Impact studies are conducted only at the moment that the site construction is defined. However, there is the AAI, that is a report that gains notoriety as it anticipates a justification for the venture once it introduces the economic and social aspects, that are basic guidelines to seek pressure for greater acceptance of the project. Facing this AAI survey, an inventory on hydropower currently can be rarely a reference for the analysis that brings up the approach concerning the environmental issues, once the set of data is used to support future project decisions and justifications.

By the fact that this case is a recent study; the Hydroelectric Inventory Studies was conducted in parallel to an Integrated Environmental Assessment -AAI²², that covers the same hydrographic basin as the energy potential research. So it is in general, integrated valuations that can deal with other aspects besides the hydropower plant, been used for other mappings, as an example identifying vocational land use and its attributes for investment in mining, oil, river ports, federal roads, etc.

inventory studies to be conducted with more detailed analyse; at this stage are also taken into account the deadlines for carrying out the inventories.

²² It is important to note that the AAI became a systematic survey that seeks to justify the decisions of interventions by major projects. They are applied in areas where the social and natural aspects need to be taken into account facing the implementation of any kind of project. This type of evaluation has been widely applied to the Amazon region, which among the many attributes is the last frontier of expansion for the exploitation of natural resources in the country.

The understanding we had is that the objective of the inventories is to compare and select the best "fall division" alternative, that offers the **“maximum energy potential with lower economic cost and lower socio-environmental impact”**. (this is done by taking as a principle the fact that the water of a basin is a resource of multiple uses). (EPE, 2011 p.2 **emphasis added**).

These criteria lead to the exposition of alternatives of "fall division" "more interesting in the river basin" that allows the allocation of other subsequent actions thus enunciated by the EPE itself: **"to allow the programming of the subsequent actions, in order to attend the demands of the electric power market of the interconnected system."** (EPE, 2011- p.2 **emphasis added**).

And as they rely on the studies of the AAI, they base the "conditions of support of the natural and anthropic means, from the point of view of its capacity to receive all the hydroelectric plants that make up the selected fall division alternative". In addition, the study contained in the AAI evaluates **“the degree of sensitivity that the basin presents and the cumulative and synergistic effects, resulting from the impacts related to all the uses"**. What is considered in the present time but also through projections for the following decades (long-term use) (EPE, 2011 p. 2. **emphasis added**).

One guideline in this procedure of short-medio-term projections is the evaluation according to the tensions and sensibilities offered by the "socio-economic actors". Therefore, the company designs the scenarios, and justifies:

" This form of approach allows the electric sector, still in the planning phase, to act on a strategic level, defining future actions. From the setting of the scenarios referred to and in order to prevent damages and obtain a desirable socio-environmental sustainability framework in the region, the AAI studies have resulted in the elaboration of guidelines to be incorporated in future socio-environmental studies of hydroelectric projects" (EPE, 2011 p. 2).

To us seems very doubtful that this company can elaborate policies caring with the communities while is taking care of the dimensions of new hydroelectric projects. Some question remains: how to be sure that these communities are represented in their professional staff of the company? And why does not the ministry of the environment participate in this planning phase as well? it is very strange to think that such widespread studies can already predict the impacts of a plant construction without knowing how it will be the final layout.

Preliminary and final inventory studies announce itself as surveys: that quantify and consider in a combined and integrated way the energy, economic and socio-environmental aspects. Although the importance of these themes is seen as equivalent, the weight of economic and energy factors is preponderant, since they have positive arguments, in which studies and justifications are the base for the projects envisaged. On the other hand, as far as socio-environmental aspects became a concern, no matter how critical is the issue, or whether criticisms and oppositions are able to be controlled; what matters, is that these initial conceptions seem to mark strongly the identity of those surveys and so of the new projects of hydroelectric power plant. They end up creating only a discourse (one view only) that will remain in all the steps until the project became a reality. Besides invariably identify real conditions and risks of these interventions, it is notorious how it can be also effective in deliberately disregarding the social tensions at stake.

Perhaps we risk thinking that the energetic and economic aspects in those surveys are, on a practical level, so strengthen interwoven into each other that they became one whole, the same topic/argument. But, if we look closely, the arguments presented are feeble.

Generally, for the choice of the location of where a river dam, all stretches of rapids and waterfalls are covered in expeditions, as well as places with narrow valleys. For each of these cases, the highest level of water that a reservoir can reach is determined. The plants and river profiles are used in surveys so the alternatives locations can vary according to the topographic, geological, geotechnical, hydrological and socio-environmental parameters, can also change according to the logistical arrangements: “All of the elements of the project combines the necessary safety and facilities of operation and maintenance with the lowest global cost, following the **conservative guideline of adopting robust arrangements**” (EPE, 2011 p.4) **emphasis added**). This “conservative guideline” we didn’t discover what really means – but the variables of the economic level in this survey in question involve complex and several numbers and formulas of dam engineering²³. Sometimes can be intending to confuse the public (?). The technical complexities of the

²³ As example: The lifespan of the project; general cost of the project (universe of costs usually comprises a relation between generation cost in \$/MWh for long-term periods); specific characteristics of the technologies to be used in the construction of the project; external dimensions of the main structures for the purpose of sketching the general arrangement of the uses; costing of civil works and equipment in large blocks for basic assembly of the utilization budget; more detailed information on topography and geological conditions; hydraulic pre-dimensioning and equipment; determination of the quantities of services, supplies, and equipment of each structure and so on (EPE, 2011 p.4).

installations and the technological variables are very important, so we meet the need for software and computer analysis to be also in the radar.

After all, the first basic requirement observed in hydroelectric power plant design studies surprisingly is that it needs a high volume of investments that should result in profits for the investor over the life of the project. apparently, it's all about an operation that evaluates the "optimal dimension" from mathematical operations (derivative operations or Genetic Algorithms for example); that seeks for the lower cost and greater benefit.

Despite the technical complexities of installation and the technological variables; we have notice that the benefits (cost/benefits ratio) will correspond to the gains related to the use of that energy when it enters in the distribution system (in the market itself). In short, the enterprise that built and operates the power plant and sells energy is more important to the understand of the globality of the issue than it seems.

As we see in the bibliographic review, there are parameters that define values to the "energy gains" as energy enters in the system. These will change according to the "evolution of energy demand" in a territorial context, also depend on the "hydrological availability" so, of climatic variations and land use in the river basin; depend as well "of the rules of operation that define the dispatch of energy between the various hydroelectric plants", so we could say that relies on political and economic decisions. And still, they depend "on the criterion of energy suppression among companies, restrictions of exchange, cost of the thermoelectric plants fuel, tariff system (...)" and others. (SILVA FILHO, 2003 p.46).

As far as socio-environmental aspects are concerned, the inventory studies are divided into several themes so announced: physical, biotic, social, cultural, economic and political processes, as well as interactions and specialization in which a multidisciplinary approach is given. Its important that socio-environmental aspects also provide data for cost/benefit analyses in: "control, mitigation, compensation, monitoring, institutional costs, among others" (EPE, 2011- Rio Branco Inventory).

Finally, the alternatives of fall division for the use of hydroelectric potential are presented, in the case analyzed for this text have resulted in more than 40 alternatives in which the less competitive cases were eliminated (also considering the socio-environmental requirements). A "cost-benefit index" and a hierarchy is made about these potential sites

(considering the global aspects that we expose). Only 5 alternatives remain for a more effective analysis of the possibility of dam implantation. What draws attention to the methodology argue by this state company, is that this hierarchy of site selection **incorporates an additional analysis that is referring to the positive impacts** considering the implementation of the enterprise. That's is notorious!

Is with many reservations that we find this addition of supposed positive impacts in a methodology that mixes technical quantifications and structures pricing. A fact that makes the analysis that is required in this research, even more complex.

A more in-depth analysis of the "socioeconomics" issue shows that population and migratory data are mentioned together with indigenous lands and therefore the presence of Indians in the locality as limiting factors to invest in the region.

It is with concern that this report identifies the perpetuation of some ideologies that historically served to justify the occupation and exploitation of the Amazon by exogenous forces disregarding the preservation of biodiversity, the maintenance of contiguous forests and the commitment to guarantee the access to land and the way of life of the Indians and the riverside people that live in the region.

One of the statements of this report is that the inventory is given the idea that this is a region of the federation with low population density and that it must be occupied in the fear of losing the land (geopolitical interest). Since they are "far from the eyes of the administration" or form the public power. It should be noted that the study area is bordered by French Guiana and Venezuela. The opinion of the company expressed itself:

“In view of the natural hostilities of the original occupants, many without land ownership, in relation to the new occupants in general coming from the north and northeast of the country, the search for better opportunities of work and land tenure to guarantee the support of the family, occupations are still recent and conflictive, **since the territory has not yet been structured**, land uses and usufruct have not yet been consolidated, just as land titles are still recent, and land is subject to dispute. In this sense **conflicts related to the land, issue can be pointed out, such as those between members of the MST, indigenous populations and rice farmers** (EPE, 2011 n/n **emphasis/added**).

In the passage reproduced above the Indians are identified as hostile. There is a distortion about the issue related to the land and is presented the idea of total disorganization of the territory. The recent homologation of indigenous lands is exposed as if the legal prerogatives could not be considered valid, and therefore questionable since there are so

many conflicts. The report also mentions conflicts between the Landless Workers Movement - MST and groups of Indians, but without specifying the region, ethnicity and land use in question. Therefore, the discourse explicitly omits the factor "invader rice producer" or "illegal mining groups" and the residents of the originally indigenous lands that so strongly marked by recent conflicts in the State of Roraima in the case of the creation of the Indigenous Land *Raposa Serra do Sol*²⁴ .

The report, however, does not omit the fact that these forests have mineral riches and natural resources that can be exploited and are targeted by the interests of economic groups. On the other hand, identifies the production of soybeans also in areas where they used to be forests. We can talk about a "reversal of values" since it points out that there is little land available for the economic activities of those who migrate to Roraima. This is because 27% of the lands are Environment Conservation Areas as National Forests, and 46% correspond to Indigenous Lands. For state company this is seen, in the survey analyzed as an obstacle to development²⁵.

²⁴ The Federal Supreme Court judged in 2013 the case of the 1.7 million hectares continuous area approved in 2005 for the Raposa Serra do Sol Indigenous Reserve in Roraima on the border with Venezuela and Guyana. "About 19,000 Indians of five ethnic groups live in the reserve region grouped in almost 200 villages, the largest group is of the Macuxi ethnic group, living with wapichana, taurepang, ingaricó and patamona."(BBC, Brasil 2009). The withdrawal of non-Indians led to numerous conflicts between landowners who produced rice (7% of the Gross Domestic Product in that State) and the defensor's of the land for the indigenous groups. The State's own governor took action in the supreme court to suspend the continuity of the land, defending them as "islands-protection areas" For more information on this case see National Indian Foundation- FUNAI and Socioenvironmental Institute – ISA.

²⁵ This is totally the opposite to the thinking around the world, where preservation of these territorial units is seen as an effective guarantee for the preservation of the largest tropical forest in the world, and of the sociological heritage represented by the Indians in Brazil.

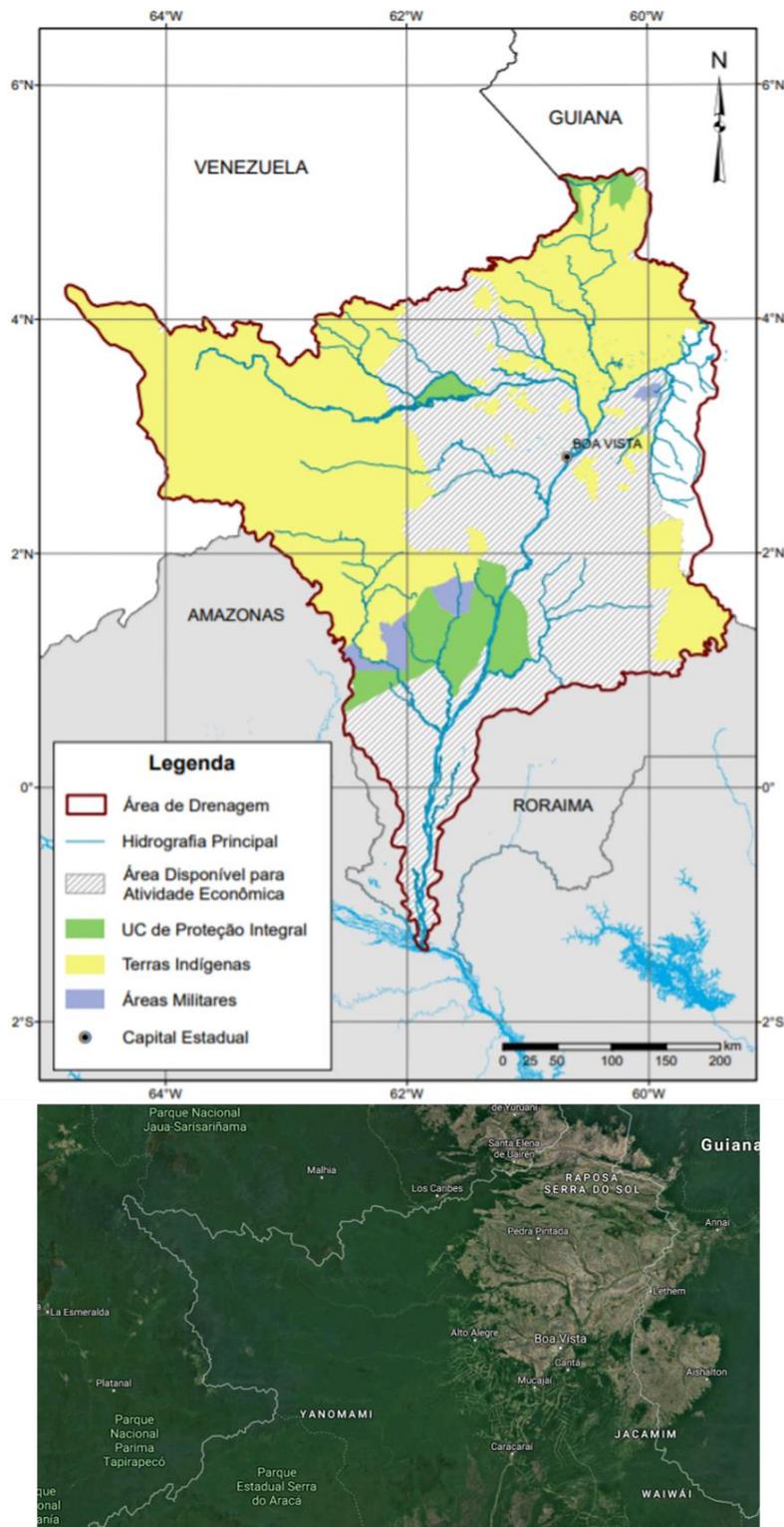


IMAGE 6.1-1: Took out from the report under review the first image is the perimeter of the inventory study, but the map is named: "Available Areas for Economic Activities" where, in green is the units of conservation and yellow indigenous lands. What is dashed in the middle of the map shows the model of the occupation in practice. Therefore, a closer look at Google Images (source of the picture below); shows intense pressure of deforestation of the forest happening in one of the regions of greater expressiveness of contiguous forest in the amazon as whole. Source: EDP, 2011/Google Earth.

A quick survey in the local recent news shows the mobilizations that already occur in the region so that The White River is maintained without dams since it represents the support of the population in general. On the other hand, there is an appeal for the construction of hydroelectric power plants in the region because it is justified that this state of the federation consumes energy "expensive and insecure" that comes from Venezuela that could come also from another hydropower plant that was going to be built in the French Guyana. The main reason is the fact that Brazil need to have a reliable source of energy and that the State of Roraima needs to be integrated into the national system and not to other countries (about that kind of argument we can have another extensive discussion questioning it).

As well, it is not difficult to think that the actual political destabilization in the neighbouring country Venezuela is interesting for those who defend the hydroelectric plants in the White River basin. At the same time, is it strange to think that this part of the country is not being supplied by the broad matrix that spread large hydroelectric dams in the Brazilian Amazon, and cannot support a State with about 300 thousand people? What happened with the electro-ducts from the Tucuruí hydroelectric that was been set to attend this region? Why the dam is still a need facing this?

The inventory in question identified a potential of hydroelectric power generation of 1049 MW for the entire basin and of those five areas, the one with the greatest energy utilization was chosen. AHE *Bem Querer* is the name of the project that was chosen with capacity of more than 708 MW with a 559 Km² of flooded area (bigger than the Belo Monte lake).

Thus, currently, EPE is responsible for the Environmental Impact Study and respective Environmental Impact Report (EIA / Rima) and viability of the *Bem Querer* Hydroelectric Power Plant. The government (EPE) contracted for the socio-environmental studies through a bidding process, the *Walm-Biota Consortium*, to carry out the environmental studies and *MRS Estudos Ambientais Ltda* to carry out the Indigenous Component Studies (ECI)²⁶. These studies will be carried out over the next two years and will include field surveys and bibliographic information (EPE institutional,

²⁶ It can be observed further in this work that the Belo Monte hydroelectric project created the jurisdiction to isolate the surveys so-called "indigenous component studies" of those who take care of the analysis of the physical, biotic and social environment of the territory in question. (as we say "EIA-RIMA", in Brazil). We are going to discuss the consequences of this in the study case that talks about the *Belo Monte* project.

2018). Is important to notice that also the Inventory on the river basin in question here, was also made by a consulting company, but the knowledge produced became responsibility of the state company.

The results of an inventory carried out in an already so delicate region soon became known. The Puraké Movement was created in June 2012 with the aim of preventing the *Bem Querer* Hydroelectric Plant from being built. (Folha.bv, 2017). This social movement began after the Constitutional Amendment voted and approved in 2012 by the Legislative Assembly, **removing from the text of the constitution the rapids of Bem Querer and the 500-meter strip of the banks of the White River, which were protected by article 159 of the Constitution of the State of Roraima as areas to be classified as of value due to the heritage in historical, cultural, landscape, and memory for the Roraima people thus in need to protected.** In addition to the areas to be affected by the specific project we are exposing, other sites of importance for biodiversity and landscape such as *Monte Roraima* were also excluded from the status of heritage in the State. In the article 159 - indent IV, reserved to the cultural and historical heritage of the State of Roraima we have:

- I - o Forte São Joaquim, em Boa Vista; e o Fortim de Santa Rosa, em Amajari; (AC) (Emenda Constitucional nº 021, de 06 de maio de 2008).
- II - as fazendas Del Rey, São Marcos, São Bento e São José; (AC) (Emenda Constitucional nº 021, de 06 de maio de 2008).
- III - as fazendas instaladas ao longo da formação geopolítica de Boa Vista, do território Federal do Rio Branco e, posteriormente, de Roraima, hoje, território do Estado de Roraima; (AC) (Emenda Constitucional nº 021, de 06 de maio de 2008).
- IV - as corredeiras do Bem-Querer, em Caracará; e Garã-Garã e Sete Quedas, em Uiramutã; (AC) (Emenda Constitucional nº 021, de 06 de maio de 2008).**
- V - a memória das famílias pioneiras; (AC) (Emenda Constitucional nº 021, de 06 de maio de 2008).

IMAGE 6.1-2: The Constitution of the State of Roraima from the official website of the Legislative Assembly of the State of Roraima updated until 28.08.2012 by a website for legal guidance, shows the was present in the text of the law the Rapids of *Bem Querer* (in orange color). Source: web/jut.com.br.

- I - o Forte São Joaquim, localizado no Município de Bonfim; (Redação dada pela Emenda Constitucional n° 32, de 2012)
- II - As Fazendas Del Rey, São Marcos, São Bento e São José; (Revogado pela Emenda Constitucional n° 32, de 2012)
- III - As fazendas instaladas ao longo da formação geopolítica de Boa Vista, do território Federal do Rio Branco e, posteriormente, de Roraima, hoje, território do Estado de Roraima; (Revogado pela Emenda Constitucional n° 32, de 2012)
- IV - As corredeiras de Garã-Garã e Sete Quedas, em Uiramutã; (Revogado pela Emenda Constitucional n° 32, de 2012)
- V - a memória das famílias pioneiras; (Incluído pela Emenda Constitucional n° 21, de 2008)

IMAGE 6.1-3: The providential changes in the law conducted in 2012 exclude many areas of landscape interest and memory preservation to traditional populations. What can be seen in this image/text from the updated official publication of the State constitution of Roraima is that it not only excluded the area in view of being considered heritage (due to the hydroelectric) **but the specific point-toponymy of the local that corresponds to the project *Bem Querer* was also simply removed.** Source: Legislative Assembly of Roraima 2018.

Once the rapids were excluded from the list to be protected by State statute, in order to create the reservoir lake, diverse entities reacted. Fifteen entities and organizations that act for the protection of the Indians and the forest such as ISA, and organization of fishermen and religious church. They forwarded to the Iphan Superintendence in Roraima the request to register the local with the purpose of "**preserving the Rapids of the *Bem-Quer* as a property of relevant cultural, historical, archaeological, anthropological and environmental interest, in addition to the affective value to society, preventing from its destruction or de-characterization**" (Iphan, 2012 Apud Santiago, 2015 p.56 **emphasis added**).

"The site is composed of numerous archaeological remains printed on the riverbanks, known as polishing basins, as well as "traces of engravings, including graphic representations in mixed technique, where the grooves of the engravings were filled with a coloured reddish pigment. This type of representation is very unusual, especially for this part of the Amazon region" (Iphan process case, 2012 Apud Santiago, 2015 pag.56).

An Iphan publication on the policy of archaeological site protection makes it clear that, in face of infrastructure works such as hydroelectric plants, there is a reversal of priorities by the entity (Iphan itself); once there are resolutions based on other values than those of guaranteeing the protection of the archaeological heritage. In addition, it is evident that the management of Iphan changes according to the president of the entity, since diverse positions have been assumed according to different decisions that are also political (the resolutions on heritage matters are also political resolutions). It is necessary to make the discussion about a more democratic social participation in regard to the policies of

classifications of heritage that impose themselves in order to demand as well, protection in the laws so that this can change. (Santiago, 2016).

Later it was time for the Federal Public Prosecution of that State to demand from the competent institution, Iphan, to take the necessary measures defining the area as should be, in protection due to its heritage of historical and cultural value, this time revealing that the matter in question is an archaeological site.

What is the intention behind removing the name of the place from the text of the law? perhaps because it is the same name foreseen by the hydroelectric plant, in order to confuse the interested public? The issue becomes even more complex if viewed from within the logic of the protection of the heritage with the main entity, the Iphan, one of the critics came from a publication of this entity and by an employee.

Without further studies the case was close given once that the political pressures was made necessary. The Rapids of Bem Querer. In July of this year, the Public Prosecution called a public hearing to talk about the hydroelectric plant planned to be built in 2024 to the population of six municipalities that will be affected by it. With a name that sounds bizarre "The Bem Querer Hydroelectric Project and the reflections in his people", the discussion did not address the impacts of the hydroelectric plant but rather the operation of the plant and its importance as well as the state's energy issues. The State of Roraima has already presented potential in wind energy exploitation, so organizations of fishermen are mobilized for this to be known by society. (Roraima em Tempo, 2018) Unfortunately does not seem to be - the energy alternative - the central piece on this matter. So far, in recent months public hearings are being held in the state capital, Rio Branco, to meet the legal steps for the start of construction of the hydroelectric plant. What is going to happen we see with attention:

“In the case of Bem Querer, the same concession model used for the construction of the Madeira and Belo Monte hydroelectric dams will be adopted. The Brazilian government, through the National Electric Energy Agency - ANEEL, promotes an auction in which investors make the proposals. The company or consortium of companies that have the lowest value per megawatt wins”. (...) “Investors build the plant committing to sell part of the production to the government. The rest is offered in the so-called free market, where there are the big private consumers, who buy energy in large quantities”. (EPE, 2018 p.56-58).

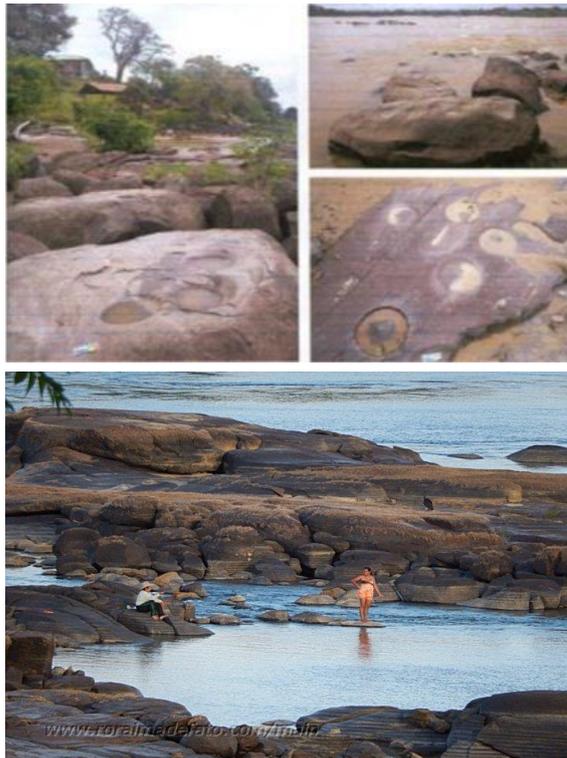


IMAGE 6.1-4: Archaeological site in the rapids of *Bem Querer*. Source: Oliveira 2012, apud Santiago, 2015). And bellow, Picture of tourist expedition on the spot to be placed the hydroelectric. Source: Roraimadefato.com

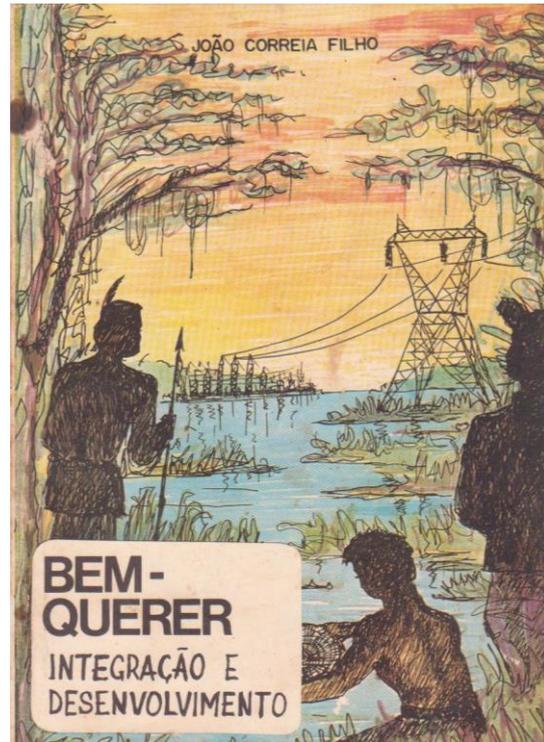


IMAGE 6.1-5 Front cover of book of João Correia Filho that sees with good eyes the construction of this power plant that was already in the plans of the old politicians from Raraima since the end of the 70's. Source: Aimberefreitas.com

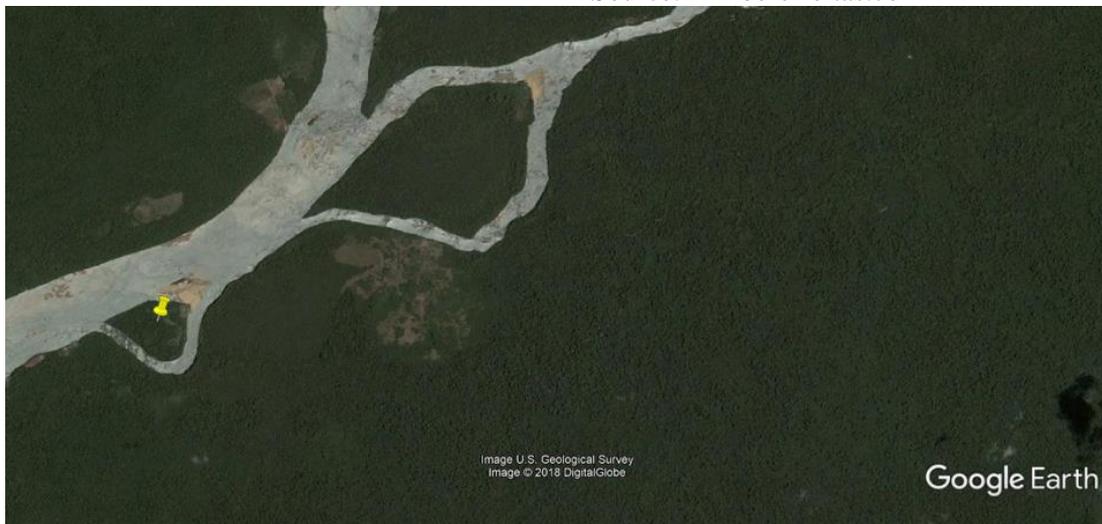


IMAGE 6.1-6: Satellite photo showing the selected area for the construction of the power plant. Besides we can see many focus of deforestation is still flagrant that the Amazon forest remains in good parts well preserved. Source: Google Earth, 2018).

Résumé dès les centrales hydroélectriques d'études de stocks : Selon le Manuel d'études d'inventaire hydroélectrique de bassins fluviaux publié en 2007 par le Ministère des Mines et de l'énergie - MME au Brésil, les premières étapes de la planification d'une barrage sont la collecte d'informations, et l'étude de l'inventaire hydroélectrique du bassin, comme fut le cas de *Rio Branco* qui a également été publié par une société de recherche publique liée au - MME.

Dans ce chapitre nous avons analysé ce document qui intègre les derniers concepts, méthodologies et avancés techniques produits au Brésil dans le domaine de l'ingénierie des barrages et ses implications dans divers les domaines d'étude liées à planification et construction d'une barrage. Pour meilleur pouvoir analyser les directrices qui sont référés nous avons pris comme exemple un cas concret, où ces directives sont adaptées pour meilleur comprendre l'application de son application, les problèmes qui se sont posées et les résultats qui ont été obtenus. que À partir de ce cas d'étude nous avons essayé de voir si les nombreux critères guide pour la réalisation des études d'inventaire sur l'énergie, la technique économique, l'encadrement socio-environnementale et de l'ingénierie, les multiples critères d'utilisation de l'eau et la notion de paysage comme objet à préserver. Cela signifie que l'utilisation de l'eau peut être utilisée non pas seulement comme un moyen de consommation et par le tourisme et les loisirs, mais aussi qu'il faut aussi maintenir l'équilibre écologique grâce à la création de zones de conservation de l'environnement.

7. STUDIED CASES

“The landscape this stop of biographical order and ontological order, gives you the experience, local and instantaneous, and totally provisional”. (PÉGUY apud BESSE, 2006 p.108).

"Sometimes the landscapes of an infinite grace are given the burden against the great achievements of the waterways." (LAPPARENT 1903 apud BESSE 2006 p.134).

Having as guide the intersections between landscapes of hydroelectricity and its interpretation through different meanings and expressions, the inventories method is dealing with different geographic contexts and size of hydroelectric plants. The cases proposed are:

The eco-geographical inventory	The landscape of transformation of Alqueva in Alentejo
The representation inventory	<i>La Diga del Vajont</i> and the landscape of memory
Inventory of concepts and values	The Xingu's big bend Landscape and the Belo Monte Hydroelectric
The inventory of policies	Essay on the policies: the landscapes of hydroelectricity in France

After, in the point **9. Final Remarks: the synthetic exam of Mosaic analysis** is presented the discussion between all and our conclusions.

The cases chosen are paradigmatic examples for landscape thinking, being therefore widely researched in aspects that this mosaic intends to put in evidence. For other cases in which singular landscapes were transformed into hydroelectric plants, there is a large bibliography, whether in the academic or institutional field; in environmental planning or even under the laws and jurisdiction licensing; dealing with, for instance, archaeology and landscape impacts. Is of great importance the efforts of international institutions that addresses the issues concerning dams around the world, such as the International

Hydropower Association - IHA, the World Commission on Dams -WCD, the World Research Institute -WRI and the International Rivers Network IR.

7.1 THE ECO-GEOGRAPHICAL INVENTORY: THE LANDSCAPE OF TRANSFORMATIONS ALQUEVA IN ALENTEJO

If the attempt with this inventory is to reflect about how and in what degree society has transformed nature (it's ecumene) through agriculture, habitat, and so on; the case of Alqueva hydroelectric plant seems very accurate to analyse this perspective.

The construction of a hydroelectric plant in the region of the Alentejo, in Portugal, and the formation of the largest artificial lake of Europe (250Km²), resulted in substantial changes of several orders, visible in the landscape. The old village of Luz²⁷, now submerged in the waters of the lake had to be rebuilt in another locality and its population reinstalled in another place, strange and dystopian to them. Mills²⁸ considered as a historical and cultural heritage of the region, that was located along the river Guadiana (more than 200 according to publico.pt newspapers) were also compromised, or even destroyed. New paths have been established since 2002 when the hydroelectric plant started to operate, as in face of the loss of the ancient roads new roads were built, as a whole, a new territorial organization is placed to be shaped.

The social space is re-shaped due to global needs for adaptation since two reasons are announced as indispensable: the necessity of water and of energy. Requirements to endure the acceleration of climatic changes now happening under the Iberian Peninsula, seen

²⁷ "The necessary relocation of the community motivated the construction of a new village with the functional structure of the original, in a logic of replacing 'house by house, land by land', maintaining neighbourly relations and general urban configuration but adopting an architecture of purification of traditional lines and assumed contemporaneity. " (...) The museum was built as a place of memory and creation. Also the farmland, now irrigated by the dam, was distributed by the population, imposing today the vineyard and the olive grove in the new landscape. "(Nuno Madeira, in Museum of Light.org 2018).

²⁸ "In addition to the productive purpose linked to the grinding of wheat (to feed animals and to make bread) the traditional food for rural workers until the mid-1960s in Alentejo; according to Luis Silva who made a broad survey on the heritage value of the Guadiana mills: "The mills were, in fact, social spaces, and it is not uncommon for customers to move in groups of men, sleeping in the street or in the mill house, or even inside the mill, depending on the availability of space (...)". "According to the millers, the mills were important places of convergence, it being usual for them to find there or near, people, including customers, washerwomen, Moorish (shepherds), fishermen, stranded, passers-by and tax authorities (SILVA, 2004 p. 228-229).

through the increasingly dry landscapes combined with climatic episodes of more heat, burning of fields, lack of water for months and difficulty in maintaining agricultural produces (water for irrigation). Having that in mind, what are the causes of a work of such a magnitude in such a context? In which way is possible the preservation of the heritage, the preservation of the memory, and at the same time trying to solve people's problems? New landscapes and new uses of the water is in formation. Is possible to speak about a management of the cultural heritage? The localities in which the landscape has been a target of protections represent the values of the locals or the ideas applied by the groups that coordinate the policies in this subject?

The best practices to preserve a landscape also considered as heritage rise some problematics once often the subjects involved in the heritage discourse and actions can mistake themselves. The approach through environmental analyses has been employing in many ways and by an insistent form, the naturalizations of the social process, meaning: **the social relationships submerge in the environmental issues**. To discuss this matters this analyses was divided in two subjects presented as: **7.1.1 The architectural language and Alqueva landscape and 7.1.2 Transformations: before and after the dam and polices of management**.

The main source for this inventory is composed by academic studies about the Alqueva project as is the publication made by the master students and professors of the Department of Architecture of the School of Arts of the University of Évora in 2014: "Alqueva landscape as a theme". It was observed that the recent approaches made by the society that in somehow is implicated in this specific space are of great value. They attribute beyond the knowledge that they have an affective involvement or at least the commitment and the feeling of responsibility with the objects of studies, since they are familiar to them. And in contrast, we have the example of a group of students unrelated to the local reality who had constructed analyses in a distant and exempt manner. Is the case of the studies carried out by the University of Évora but association with the Department of Landscape Architecture and Environmental Planning, of the College of Environmental Design of Berkeley in US, whose publication "Alqueva changing the ecology of the Montado Landscape" gave another perspective about the case.

Forward, the text contain observations carried out during field work as example visiting Hydroelectric Power plant of Alqueva. We can add finally, the (critical) notes drawn up

as a result of a conference promoted by a representative of Alqueva Development and Infrastructure Company - EDIA, in the occasion of the "2020 Public Policy Conferences" promoted by the University of Évora in May of 2018. All of this views are going to be in discussion with the ideas about the landscape as heritage in face of the hydroelectric power plant that we had discuss in the review in the bibliography of this thesis.

7.1.1 The architectural language in Alqueva landscape

The work conducted in the University of Évora is notable. They had recognized, classified and organized a great quantity of information gathering a combination of updating cartographic information along with diverse landscapes aspects that stand out in the field works, as explained next:

(...) signs with archaeological remains, which are the key tool for (un)encoding the territory, with cultural and experimental data; a second reading, identify, investigate and select the architectural objects that manifest most directly impact scars of the great lake and erosion of an agricultural past that profoundly changed, **as for example the Alentejo hills that despite large parts abandoned, or disabled its original function, represent an important function and productive matrix.** (...) the thinking from a gradual and sequential interpretations from the macro scale to the living space, opened the field for the discovery of the architectural programs and themes that could point out a new direction and meaning of permanence of this landscape. (Alqueva Landscape as Theme Évora, 2014. p.4 **emphasis added**).

Intending to show a poetic and an architectural reality, the survey aimed discuss the vocation of places, and the need to understand the architectural structures to grasp the way of life – in very particular contexts (this is seen as strategic for the conceptions of a design project in architecture); as essential to the learning process. As it is actually in vogue, the practices in architecture interventions must understand the place as in intrinsic relationships with the environments. It is placed the idea of interdependency between a building and the place, as well, for the other way round.

The project presented a view about museology at the current times. The work carried out by the students whom proposed interventions organized according to the most sensitive demands and themes, resulted in a display: “Alqueva, Landscape as theme” and with subtitle: “Territory landmarks productive unities and sky observatory”, that took place at the Museum of Luz in the year of 2013. The common understanding is that the museum is a social cultural and a symbolic institution that represents the place and at the same time is an active force that can re-building the sense of place, of belonging and of identity. Among the studies and architectural propositions, we highlight the cartographic

production that comprehend: Orography Map; Hydrology Map; Territory Map; Geology Map; Settlements Map; Toponymy Map; Land Uses Map; Archaeology Map; Ecosystem Map Observation Map; Olive Groves Map; and the Dark Sky Map. The central topic to discuss was: The *monte*²⁹ in Alentejo, Territory landmark; Thinking the collective; Productive unities; and Sky Observations³⁰.

The chair holder of Unesco in Intangible Heritage and professor at University of Evora Filipe Themudo Barata stressed the importance that relies in the dialogue (between proprietaries and students) but in general to society, about “the destiny” of the land use, especially in those hill tops:

“This hill tops were the true centre of a very characteristic southern landscape. Nowadays, many of them are abandoned, some already in ruins while others are going through a process of questionable (artificial) display” (BARATA, 2014 p.14).

Among the flat land as dominant, the hill in Alentejo stands out. Is a landscape aspect that can refer to times in which society produced and lived in different ways. Due to the lake, this locus becomes perhaps more evident, but loses (or changes) the relation with the surroundings in which it was affirmed, before, as the identity was based in the rural life. Even if, due to the green and technological revolutions that have affected the agrarian space, and have made the hill perhaps something inoperative from a practical point of view (management of rural properties). The hills surrounding the Alqueva dam reinforce the temporal data and the ancient drawings of roads and villages connections. It emphasizes the historical content (iconic landscape) as relicts of times and spaces of the past. It is therefore a special element, that should be treated with attention in terms of research in landscape architectures and contemporary heritage.

Another relevant topic discussed by this project concerns rural heritage and its landscapes. For MENDES & PACHECO, (2014), it is imperative to recognize that the territories of the rural Alentejo are diversified. Even the villages are in the roll of this modernizing logic ideology (to which we add - the urban world). The understanding is that the rural

²⁹ The Monte *Alentejano* is a landscape heritage of the region. Understood as such - check the book "Look Monte *Alentejano* on the pretext of Alqueva - No 03 Collection Museum of Luz, developed with the support of EDIA.

³⁰ “The Alqueva area has been classified by the Dark Sky Association as a nocturnal reserve; meaning that is now part of the collective areas where the night is protected, by containing light pollution. In this specific place the recovery of the global knowledge of the star system has a special meaning, in a way that it can help us to understand the megalithic monuments that populate this region” (MENDES & PACHECO, 2014 p. 19).

heritage is not constituted and valued only by its productive activities, but that this is built from an idea of heritage and cultural landscape, and it is therefore imperative that the cities establish new social relations. In this sense, for these architects:

“The conservation and **protection of nature and historical heritage, the maintenance of ecological systems and the idea of a sustainable development, at regional and local level**, had transformed into strategies which bring a new meaning to the territory planning, while generating new resource management methodology, **intervening in this context begins by understanding their systematic nature and thinking the landscape as part of the program**. How can we incorporate these new dynamic, into a thought that cover the small and large scales of interventions?” (MENDES & PACHECO, 2014 p. 19 **emphasis added**).

As the concern with the landscape is also placed for the architect João Gomes da Silva, the meanings is pointed out as “the strangeness of the misfit” and the incompleteness:

“But what does it mean the formations of this lake, considering its extent of regional importance in the regional ecology, where the hot and dry ecosystem dominated by holm oak forest and the wild olive, **now provides the potential for a new ecotone not yet installed at the margin?** And we have another meaning dense juxtaposition of landscapes that have settled since the Neolithic in the Valley and the lake came literally sinking and obliterate our presence, enrolling our memory or our forgetfulness, traces of their culture” (...) **what potential is there in Nature that we don't know because is not yet formed and what character we can build and attribute to it?** (Gomes da Silva, 2014 p.15 **emphasis added**).

His interrogations strike the purpose for the landscape of the *Montado* ecosystem, a system that defined the ways of living and to look to this landscape in the region over the years, but at this time provides the discussion about a destiny of the landscape. To him, the flora features should now be monitored (and it is by the Company for the Development and Infrastructure of Alqueva EDIA) as a way of understanding what adaptability is announced for the ecosystem having this new (the ecotone) lake environment. As well, stands, that **the new landscape needs to be read as a way of projecting an idealized a future to the place**. The concern here is with a reinvention of the architecture of this landscape; that can designate new meanings, cultural, an economy of resources and symbolic value.

This reasoning seems to dialogue with an important subject; about how to look at the old forms of occupation and of use of a place that has marks of societies over more than 5000 years ago but which has been effectively established for over 2000 years (MENDES & PACHECO, 2014; 19) along the Guadiana River valley, and now, in this stretch reached by the dam, another subject and object (relation of the ecumene) imposes: the lake. Rather

than being an object of transformation, which represents other ways of looking at this space, a strangeness takes place, what seems to occur daily, so it translates naturally, into the propositions of interventions in this landscape. We find that is posed a philosophical wondering, a strangeness due to the human capacity to modify in such a drastic and irreversible way a long-standing social and spatial order, the capacity to modify (or dominate) nature. João Gomes da Silva worries with the meanings that can only be perceived from the representations that are inscribed in the landscape. That's way he stresses the importance to collect information about how the landscape was in the Neolithic, Iron, Roman, Islamic or Christian - Middle Ages, the Pre-Industrial and Modern Times.

Among with João Rocha, the low Alentejo (where the reservoir is located) had kept over centuries a slow change where the “poetic of the place had resisted to numerous political alterations” (ROCHA, 2014. p16). Caring with this poetical meaning its interesting the proposal to re-signify the landscape starting from the understanding that the lake can be a “metaphor of the meeting”; as it united and equal, once that, depending on the scale of analyses (more distant/closest). Once everyone is placed in a particular space but sharing the same magnitude of involvement with the universe. Cause “the human scale incorporate the language scale, of conversation, of the architecture, emerge as a space of poetic spatial dimension (...)” (ROCHA, 2014.p.16).

7.1.2 Transformations: before and after the dam and polices of management

“Planners, they have the objects as actors and the landscape as end in itself”
(reference n/f).

Presented to society as a multipurpose project the Alqueva project announces as main purpose, the supply of water to 200.000 people in the region for agriculture, plus, industry, tourism, and to generate energy in a hydroelectric plant. On the role of performance of the company EDIA, therefore, under direct influence of the reservoir there are 20 municipalities of the districts of Beja, Évora, Portalegre and Setúbal. The project implicates the Alqueva Dam together with a smaller, Dam Pedrogão, and 67 additional dams, that formed the reservoirs and weirs. Stands as well around 2.000 km of canals and pipelines that formed a new network that offered irrigation to 120.000 ha of land in the region (EDIA 2015 apud Berkeley Project, 2016).

The report presented by Environmental Planning Students from UC Berkeley offers analysis and recommendations for creation and revisioning holistic strategies to measure the effects of the dam, also suggesting how to improve human access intending to attribute an ecological value for the Alentejo region. Also is employing the approach of before and after the dam. According to the survey supported by a background research in various Portuguese institutions, in fieldwork in Alqueva area, and in information on a range of topics that was collected; they had identified a range of multiple scales of issues, compiled as: 1- Environmental Impact Analysis, 2. Riparian Buffers, 3. Wildlife Connectivity, 4. Social Connectivity 5. Alentejo Wine Tourism Corridor.

The review of the environmental documents and in published literature, had identified a lack of clarity or the need for further evaluation for which the Environmental Management Programmes - EMP (the original from 1996 and the updated from 2005) needs actualization. It was identified and recommended a revision and a priority given to the: "issues related to downstream changes in sediment transport. increase in mosquitos along reservoir margins, effects of stream cleaning and reprofiling for drainage, risk prevention, climate change adaptation, and fire risk management" (Berkeley, 2015 p.12).

A creation of a riparian area around the perimeter of the reservoir, comprehend aspects like the loss of riparian habitat for wildlife, the filtration of runoff, the prevention of erosion and sedimentation, and the creation of a "more attractive shoreline". The report also defended the need for a holistic management plan to retain and improve the existing vegetation and its wildlife habitats (specific ecological and habitat needs of vulnerable species and those threatened carnivore species). Thus is highlighted the need for preservation and improvement of habitat quality to maximize network connection between large patches of vegetation caring with the expansion/protection of key corridors, (which were not affected by the creation of reservoirs between 1990 and 2006).

Environmental aspects are of great relevance, but they cannot be assessed independently of the needs identified in the ways of life, the need for a holistic view, although cited in the projects under analysis, needs to be more emphatic. In this sense:

“While the Multipurpose Alqueva Project did achieve a number of important infrastructure improvements such as paved roads to increase villages external accessibility, it is evident that the dam project could have done much more to improve local mobility and serve as an “effective factor of development”. As many local residents continue to long for certain aspects of their lives pre-Alqueva project, it is

crucial that **constructive steps are taken to achieve greater social and economic opportunities for those living in and around this area, in order to preserve the Alqueva region's important cultural heritage and economic resources while preventing against social desertification**" (Berkeley, 2015 p.12 **emphasis added**).

The report is also stressing:

"Working with local residents to create plans that meet their needs while preserving local culture, developing cross sector partnerships to secure long-term funding and investments, creating plans that respect and preserve local habitats, **and advancing tourism models that maintain pro-poor and pro-environmental ideologies**" (Berkeley, 2015 p.31 **emphasis added**).

Emerges from this results, the question of how to value rural tourism, while the ties of rural life are being broken, the landscape that is observed in the Alqueva is the discontinuity of a way of life, interrupted by the dam and its reservoir.

Recommendations for strengthening the future of wine tourism in Alentejo are many. The provisioning of information to tourist about the routs in form of a Wine Apps, to improves in the signage on roads to wineries in more than one language (then the Portuguese). "Cater to a range of budgets and side interests, but reinforce the cost-quality ratio. "An affordable Tuscany" (Berkeley, 2015 p. 35). To develop innovative and connected "wine clusters" so then the network of Alentejo wine and tourism agents can achieve "economies of scale and secure a more competitive position in the wine world". To emphasizes "local food, culture, and traditions as "tie-ins" to the wine tourism experience". To use the history argument "oldest appellation designation in the world" and "set within the context of the compelling Montado landscape". As well it was recommended, "Irrigate sparingly to develop a reputation for quality" as "starved vines make for stronger wines". (Berkeley, 2015). And finally:

"Take advantage of the soils, altitude, and sun as variables to enhance the terroir (and marketing) of wine". -Develop incentives for more robust, and sustainable practices for wine growers. For potential tourists -Spend at least a couple of days in Alentejo! It will be among the highlights of your time in Western Europe (Berkeley, 2015 p.35).

Planning and management of the landscape is conducted by EDIA, consequently addresses the scope of a public polices, even when the private sector, as example of the wine sector, can make pressure to have their interests represented translated into policies carried out regarding the distribution of water for agriculture as example. It's important to stress that depending on the needs of capitalization (profit maximization of singular groups) it can be reveal, often, incompatible actions and distortions expressed in the

landscape. The challenge of EDIA is to provide water to the people of Alentejo, sometimes very spaced out. As Professor Filipe Themudo had once reported, at the time of the construction of the Alqueva project, many Spanish acquired properties in the region since they had practiced irrigated crops (vegetables of all kinds), while the *Alentejano* had only dray cultures. Today many Portuguese have begun to produce irrigated crops. and this can mean a rejuvenating adaptation to modern times, in his view.

In the other hand, along with some of the recommendations of the students of Berkeley we see a reasoning the meaning of collective memory and local tradition are converted or refunctionalized by tourism, or by the sustainability discourse. This path leads to shape frozen, meaningless or an-historical landscapes. As more the landscapes become merchandise (in the sense that they can be sold in the market of the tourism for example – and the comparation with Tuscany seems symptomatic to us); more is set a process of denying or disregarding other points of view. The paradigm of the landscape crisis is placed.

The loss of life references is exposed. As the paths were discontinued, the places of meeting (leisure, play activities, etc.) were lost if we understand that what gives meaning to life are the activities that have developed over time in this specific space by the subjects implied on it, there are a few signs that other dimensions of the “way of living in Alentejo” are being protected so would not be lost, besides the wine culture, the ancestral productions appear very timidly in plans and projects of valorisation of the heritage through the tourism. The wine case may perhaps be a simulacrum example. This because if we understand that:

"(...) the identity, on the level of the lived (vecú), is linked to the known-recognized. The social nature of the identity, the feeling of belonging or forms of appropriation of the space that it arouses, it is linked to the inhabited places, marked by the presence, created by the fragmentary history of waste and debris, by the accumulation of times "(CARLOS, 2007, p. 67).

And therefore:

(...) For those who live there "**looking at the landscape and knowing everything by heart**", it refers to life and its meaning, marked, remarked, named, nature transformed by social practice, product of a creative capacity, cultural accumulation that is inscribed in space and time - **that is the difference between places and non-places**. "(CARLOS, 2007, p. 67 **emphasis added**).

Attention is drawn to the fact that if traditional ways of life are unprotected, there is a process of transforming places into *non-places*, where landscape deny itself, since the behaviours and ways of living and ways of appropriating of these spaces are also target to be produced. The production to which we refer has to do with a product to be consumed in a specific market (tourism market) as a commodity.

What's the brand of the company? "a fresh new land, here at Alqueva the opportunities are fresh". During the speech on public policies and on the theme "Alqueva: past present and future," the lecturer listed a series of information about the work carried out by the company. A multidisciplinary vision and a strategic commitment, in fact is verified. although at first Alqueva project appears as a product.

They take care of the supply of Alqueva subsidiaries reservoirs, of the water supply directly connected to the agriculturists, visibly exposing a network (under construction and in expansion) with monitoring and evaluation of results. Emphasized the need to diversify the crops served by the system and to establish a limit for permanent crops, such as olive groves that harvest more than half of the irrigation water that comes from Alqueva.

It is observed as positive, the historical view that understands the origin of the Alqueva project³¹ (its international implications mainly related to governance and sharing of resources with Spain), and an interesting update of the thematic approaches that translate into projects. Cases around the world are considered as examples to be followed, such as Agroforestry Systems as an approach of managing and strengthening endemic genera that can be inspirations to Montado.

Even so, it is evident that the company follows the updating measures, (modernizing in terms of reservoir management), definitely with repercussions on the landscape. It is worth pointing, among the projects developed by EDIA: the future installation of photovoltaic panels in Alqueva waters, a fact that reduces evaporation and algae growth; the supply of electric motors to agricultural machinery (reducing dependence on fossil derivatives; and subsidized by energy from EDP (?); waste programs that offset the

³¹ Explained that the desire to store water in the rivers of southern Portugal existed at the end of the nineteenth century; that the plan for Alqueva arose in the 1960s, and that articulations contrary to the project, such as the "movement quota 189," could not succeed, since a large flooded area was in fact needed.

biomass of the productive units; the development of agroforestry (as already mentioned); but to reinforce measures of reforestation "for more trees in the landscape", "to reforest in scale and efficiency"; the efforts against invasive species as the "water hyacinth" (*Eichhornia crassipes*) for example; to develop the design of the certificate of the Territory of Alqueva that would be agroindustry as a model of management and business for the regional products. Finally, was mentioned that despite great fanfare the "lake tourism" did not pull as well as the navigability as a leisure or transportation activity; are found currently inactivated.

On the other hand, there is an almost apocalyptic discourse in relation to the advance of the hot and dry climate, with the tendency to decrease of the rains to the year, and the increase of the easement of water. About that:

"The Alqueva project aims to provide water for urban and industrial consumption for irrigation of an area of 112,681 ha in the lower Alentejo, to strengthen the water supply capacity to the Algarve and eventually to southern Spain, for ecological consumption and for the production of energy. Estimates of the quantities of water required to meet these objectives are provided by HIDROTÉCNICA PORTUGUESA" (1992) (MAUAD, 2000 p.103).

We came to a central point, during the conference nothing was said about the water management that is done by Energy of Portugal - EDP, since, controlling the flow downstream of the dam interferes in the activities developed by EDIA; and in all the ecosystems, thus the quality of the water that are studied and maintained by those projects. In fact, when asking by me, if there is some convergence of management in relation to the activities of the Alqueva hydroelectric power plant and the work carried out by EDIA, it was evident the discomfort that EDIA does not have this control, leaving in the air the answer whether it would be better if the operation of the hydroelectric plant was developed by the state or by the concessionaire. We assumed that in the opinion of that speaker is "yes, it would be better in many aspects", and this episode seems to us of great relevance.

On the occasion of the guided visit carried out in the academic field of the current master's course, to the Alqueva I and II Hydroelectric Plant (2004 and 2006 operation date); it was evidenced that it's a system of water reversal, that helps to maintain the quota for the operation of the turbines in a way that "human decision can impose itself" in the face of the natural adversities of the water regime. This operation takes a lot of energy but occurs due to the demand for energy in the market (thus the upstream water is reversed upstream

of the dam). The performance of the hydroelectric plant varies according to a stock exchange "buy cheap to sell expensive" so it is with energy. (energy is sold to Spain and France); it was not clear, therefore, how it works in term of distribution of energy among the countries. All this operation is done in the city of Porto, where very few people control the activities of the hydroelectric (when to or not operate). As the Pyrenean mountain chain "make it difficult the transmission of the electric current,"; "most exchanges are carried out with Spain." The Hydroelectric plant employs a very few effective personnel, "it takes only four people to work in the plant, day after day.

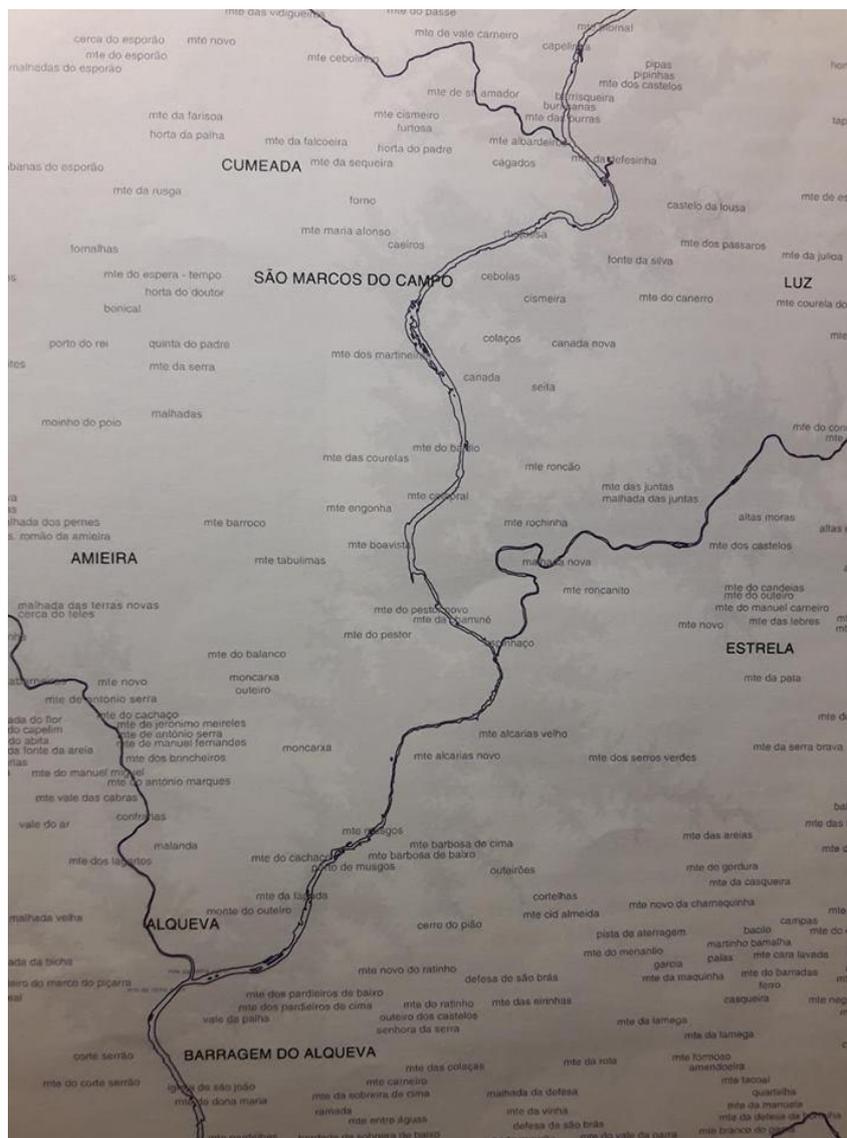
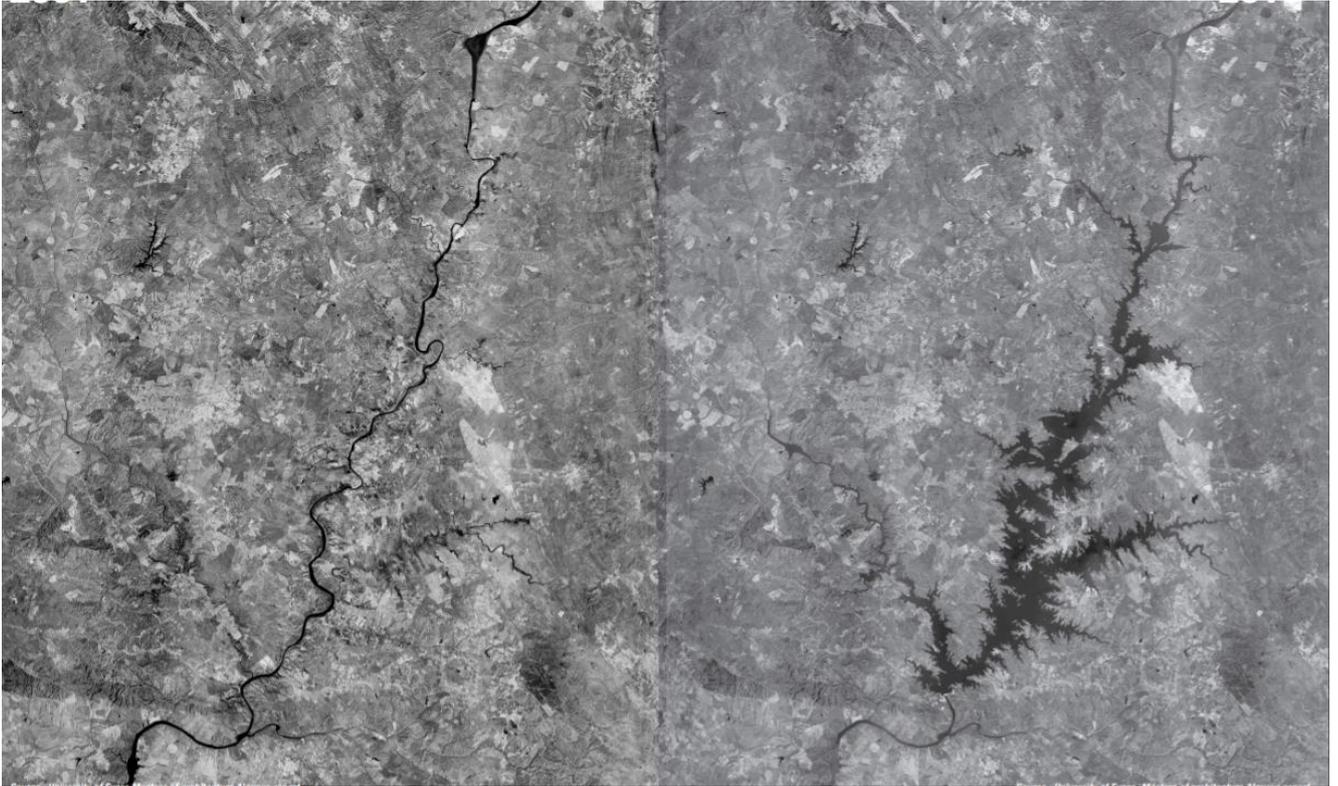


IMAGE 7.1.2-1 Stretch of the Toponymy Map, a beautiful work of rescuing the toponymy of the ancient localities bordering on the old profile of the Guadiana River with a background of the area occupied today by the reservoir in a softer tone. Source: Alqueva as a theme in Department of Architecture University of Évora, 2014, p.13).



IMAGES 7.1.2-2: Before and after, the Extension of the Alqueva reservoir picture in 2001 and in 2005 Source : Alqueva as a theme in Department of Architecture University of Évora, Map Data: Google, Digital Globe, Google Earth Pro – 2015 in (Berkeley, 2015)



IMAGE 7.1.2-3 and IMAGE 7.1.2-4: The “technified landscape in an open day”. Panoramic photos upstream the Alqueva dam (visit in November 2017). Source: Author.



IMAGE 7.1.2-5: *"In the middle of the dam there was a door, there was a door in the middle of the dam"*. allusion to the poem of Carlos Drummond de Andrade³². If in the poem we eliminate the repetitions, the text would be basically: "In the middle of the road there was a stone. I will never forget this event in the life of my retinas so fatigued." the resource of the repetition of the poem evokes itself by the new landscape, now reduced to a continuous formation (the lake behind the dam). Source: Author.

³² From 1924 the poem of Drummond.



IMAGE IMAGE 7.1.2-6: “On a clear day you can see forever” observation deck near the Alqueva dam. Landscape marketing strategy? With the lake in the background. Source: Author.



IMAGE 7.1.2-7: A view of the landscape seen from Monsaraz ; the perception of the change is undeniable (the presence of water changes the references) in a very emblematic village for the Alentejo Region in the past and nowadays. Source: Author.

7.2 THE REPRESENTATION INVENTORY: *LA DIGA DEL VAJONT* AND LANDSCAPE OF MEMORY

« la diga e un passato che non passa,
una possibilità negata di realizzazione, la distruzione di un mondo che era e non è più³³»

Franco Polo³⁴

The visits we have made to the Vajont Dam are the main source for the studies on this Dam and the tragic history of the city of Longarone that was hit by a landslide in 1963 triggered by the construction of the hydroelectric plant reservoir, that in a violent way took around 1917 people to death. The experience as a traveller in contrasts with a field work posture, that we have also done in the Vajont Dam, is the focus to build this inventory. Counting for that, the experience of the guide tour that take place at the dam, the Museum Longarone Vajont Attimi di Storia/Longarone (Moments of History), as well, the hike along the valley of Paive river, and the visit to the village of Erto (upstream the reservoir hit first by the landslide and its centre of visitors/Eco-museum). We add to that the informal conversations with people of the city and works of the National Park Dolomiti Bellunesi. These two approaches for the research allows us to understand the landscape as a representation not only for the inhabitants of the region but also to other people, which is the intention of this other inventory. Although, without losing sight the intention of understand implications of this disaster linked with the hydroelectric plant installation and the landscape; (the meanings that persist through the landscape). Our objective is, based on our experiences along the academic studies sources, to understand the shot is to grasp this (landscape of the tragedy) in two small essays as: **7.2.1 Living the landscape “as a traveller”** and the item **7.2.1"Living the landscape" as a researcher.**

To this view we appeal to the fact that, the meanings of landscapes must be studied and defined. As we highlight among with Besse, that is possible through the exam of the representations.

³³ "the dam is a past that doesn't passes, a possibility denied of realization, the destruction of a world that was, and it's not anymore".

³⁴ Speech of the guide on the occasion of the visit to the dam.

“The truth of the landscape, if it exists, is not in an "altar" or in a frozen view. The landscape is also not accumulation of memories, deposit of signs, constituted heritage that is nostalgically consultable. **It is an event**, it is an incomplete passage of life “(...) **the landscape is revealed to the one who looks ahead, it is the point from which the next thing is welcomed or rejected (...)**”. “Landscapes are multiple and repeated crossing points of the present of the possibilities that present themselves in a lifetime in the world, and which require a definition” (PÉGUY 1914 apud BESSE, 2006 p.100 **emphasis added**).

Considering that the landscape is an event, we can think that the event of the landslide in the Toc Mountain towards the lake of the Vajont dam was a milestone to create a paradigmatic landscape. Taking in account that this locality currently goes between a still present and painful past, and the need to re-invent a landscape that can have other significance beyond the tragedy.

We propose to discuss the experience of "living this landscape" as a traveller and as a researcher, what does not seems to us completely clear (still); if we can speak of the landscape without being there and without visualizing it with our own eyes and all own senses. This is central point to us. Marc Besse takes the geographer Max Sorre to assure what seems essential to the activity that "reads the landscape" and has in this act (of reading it) a resource of unveiling the reality. Meaning that it is necessary to be in the landscape in order to speak of it, cause is from its contemplation that it is possible to understand it.

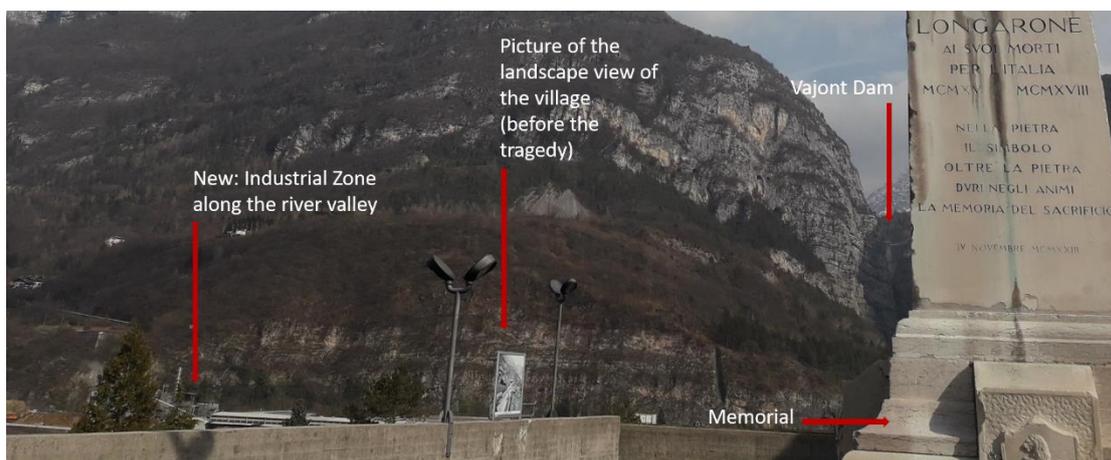


IMAGE 7.2-1: Photography of the references to think the landscape of tragedy in the case of Vajont. Source:Author.

Nowadays, the landscape is confused with territory or place, form that we assume that the visible cannot be synonymous of landscape, because the content of the landscape is not

reduced to its visibility. In this reasoning the landscape can become a project or as product where the aesthetic language (as discussed in other parts of this work) gain notoriety.

7.2.1 Living the landscape “as a traveller”

“1963, Longarone, 23:39.00

"la solita historia de che la natura gioca con il uomini"

Franco Polo

Using Goethe's reflections on his journey to Italy, Besse approaches the aspect of objectivity, the travel as intentional trajectory, since that a constitutive element of the formation of the “self” is the journey. He explains this because for Goethe and for the “great men of antiquity”, the act of traveling ensures freedom³⁵. Going through the world to understand it, is like an extension of the school. Many meanings are presented: the journey been the aesthetics aspect, the search for the classic history of ancient Rome, the encounter and unveiling of an inherited culture, the encounter with oneself, the journey in search of true nature. (BESSE, 2006). Then, we can draw on a view in which is important the artistic aspect of the landscape as representation of nature. This because in Goethe, the sensitivity of the eye is what allows the apprehension of nature through the landscape. In Besse, to think about Goethe’s voyage demands a necessary dialogue with what he calls a sentimental theory, as follow:

"The landscape, the world of the look, reconciles the faculties (reason and sensibility) separated by science. Contemplation and enjoyment meet, but in this awaited serenity, there is one changing aspect that will play the main role: because **harmony** is not an object, but the secret light that shines through the object and can only be perceived in the landscape having a look with the feelings, open to the intimate chords that reconnect the man to the world. **The theory of nature as landscape can only be attention and affection: the look feels the repercussion of what it sees in itself. If the landscape is a representation this image only finds its metaphysical sense in the parameters of a sentimental theory "** (BESSE, 2006 p. 48 **emphasis added**).

Goethe's metaphysical experience questions the nature of the colour, as we have: "Landscape: the revelation of colour, destiny and vocation of light." It is also with notorious sensitization of the gaze through intuition and the break with referential (in the

³⁵ The position of a traveller is of a creature less happy than a tourist. Since "it stretches" much more for what and where passes, fact that I may be a trap of research. But on the relation between man and space and freedom, we recover that the relation of man with a specific area doesn't mean that this is placed/ enclosed in a place, "on the contrary, its freedom the crossing of the places, towards the distant"; or that "the spatiality of existence is movement and not rooting" (BESSE, 2006 p. 92).

discursive and empirical field) that the memories about his trip to Italy evoke symbolic references that the landscape contains and through them, dialogues with the totality of things (BESSE, 2006, p. 58). If we think about the light, that we can examine in the photos of this inventory, and the cold that made that winter in the Piave³⁶, corroborates the thesis of a sad *paisino*.

The landscape (...) is the coincidence of the universal and the particular, where under the mode of affection, the power of absolute knowledge is realized. The particular landscape that opens to the eye letting see simultaneously the whole: sudden apprehension of finitude through the ephemeral. **It is a symbol**, in close resonance with the glance (*golpe de vista*) in which it reveals itself. **"The true symbol is that in which the particular represents the universal not as illusion or image, but as living and instant revelation of the unexplored."** (GOETHE in S.TODOROV 1983 apud BESSE 2006 p.58).

The landscape of Longarone and the valley of the river Paive stands out for the peculiarity of the traditional way of life of the populations along the river and surrounding mountains, and due to the special locality on the geological point of view (actually inserted in the context of the Dolomiti Bellunesi National Park) that is a tourist and leisure destination due to the diversity in geological host, river-stream formations, glacial formations and *Geosites*, (natural attributes as a whole).



IMAGES 7.2.1-1 and 7.2.1-2: Photography of the Landscape approaching from Longarone, Belluno province, and Paive River Valley view from the train. Source:Author.

³⁶ Piave River is set in a "territory was part of a complex hydrogeological system known as the basin of the Piave-Boite-Maè extending from the mountain to the sea, from Auronzo to Venice (in Acqua come Palimsesto, ARENA & CANEVA, 2016 p.26).



IMAGES 7.2.1-3/4/5: Photographs at the arrival at Zoldo-Longarone station, the new station was built just in front of the dam of Vajont. “A perenne ricordo” Perene Memory dedicated to the workers from the stations that was took from disaster of Vajont. year of the tribute 1981. Source: Author.

At the first gaze, what seems to be the peculiarity that gives identity to the locality is the episode of landslide over the dam lake. The landscape is then identified as tragedy, the symbol to that is the dam still present in the landscape undamaged. The dam crystallizes the history of a village that is no longer the same. But its presence has a certain essence (a new essence) as Longarone becomes a place for mountain tourism (unrelated to the historical facts), same time it merges with a specific kind of tourism, that is dedicated to the event with the Hydroelectric plant disaster.

Nature is a raw material from which society has developed its ways of life, the landscape as a product of human labour does not mean the elimination of nature. The traces of nature are present, and even that could go unnoticed, the uses of nature as source of development is there. As example, the Industrial Zone of Longarone, symbol of the renovation that takes place today as a way to reinvent and offer a new destiny or vocation activities. But it is not the case for Vajont dam, the dam summarizes the presence of nature as of the human intervention in it.



IMAGE 7.2.1-6: Industrial zone seen from the banks of the Piave Valley, is with concern that we see the plant (silviculture sector) set in the floodplain areas of a river of great relevance. Source: Author.



IMAGE 7.2.1-7: In this statue is written: Longarone al suoi morti per italia MCMXV / MCMXVIII / nei the Pietra il symbol oltre la pietra dvri negli animi the memory of the sacrifice november MCMXXIII. Source: Author.

This landscape can exemplify a renewed notion of landscape heritage. New postulates are brought into the discussion (as in a lab) since it is understood that this history must be known. Many are the objects that discuss this past, presenting landscape as a theme, and that is visible, in reference with the event/episode of 1963.

The way in which the city disposes its objects discusses the transformation of a small village over the centuries, but also from an event of shock, rupture and reconstruction. The unsuspecting visitor is invited to realize that there is a discussion between modernity and tradition (in architecture forms of the rebuilt of the city) and that through interventions in the landscape that suggest that a great transformation took place there. But the history of the Hydroelectric plant seems to be much more evident as we travel towards the Vajont valley and discovers the small villages of Casso and Erto and the dam itself. All in all, the remembrance of the tragedy is much more evoked by the transformation in the physiognomy of the landscape than by the evident presence of the dam, which even illuminated at night, somehow silences the trauma it caused, and remain as a symbol for those who know the story. To us what we saw in this case of study seems a good example. That is, it is simple and subtle, the way the dam inserts itself in this general context (in constant formation) of re-signification of the landscape.

This case allows to overcome the debate on "memorable facts" as with the monuments or the "natural landscape of the Dolomites". Instead, indicates the recognition of a memory that can be plural, representative of several groups that have interacted in this space. It is

also verified that the regard with memory can be shared between the public power and the community involved, that in fact propose ways to deal with the memory.

It is observed a concern with the meanings regarding the memory. The Museums doesn't offer one side view, so has the function of socializing the experience, of leaving to the visitor and the resident his interpretation of the facts once he has exposed the event of the tragedy through rich details (Museum in Longarone, Visitor centre of Erto; Ecomuseu Vajont). Critical discussion is allowed since there are associations that are dedicated to serving families who have not yet recovered from the event. As well as proposing new ways of remembering history (such as the Vajont marathon). These observed factors lead us to think that it is possible collectively manage the memory. We also understand that concepts that discuss the landscape as a form of heritage will only have a prognosis if they are completely appropriated, re-appropriated and discussed in the most diverse arenas and among diverse interests of action, present currently in the locality.



IMAGES 7.2.1-8: and 7.2.1-9: In the visitor centre of Erto a picture showing the village of Erto when was interdicted and the lake was about to be “dried” the intervention said: “area of silence/to you foreigners that passes by/from here you go to the painful city/from here we go into eternal pain/here we go among the lost people”. In Erta 40 houses were submerged by water and mud. The other image aspect of the village “a traveller” appear in a village almost abandoned. Source: Author.

7.2.2 "living the landscape" as a researcher

“la storia è molto più imperfetta, la geologia non cambia in questo modo³⁷”

Franco Polo

37 “the History is much more imperfect, geology doesn't change in this way”. listened phrase during the guide visit by Franco Polo.

The guided tour to Vajont dam confronted many information, exposed next. The national park in question is one of the first areas declared by UNESCO due to its natural features. This is a context of great environment potentiality and therefore of territorial continuity of protected areas, the industrial plants planned in the region seems brings evident conflicts and tensions with the natural attributes.

As this concern wasn't in vogue in that time³⁸, the engineers of the Adriatic Electricity Society -SADE (today National Board for Electricity - ENEL), got the authorization to build the hydroelectric plant still in times of war (Second World War). The basic history of the terrible episode, as reported, was that the landslide hits the lake of Vajont (that was been filled). It reaches first the workers set in the features of the hydroelectric plant and the village in the opposite side of lake, just in Casso, 54 people was killed.



IMAGES 7.2.2-1 and 7.2.2-2: Images took from the movie set in the museum of Longarone, through the cinematographic language a different approach further then the pictures of journals and phrases informing what happened are more affective to give the dimension of the facts in terms of representation. Source: Author.

When the landslide hit the lake tree huge waves were formed. One across the other side of the valley and hit part of Casso. Another wave went in the direction upstream the reservoir and that arrives at houses and people from Erto. Another wave gains speed due

³⁸ Although: At first gazze the development of a mini-hydroelectric plant it may seem very sustainable, due to the small scale of the plants and their wide distribution in the territory. In reality, the effect of the plants is negligible from the point of view of the environment: by subtracting water over long stretches of the Alpine torrents, also due to cumulative impacts, the so-called "centraline" alter the natural habitats in secondary valleys. often of great naturalistic and landscape value (CIPRA, 2005; Alpine Convention, 2011 Apud BENEDETTA & FERRARIO, 2015).

to the strait of the narrow valley of the Vajont River, the land mass mixed with water reach a speed of 100k/h (as reaches more force when overcoming the dam) to hit in a matter of seconds the Longarone village and the River Piave. The force was so strong that bodies were dragged and founded only in the next village of the province (in Fontenova). All the facts happened in just 8 minutes. Although, it can be demonstrated among those who study the case, the fragments of life and memory remain lost, isolated and irrecoverable.

“In our century, catastrophes have become catalysing elements and often their symbols assume mockingly the value of monuments contemporaries. Anniversaries and pilgrimages they have the involuntary task of defining a mental geography of a collective memory. "The Vajont has eaten the minds," wrote the journalist Lucia Vastano. From the moment the ruinous wave has triggered a process of crushing the landscape up to modify places, memories and destinies, a new balance has gradually taken form. The time line has then reassembled in fragments left, and of the debris, physical and cultural, of a wounded population” (ARENA & CANEVA, 2016 p.29).



IMAGES 7.2.2-3 and 7.2.2-4: Photos of Longarone Village: the before and after of the tragedy are impacting. Images exposed in the Museum - Museo Longarone Vajont Attimi di Storia also known as Museum of Longarone. Source: Author.

On the day after, everyone was told that nature had been imposed. As the dam remained intact, many people were led to believe that it was a natural catastrophe without human participation (that men had done their work well); the usual excuse of natural disaster was presented. At that time, little insurgency demanded justice for the families, that claim for the company people were punished as was the true responsible for the disaster. A communist called Latina Molin is one example that soon was disqualified cause of her political option. She had denounced at the time that the company knew about the instability of the mountain.

In the technical visit the guide had explained that these rocks are composed of clays interspersed with limestone (but clays when in contact with water become extremely slippery). In the 1970s this was demonstrated by several Italian and foreign geologists. Many discussions at the time of the works dealt with the construction site of the dam, anti-seismic systems, hydrogeology research, geological formation surveys of the locality and studies of geomechanics; but at the end, it is attributed to the lack of specific knowledge and the human will (empowering). The hydroelectric plant would have the function of feed the Industrial Zone of Mestra and Vagliari. Was then planned four turbines of 40mw which for that time were very powerful. More 400 people worked on the construction of the dam and about 15 people died in its construction as is a site of high risk level). It stands out that was the largest dam in the world for that time in that specific design, thus, was a symbol of modernity and development for the locality. It should be noted that in the Italian dialect of that region (which, by the way, survives with great difficulty) the word Toc, that is the name of the mountain that “slipped”, means exactly landslide³⁹. Observations are made regarding landscape management, as there is no lake, the lake isn’t anymore (an ecotone), but the scar of the portion of the mountain assumes an important didactic element of the landscape. The pines forests stand out indicating the current use of the soil that conflicts with the natural landscape.



IMAGES 7.2.2-5/6/7: Crossing of the dam, view of Longarone in the background and explanation of the geology of the place. it is necessary to emphasize the competent work carried out during this visit. Source: Author.

³⁹ “*Nomen Omen* in Latin translated literally means “the name is an omen (prognose)” and it derives from the belief of the Romans according to which in the name was indicated the fate of the people and hinges. The mountain on which it is anchored the Vajont dam, still intact and stable, bears the name of Monte Toc, or mountain rotten, putrid, landslide. The same name that Vajont has today acquired a meaning and a value of catastrophe in the collective consciousness” (ARENA & CANEVA, 2016 p.27).

The knowing about the features of a “paleo-landslide” that was indicating the instability in the area and the occurrence of two small-slip episodes (before the biggest disaster) has leads to fights between engineers and geologists in which both sides didn’t want to lose prestige. After checking that there was a instability in the mountain, it was thought to conduct waterproof works in all the edges of the lake, but that would be a pharaonic job, then not continued.

At the end the blame was attributed to few people. Involving up imprisonment (for four years which decreased to two) but at the end no one would have been effectively guilty, one case of extradition to Paraguay was remember as a result. It is noted however, that they were long and many processes in the courts (which seems to have contributed to not heal the trauma of the episode). About 20 people committed suicide given incompatible and unsupported State presence after the disaster for supporting these families (it was reported in more than one source during the visit that the compensations were shameful and minimal).



IMAGE 7.2.2-8: Studies on the landscape are exposed to demonstrate the changes over time, the magnitude of the event and dialogue with human scale (realization by the Ente Nazionale per l'Energia Elettrica -ENEL).

The episode that became known as one of the worse episodes of the Italian history, happened at the same year that showed signs of the so-called economic miracle, given that, what happened is even more symbolic⁴⁰.

Regarding the new monuments of the landscape, when asked the guide, it was said that they are, in fact, contradictory constructions, because there is a modernist language that does not refer to the history of the old locality. But still, reflect an intention to remember and also to forget (simultaneously). This suggests the attempt to assign another meaning to the landscape and which to us seems extremely sensitive.



IMAGES 7.2.2-9 and 7.2.2-10 Many are the references artistic implicated in the “crime scene”; memories, wishes and souvenirs. In the other image we can see the questionable architecture of the chapel vis-a-vis the main one that was constructed in the city of Longarone. Source: Author.

Believing that this history cannot be linear since it means disruption and "fragments of life", and observing the studies conducted by Viviana Ferrario and Benedetta Castiglioni from the Università IUAV di Venezia and Università degli Studi di Padova respectively; as they proposed a balance regarding specifically this region that touches important views. In this way it is presented “*i paesaggi nascosti, i paesaggi cancellati, i paesaggi mai costruiti, i paesaggi «reciproci»*” As follow:

- 1) **Hidden landscapes:** refers to the conjunct of structures and features that is underground, and in this case, just a few elements appear on the surface. As for the case of Vajont, there are also cave sites that hide the technical systems. as well

⁴⁰ “(...) the Vajont case it appears as an emblematic metonymy of an entire nation, not only from the Dolomites in Porto Marghera, but of an attitude generally widespread in people imaginary. (ARENA & CANEVA, 2016 p.28).

the corpus of water body is confined (decrease the flow) and are transported to kilometres away, sometimes meeting another sub-basin that is not indeed related to the original flow of the river. It is pointed out that these transpositions of waters cause the loss of biodiversity and create artificial interactions among different ecosystems. Is important to discuss that the existing cases where the technical decision is not what happened, once the case of hidden landscapes is the availabilities of certain technologies or the lack of territorial space. Then placing the discussions to cross-dressing a dam "idea of masking" and of camouflage, that can be associated with the intention to increase the acceptance of the project. the authors consider that in Vajont the other works conducted by ENEL, tried to hide the hydroelectrical structures suggest to not deal with the testimony of the people affected (for the case to Erta e Casso).

- 2) **Erased Landscapes** - refers to the deleted landscapes that were valleys, forests, mountains, routes etc especially due to the flood of the areas. Almost all the cases involve conflicts with the older residents, the necessity of re-structure the local economy (tourism can be an example) and new actors that became part of the plot (new stakeholders). The excluded landscapes leaves signs (material and immaterial) exposing then, cases, where the exclusion of a landscape is programmed, planned, and calculated.
- 3) **Landscape never built**: After the shock that was the case of Vajont lots of projects and hydropower plants of diverse approaches were shooting down. they remember, although, that all the projects are still alive, as predicted for the future (including for the engineer's form Vajont Mr. Carlo Semenza). They call the attention to the fact that the state cannot evaluate in an integrated way the cumulative impacts and an integrated overview of all the hydroelectric projects of a specific territory.
- 4) **Reciprocal landscapes**: As in "reciprocal relationships of production and consumption in terms of material displacement, ecological change and labour relations" (HUTTON, 2013 Apud CASTIGLIONI & FERRARIO, 2015 p.540). This has to do with the areas of production and areas of consume of the electricity, they are linked but this can be demonstrated in a diffuse way, in fact, is an invisible way. It is placed then the need to unveil it so the interdependence (energy/territory) can be more transparent, and so more participation of the communities in the decisions.

7.3 INVENTORY OF CONCEPTS AND VALUES: THE LANDSCAPE OF XINGU'S BIG BEND AND THE BELO MONTE HYDROELECTRIC PLANT

Ethics and values of the stakeholders are often silenced but the discourse applied on nature as well about the "great public works" needs to be examined with care, as they justify principles that we take as absolutely true and legitimate.

This inventory following the method proposed, seek to address very important themes in respect to landscape and heritage. In order to do this, the central approach doesn't want to compare levels of importance of the studies, as the paleo-landscapes (and the climatic and ecological variations that had founded the biological heritage of the Amazon forest), in contrast with the narratives of archaeological interpretation of places and landscape related to long-lived indigenous histories. Or even to evaluate the landscape safeguarding measures in the context of the construction of the Belo Monte Hydroelectric Plant. The understanding that we had for the elaboration of this inventory is to subscribe, the different narratives in the interpretation of the contemporary Amazonian landscapes. For that, the analyse was divided in two parts, as appointed: **7.3.1 Concepts, values and judgment of the "landscape universe"** and **7.3.2 Forecasts of the ecumene and heritage**

7.3.1 Concepts, values and judgment of the "landscape universe"

“Until the mid-twentieth century, the regionalization of the vast spaces of the Amazon region was almost exclusively based on the name of large and medium-sized rivers, tributaries of the Amazon River” (AB'SABER, 2010 p.50).

Following the reasoning that landscape is a cultural construction possible through the production of images as discussed previously, we can assume the period between 1975, (year of Belo Monte hydroelectric plant idea was first conceived) until 2011 (when the construction began) and today (operating with almost all turbines on); and the project entire trajectory; embodies the dispute (in terms of discourse) over the idea of sustainability. It's a case then, that revisits the issue always placed for the researchers, about how to make use of the Amazonian resources.

The production of an image and the production of an aesthetics is at stake over the landscape, both in the sense of the natural environment, the traditional population, as for the company compliance (technology and management of the impacts). But further, we

can verify that the technical language linked to the structures of a hydroelectric plant becomes a form of power demonstrates from one culture towards another. New speeches and new concepts are created and the Indians turn out to be considered as “impacted”. Nature also enters the roll of new concepts that seeks to hide or to distract from the issues already known to a large part of society. As is, the arbitrary regulation of the waters, the diversion and the drought of the river, the lack of supply of water for the local pollution the death of the fishes, numerous focus of deforestations the increasing dependence on the cities by the forest populations⁴¹. The imposition of another spatial logic (technified), of an operationalization of the territory (globalized), is justified by the appeal that lies in the production of electricity for the whole nation. The most important justifications are usually associated with the ideas of development, sovereignty and autonomy. This are broad and vague concepts, and that can often be used according to different interests.

But this very same landscape, contains subjective senses (visual cultures), if we think in the local population. With Besse, we understand that the landscape must be read. This can be done with the toponymy of the original people, for example. To deal with the narrative about the landscape in the indigenous universe we must consider the place of speech as we saw with Alvaro Domingues previously. Thus, to think the history of Indians in the amazon is to understand that they shared experiences of certain places and memories with the foreigners, but what is central is that the foreigners were who “were led” to get closer to their universe, not the other way around. Archaeological practice in Brazil already applies the detachment from absolute chronologies, in order to approach the cosmology of Indian narratives. The term landscape, then, can also resemble to the temporality of the human experience connected to the paths, places, toponyms and topographies. Such understanding takes place in the field of archaeology and ethnology by understanding that the landscape is what interweaves the different meanings of the archaeological record. (GOMES et al, 2007).

With the exception of the names resulting from the old railroad projects and the names of the first cities during the colonial period that bumped along the course of the Amazon

⁴¹ All of this “impacts” were observed in the case of the construction of the Belo Monte Hydroelectric Plant. For a critical reading of the impacts generated by the construction of this plant, it is recommended the publication “PANEL OF SPECIALISTS: Critical Analysis of the Environmental Impact Study of Belo Monte Hydroelectric Project (Belém ,2009). For the news about the impacts generated by the plant nowadays, See the reports and publications of the Socio-environmental Institute-ISA.

River, all of the other areas received the toponymy of their hydrography. The word "Amazon" nevertheless, in the popular imagery assumes the same cognition as "Landscape" since both become when is convenient, synonymous of "nature".

Reports of the Amazon in the 1940s shows that, at that time, about four million people inhabited the region, with more than half of them (2.5 million) inhabiting the regional plains of the *Solimões* River and the Amazon. This is explained, due to the fertility of soils and the supply of resources, mainly due to fishing activity in the river and its tributaries.

Such exceptional fertility of the floodplains of the Amazon River is related to the contribution of sediments from the Andes, that, when crossing several regions of sedimentary geological formation among others, mixes with the eroded materials in the fluvial barriers and cliffs, forming, through a "complex process of trading alluvial sedimentation", nutrient-rich soils. It is important to note that the soil formed in these plains of the "Great River" differs greatly from that of the tributaries of the Amazon River. (AB'SABER, 2005 p. 4).

With this reference, it is intended to mention two central notions/ideologies that is in vogue until the present day through the creation of many images (and reflections in the landscape). The first is that the Amazon region is uninhabited and the second is that it has weak soils for agriculture. In terms of the greatness and complexity to understand the interaction between populations and the rivers in amazon it's possible to start by looking at the alluvial plains⁴².

⁴² Embedded in vast areas of undulating plains and low plateaus, the *Solimões-Amazonas* watercourse, through its current and sub-present transshipments, forms an alluvial plain 15-20 km wide, on average, and the great River itself has a width of 4 to 5 km, so that between the width of the river and the lateral extension of the plains there is a ratio of only one to four or eventually one to six. Therefore, what the peoples of the Amazon call the floodplain, is not so wide and homogeneous due to the labyrinth of lagoons, entanglements, igarapés and paranás-mirins" (AB'SABER, 2005 p.13).

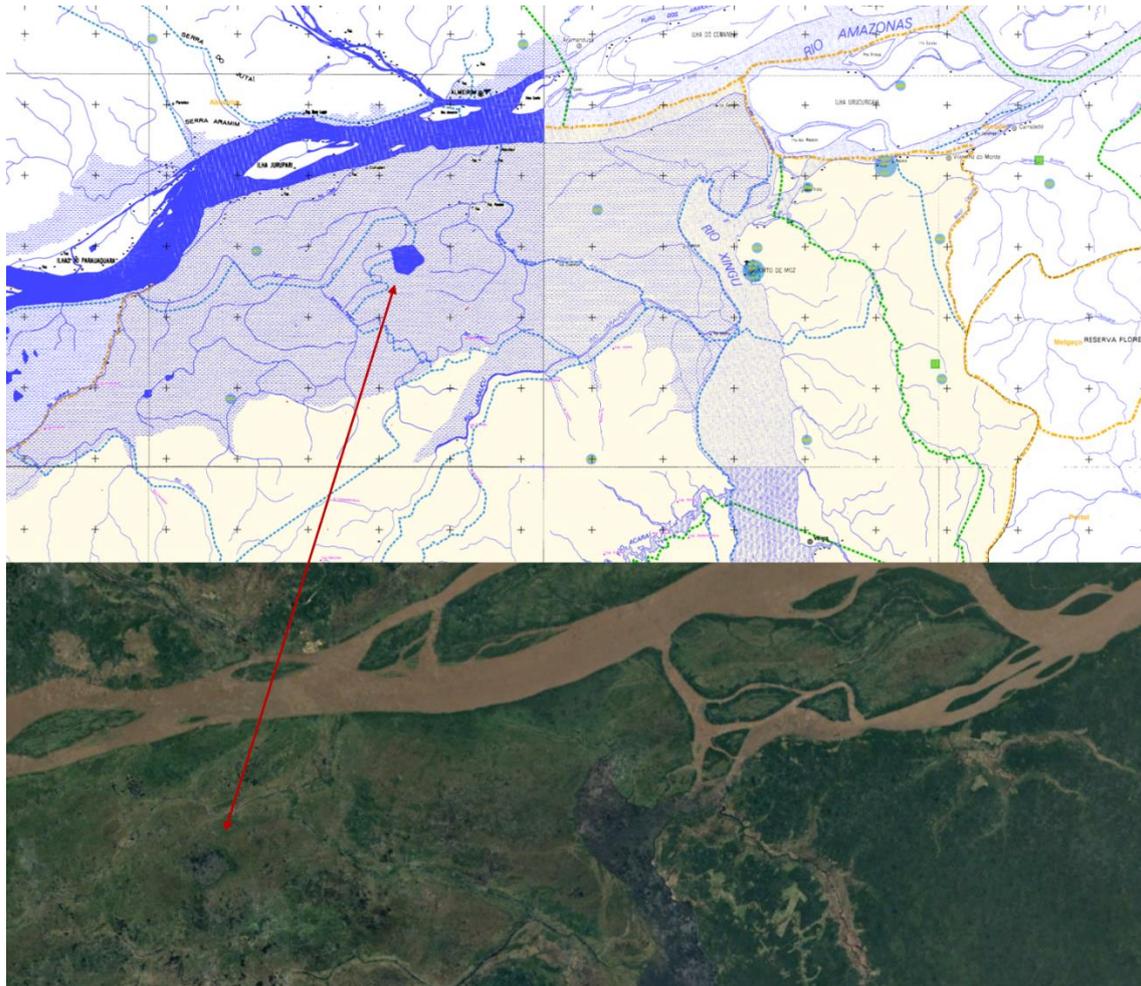


IMAGE 7.3.1-1: Statistical municipal map IBGE, 2000 and below Copernicus satellite image/ Google Earth, 2000. The zone where the Xingu River (south of the amazon river and in blue colour); meets the Amazon River. The red arrow pointing the same lake in both pictures is there just for location effect showing the extension of floodplains. The comparison of the two images shows how the representation of the floodplain zone can be complex only due to the fluvial dynamics that occur in this scale of magnitude; there are also other factors to be considered once the interaction between the atmosphere and forests is also an important aspect.

Unlike the Solimões-Amazonas river that runs freely without any accident in its course, the tributaries present “fall alignments” in terms of medium and low river flow. This is the case of the Tocantins Rivers, the Xingu River, and the Tapajós River. The Tocantins River is where the fourth largest hydroelectric dam in the world is located, the Tucuruí hydroelectric plant (operation initiated in 1984). In addition, the Tapajós River, which is not yet enclosed by any hydroelectric power plant although is the river basin current in target, as the new opportunity for implementation of others large dams.

In the Aziz perspective, the Amazonian landscape provides true documents (preserved in the superficial formations) geological, geomorphological and phytogeography that allow

to think the scientific reconstruction of paleo-landscapes of the Amazon. In the section exposed above the period is the last three million years. It seeks, however, explanations for the current features of the forests, verifying the climatic fluctuations that reflect changes of direction in the ecological history of the region. To him, the only opportunity to prove the presumed ecological fluctuations centers on the retrieval of geo-ecological comprehension of the "stone lines", and some white-sand spots located in special sites (AB'SABER, 2004).

His thesis is based in the fact that during the Upper Pleistocene occurs the penetration of open formations in several areas of the Amazon concomitantly to the progressive retraction of the forest to redoubts or refuges. And the stone lines are actually documents that indicate drier and colder climates where the forest "shrunk." In contrast, the rural landscapes of the Brazilian savannahs and even the dryness of the *catingas* (semi-arid) in the northeast of Brazil expanded and advanced on the areas where the Amazonian biome is now defined. What these ideas call attention to, is that there will be no possibility of understanding the history of the natural formation of this region, without being able to investigate the vegetation that covers those specific spots.

It should be noted that not only the great dams, but the pressure of agribusiness and mining are vectors that appear simultaneously intensifying and accelerating the destruction of nature, of the ways of life, as well as paleo-climatic vestiges. This last one here in question, therefore, represents sites that indicate vegetable species or fossils that has interest of preservation. In another publication the geographer designates these localities as "hybrid sites"⁴³. Aziz drew attention to the fact that in the north of the State of Pará, therefore in the surroundings where the Xingu River forms its low bed, and drains in the Amazon River, it is possible to verify "sub-central peripheral and montane forest refuges that favoured the penetration of extensive cliffs between the main forest refuges and some semi-arid features" (AB'SÁBER,2010 p.51).

⁴³ Localities that: "(...)possess geological and geomorphological value and important relics of vegetation of the type of the mini-biomass (rupestre-biome, biome, savannahs retrenchments, mini-enclave of little savannahs, and rocky hill surrounded or covered with cactus). It is important to note that men of prehistory had already set eyes on the originality of some of these exceptional features. We refer to the rock inscriptions made a few millennia ago in paleoinselbergues and eventual ruine-forms topographies: the case of *Pedra Pintada*, in the north-central part of Roraima, and inscriptions on ruined turrets of *Monte Alegre* (Ab'Sáber, 2010 in Physiographic and Ecological Zoning of the Total Space of the Brazilian Amazon).

Is placed then, the importance of the preservation of paleo-landscapes, considering the presence of vegetal stocks of the Quaternary period, since they are elements that subsidize the understanding of the paleoclimate fluctuations in South America. Landscapes that tells about the floristic heritage and biological heritage (faunas of the Quaternary) which, has a complex distribution, depending on the climatic and ecological variations of the period (AB´SABER, 2004).

The inventoried areas for the construction of dams invariably meet the importance of the fall lines. Aziz, also reminds us that these features are “accidents” that make waterway transport more difficult in the case of the eastern Amazon. It ponders, that on one side we have extremely meandering rivers which makes it difficult and very slow to navigate (in the case of the Juruá and Purus rivers). Although it was due to a lack of resources and "hurry" that a sluice was not built at the Tucuruí Hydroelectric Power Plant to be able to travel through much of the navigable Tocantins River. The geographer predicted, what in fact happened. He said that the same could happen in the region of the Xingu´s Big Bend in face of the Belo Monte project announcement. In this sense, it explains that only the Madeira River remained navigable together with the Paran dos Ramos river. However, the hydroelectric plants are always justified as providers of positive impacts once it creates the conditions for the navigability of rivers in stretches where it was not possible previously. In the case of Belo Monte a sluice was built (system of transposition of slope); but it is much criticized by experts since along with water the fish of diverse ecosystems are mixed; which has been found to be a threat to the survival of those species.

Speaking of fish, one of the greatest impacts sparked by the Belo Monte venture, currently, is the dead of endemic species of fish. The discussion among the academics about the concept of Geodiversity⁴⁴ can be highlighted. Some researchers in this theme defend the need to recognize the river diversity of the Amazon region. About 12% of the entire Legal Amazon (denomination that defines the Amazonian biome in Brazilian territory); corresponds to fluvial plains and terraces, besides the rivers and lakes. There is discomfort with the fact that very little is known about tropical rivers, most of the classic

⁴⁴ In order to think about the landscape, it is important to know that the study of geodiversity aims to value the knowledge and the preservation of the natural patrimony corresponding to the geological aspects (minerals, rocks and fossils) and geomorphological (forms of relief, processes), pedological and hydrographic; since it is the substrate that explains the biodiversity that we observe in the landscape. (Silva, 2012).

knowledge about large rivers has been generated in countries with a temperate and not tropical climate.

In the location of the Xingu's Big Band, downstream of the dam it is set a great diversity of fluvial channels that in turn is explained by the geodiversity. The set of geological geomorphological characteristics of soils and the hydrography itself, also reflects the great diversity of river environments as well the huge diversity of endemic fauna and flora of the Xingu river basin as in reports that "conclude that the Xingu River is the most diversified region among the 52 aquatic life (of ichthyofauna) regions of the world" (ELETROBRAS, 2009 apud SILVA, 2012 p.8).

In Brazil, it is no secret, the formula by which the development of the Amazon or the advance of "civilization" towards the unexplored is done almost always conditioned by the exploitation of natural resources, mining and logging stocks, biodiversity, etc. There is international pressure for this formula to operate as a logic, in which large dams play a central role. In the interview that is analyzed for this text, Aziz remembered about an American entrepreneur who aims to build a dam in the Amazon River itself, because this would allow the advance of industries under remote and still unexplored areas. This discussion should be set; about how the hydroelectric as a power factor, means the advance of the "technization" of the territory, in order to open spaces for the increasingly rapid and intensive advance of the exploitation of resources in a generalized way.

In the Amazonian universe the scale attributed to planning and actions on the territory is indispensable. Many scholars had analysed the plan of "integration of the Amazon" as it became known in the military period (years 1964-1988), had as central device, the construction of large hydroelectric plants; in the region (military projects for the integration of the region into the rest of the national territory were set with the help of a well know ideology that was largely widespread: "to occupy so to not to deliver".

In this understanding the roads that were built in the region had as a principle for the occupation (among others) to connect the zones that could not be transposed since the extremely sinuous rivers and the waterfall and rapids areas would prevent the navigable transposition. Mainly the connection is with Belém (capital of the state of Pará) which has always been the main port to run the productions and the products from the Amazon forest. It is now known, that federal highways served as real *pontas de lança* (spearheads)

and inaugurated the main outbreaks of deforestation and land taking on the contiguous and remote forests.

The famous *Transamazonic* road, which was not completed as was planned, was perhaps the greatest threat **vector** of the forest population, as well as the preservation of its nature. It is as road that leaves the Brazilian coast to cross the entire forest until the more remote western frontiers. It seems to us that there was no coincidence that one of its stops was in the region of *Altamira* (closest to the *Belo Monte* hydroelectric plant), being an event that gave momentum to the city. At that time, the military government justified its construction in this region under the slogan "lands without men for men without lands".

"The construction of the *Trasamazônica*, initiated during the military regime, openly announced the indigenous genocide. we can say that the 1960s, 1970s and 1980s delimited a specific period and, at the same time, fundamental for the current configuration of the social landscape of the Xingu and Tocantins region. In these three decades we see the consolidation of economic development projects and the definitive progress of the national society over the indigenous territories. These large enterprises (dam and mine) mark the history of nationalization of the State of Pará, in which the main economic interest of the National State hovered over the mineral exploration that would support the basic industries (steel) and the (post-war) demands of the international market in the second half of the 20th century" (AMARAL, 2013 apud Gomes 2017 p.89).

7.3.2 Forecasts of the ecumene and heritage

"The landscape can be original landscape, the landscape of fusion, or of the original communication of man with the world, precedes, then, all orientation, all reference. The landscape is radical disorientation, it arises from the loss of all reference, it is a way of being invaded by the world. " (BESSE, 2006 p.101).

Amazonian landscapes can be also an example of an objective landscapes (target Landscape). Berta Becker demonstrates how historically the amazon region was treated as isotropic and homogeneous. The privilege assigned to large business groups; with profound disrespect for social and ecological differences in the implementation of what she called the techno-political network had led to extremely perverse effects, including the destruction of life forms and local knowledge (BECKER, 1980).

As many authors had discussed, heritage practices can be successful in safeguard certain objects, facilities, and protected or conservations areas. Although, changing social pacts related to centralized decision making can be seen on the landscape as focus of tensions and conflicts. The earth's surface modified by technical and political microsystems places

the discussion about the hydropolitical geography. We know that Brazil was “born” with the economical exploitations perspective.

In an extract that analyses the expedition of Henri Coudreau in the years of 1896 on the Xingu River, the author quoted below consider that the Xingu was already seen as the "Eldorado of the rubber tappers and cemetery of civilization" (PENNA, 1864 apud NETO, 2008). To Coudreau the extractive industry of latex were the reasons for the decay of the region's indigenous people, considered as dirty, culturally poor and scattered from their origins. (GARCIA, 2017 p.65). But shortly before this expedition and of economic exploitation the travel written of these landscapes differ a little bit.

The name Xingu appears for the first time in the historiography on Herman Moll's 1697 map made according to the descriptions of the missionary Jesuit Samuel Fritz (formerly the river was calling Paranyba).

"In the first half of the seventeenth century, soldiers, missionaries, and adventurers from various countries (Dutch, English, Spanish, French, Portuguese) sought to explore the Xingu, establishing regular contact with indigenous populations, events that confrontations that would lead to very hostile foreign deaths." (GUZMÁN 2008; NOGUEIRA, 2008 apud GARCIA, 2017 p.49-50).

It is recorded that after the Company of Jesus⁴⁵ obtained the right to govern the indigenous villages of the lower Xingu River, a conflicts was set once these lands were already occupied by Portuguese settlers and other religious orders such as the Franciscans and Carmelites, an process that dispersed even more the indigenous populations of the middle and lower reaches of the river. Interested in the so-called "drugs of the *sertão*" (diverse products of the forest) is known that the Jesuits missions formed “*aldeamentos*” (settlements) that aimed at the catechization and the control on the native labour force. At that time there were many reports of expeditions by "Jesuit ambassadors" who entered up the river towards the villages closest to the headwaters, to bring more Indians, but never returned. Historians understand that the people of the Xingu have a history marked by the inconstancy of the villages (abandonment of work and of settlement).

⁴⁵ The Company of Jesus, a religious order formed by priests (known as Jesuits), was founded by Ignatius of Loyola in 1534 historians identify that confession, preaching and catechization were its priorities. "At the end of the seventeenth century Company of Jesus obtained the right to govern the villages of lower Xingu but not without facing the opposition of the Portuguese settlers and the dispute with the other religious orders (...)" GOMES, 2017. p. 50).

"Historiography indicates that, until the early nineteenth century, despite rubber extraction, there were still no fixed non-indigenous occupations, which seems to have prevailed until about 1840. Since then the intensification of rubber business has changed more significantly the limits of the expansion of the already consolidated national society "(NOGUEIRA, 2008 apud GARCIA, 2017 p.51).

The Xingu peoples, who faced the interiorization of the settlers, made it very difficult for them to penetrate. In the XVII and XVIII centuries, true strategies of war were intensified, with the headquarters of the Pará government coordinating the capture of the Indians of that region to build the cities of *Fortaleza* and *Macapá*, work in agriculture and extractive industries, services to the crown, churches, buildings of the colonial administration and also to work on expeditions that aim to demarcate frontiers. It was established a generalized relocation of the Indians, mainly from the Tapajós and from Xingu region. (ACEVEDO MARIN, 2010 apud GARCIA, 2017).

It can be said that until the XIX century, or even in the imperial period, the landscapes of the region was minimal known, also remembering that the names of the indigenous localities were replaced by Portuguese names (Marques de Pombal⁴⁶ policies) very little was known about this toponymy geography. The Historic and Geographic Brazilian Institute -IHGB, arose to systematize the knowledge that regarding the distant regions came to reinforce the policies of exploitation of the peoples and their lands, in order to legitimize the imperial policies of the period. According to the surveys consulted, historical sources converge to demonstrate broad:

"(...) territorial domain of Tupi-Guarani and Juruna language collectives in the middle and lower Xingu River. The toponymy and experiences of those who have passed through this region in the nineteenth century are therefore on **persistent landscapes** that have been witnessing different stories that mark deep socio-cultural transformations of pre-existing indigenous regional systems (GARCIA, 2017. p.25 **emphasis added**).

In a brief summary of the following studies on this region, we now find the reports of naturalists and travellers on the nineteenth century who observed that in this region should have been some ancient civilization that degenerated (between the Xingu Tapajós and

⁴⁶ "Upon assuming the post of Minister of the Treasury of D. José I in 1750, Marquis of Pombal initiated reforms in every area of Portuguese society: political, administrative, economic, cultural and educational. These reforms demanded a strong state control and an efficient working of the administrative machine, and were carried out mainly against the interests of the nobles and of the Company of Jesus, who represented threats to the absolute power of the king" (MACIEL & NETO, 2006 p.2).

Araguaia forests); by which Carl Friedrich Philipp von Martius⁴⁷ supposed to explain the ruins of these peoples, when reflecting on the mythology the historical tradition and the Tupi mother language.

The voyages in the German tradition inaugurated by Martius, together with the prince Adalbert von Preussen⁴⁸, the travel of Karl von den Steinen⁴⁹, but also of the French Henri Anatole Coudreau and Olga Coudreau⁵⁰ and of Curt Nimuendajú and of Emília Snethlage⁵¹ are the emphasises of the observations made by the archaeologist Lorena

⁴⁷“Carl Friedrich Philipp von Martius (1794-1868) was appointed associate member of the Royal Academy of Sciences of Munich in 1816. The works carried I Europe yielded him the first academic publications on botany. In the year 1817, with the financing of King Maximilian I and under the coordination of Johann B. von Spix, Martius goes to Brazil as a member of the Austrian Mission that financed scholars of the most varied sciences (...). This mission resulted in remarkable scientific works and beautiful artistic productions. The work *Reise in Brasilien*, organized by Carl Fr. Ph. Von Martius and Johann B. von Spix, is one of the most important travel reports published about Brazil, it was the result of almost four years of travel in which Martius and Spix travelled the interior of Brazil for about 10.000 km.(...) The expedition had its starting point in Rio de Janeiro ending in the Amazon forest (...) Among other publications, the monumental *Flora Brasiliensis* (1840-1906), edited by von Martius, August Wilhelm Eichler and Ignatz Urban, was also the result of this travel, sponsored by three monarchs - the Emperor of Brazil, the King of Bavaria and the Emperor of Austria - and with the collaboration of 65 experts from various countries. It remains the most complete work on the Brazilian flora and was the basis for the systematization of the current Botany (in Critica texts *Biblioteca Brasiliana Guita e José Mindilin*: Carl Fr. Ph. von Martius: Studies and notes of the Brazilian Flora by Luciana de Fátima Candido, 2018).

⁴⁸ The travel of Prince Adalbert von Preussen (1849-1970) in the first half of the nineteenth century takes place during the rainy season of December, and his narrative experiences the meeting of the Juruna villages on the terraces and tops of the Xingu hills. In the descriptions of these expeditionary travellers, it is noted that the Juruna people who guided them resorted to certain "hills" in order to visualize the proximity of some oud destination or village. Denoting dynamics of seasonal occupation and strategic use of the hills along the Xingu "(GARCIA, 2017, p.229-230)

⁴⁹ "Almost half a century after the expedition of Martius (late nineteenth century), Karl von den Steinen, became responsible for the most detailed cartography and ethnography of Xingu's people. The toponym "Waterfall of Martius" became the signature of the passage of the expedition of von den Steinen and his fellows investigators in the Xingu" (GARCIA, 2017. p. 56-57).

⁵⁰ Formed by the École Normale de Cluny in 1877, Henri-Anatole Coudreau was a professor of geography and history at the Ecole Professionale de Reims. Accompanied by his wife Marie Octavie Coudreau, they went to the Amazon region in 1881, establishing in Cayenne. In 1883, in the service of the Ministry of the Navy and the Colonies of France Coudreau toured the disputed region between French Guiana and Brazil between 1883 and 1884. Two other expeditions followed between 1887-1889 and between 1889-1891, at the end of each Coudreau organized a book with the results of his investigations. According to the main source here consulted, the trip of the chorographer Coudreau and his wife by the Xingu had script similar to the one of Prince Adalbert. Been hired by Brazilian rulers to map the physical and socioeconomic environment of the stretch between the beginning of the Xingu big Bend and the place known as *Pedra Seca* (which marks the beginning of the Upper Xingu).

⁵¹ “The German zoologist Emilia Snethlage (1868-1929) arrived in Belém do Pará in 1905. Her scientific career as an ornithologist, developed in Brazil, was very productive and is recognized

Luana Wanessa Gomes Garcia with work is that were we find most of the information collected of the travel writing that speak about the landscape of this region. Stands out that together with others mentioned here, Courdreau is an icon of the nineteenth-century tradition of travel literature, had signed, maps, drawings and descriptions that could "adorn" the writing of the narrator-traveller, although to some historians he had legitimized the project foundation of colonialist exploration. Curt Nimuendajú, "unlike all the others lived an archaeological experience in the middle low Xingu" (GARCIA, 2017, p.57).

From the 1950s on, to meet the demand for archaeological research, the Amazonian National Archaeological Research Program (PRONAPABA) was developed in order to research the unknown regions. Through the initiative of the Museum Paraense Emílio Goeldi and the National Council for Technological Development (CNPq) and with the support of the Smithsonian Institution, the archaeologists Clifford Evans and Betty Meggers, who were already researching the Amazon, were pioneer. In the case of the Xingú, the professor of the Federal University of Espírito Santo (Ufes) Celso Perota was with his team investigating the Xingu River, Purus River and Tapajós River, between 1977 and 1990. This program resulted in more than 80 archaeological sites identified in total, today under guard of the IPHAN - ES Technical Reserve. (IPHAN, 2018).

"PRONAPABA - XINGU registered 58 sites, classified as ceramic and indigenous. Part of the registered sites are places known in the historical sources of the XVIII-XX century as the case of Missões; Morro do Quartel; Gorgulho da Rita; Cachoeira do Pedrão; Itapinima; Porto Vitória; Vila de Veiros; Porto Mós. It stands out from this survey the registration of the fluvial *sambaqui* (Tamanduá site) shelter site with paintings and rock engravings (...) with animal figures of fish and snakes and other records such as lytic artefacts and fragments of ceramic vessels" (PRONAPA, 1977, PEROTA 1992 apud GARCIA 2017 p.83).

To the author above, after this research that can be consider as isolated, is possible to consider that the continuity of the research on indigenous civilizations and landscapes in

by professionals in the area. One of her most important achievements was the organization of the "Catalog of Amazonian Birds" (Snethlage, 1914). The crossing, which was carried out on foot, accompanied only by Indian guides, between the Xingu and Tapajós rivers, in 1909, travelling through territory previously unknown by cartography, had an international repercussion (Snethlage, 1912b). In 1914 she was appointed an interim director of the Museu Paraense Emílio Goeldi and, from 1922, she worked as a travelling naturalist for the National Museum of Rio de Janeiro. In 1926 she became a member of the Brazilian Academy of Sciences" (JUNGHANS, 2008 p. n/f).

the Xingu region were carried out with the intention to create the indigenous lands; after this, the renewal of the studies came with the projects of infrastructure. It is well known, among the Brazilian researchers that major part of the scientific work (including the archaeology in the Amazon) were mixed together with the development of projects of the national state driven by economic interests in the twentieth century. The discovery of manganese, bauxite, nickel copper and gold mines in the *Carajás* region in the 1970s led the researches to address intensively these regions, the need for energy reserves for mineral exploitation was irrefutable. Hence, it is the Tucuruí Hydroelectric Power Plant in the lower Tocantins River.

Here it is possible to think that just as in the past the *Grande Carajás* foreshortened the construction of the Carajás Railroad, a state road, and the own *Transamazônica* Road due to the mining reserves that was discovered in the Carajás National Florest; structures that justified the construction of some of the largest lakes hydropower plants capacity in the world, a question remains, but what then, forced the need for the Belo Monte Hydroelectric plant? (looking at this past). It is symptomatic that in Brazil we have a Ministry of Mines and Energy that builds up under the same formation until today, and that was created to carry out these plans and projects, strategically. The expansion of the electrical system is linked to the necessity to deal with the subject on an institutional level as before limited to the role of the Ministry of Agriculture (PINHEIRO, 2007).

It is a symptomatic aspect that the hydroelectric of Belo Monte initially hasn't this name. Belo Monte, which in turn means "Beautiful hill", initially had the indigenous name *Kararaô*⁵². (...) always surrounded by controversy - from the 1970s, when the project was started, initially to build the *Kararaô* plant (which in the *Caiapó* indigenous language is a religious word meaning "war cry"). (isa.com, 2018).

The analysis of the landscape in the face of the construction of the hydroelectric plant involves great complexity. The project that obtained a preliminary license for construction in 2010 with an installed capacity of 11,233.1 MW and an average amount

⁵² Indigenous lands of the Kayapó ethnic group (located downstream of the dam), among others, would not be monitored and studied once the project was announced. But they had to be contemplated by a specific Communication Plan where the attempt was to work with psycho-social impacts occurred with these people, since it was verified that the old name of the project "Kararaô Hydroelectric Complex" still persists in the imaginary and system of symbolic representations regarding the project. (Technical Note FUNAI, 2012).

of power generation of 4,571 MW (Norte Energia S / A, 2018); with only this data, how emblematic is the project of the third largest hydroelectric plant in the world in the XXI century. This is considered regarding the contradictions between state and nation project, or between state and transnational corporations in the electric power industry, but not only, and between economic growth and development that ends up revealing vulnerability and impoverishment of groups affected by the enterprise, among other forms that express shocks and dysfunctions.

In the initial design for the hydroelectric plant that was conceived in the 70's the area that the reservoir would flood was about 1.200 km²⁵³, reaching indigenous lands (of the Juruna and Arara people). This was one of the reasons that made the project to be "turned off" once it would implicate in the flood of those lands which imposed the resettlement of these groups, a fact that is illegal according to the Brazilian constitution.

The first hydroelectric surveys conducted on the Xingu River planned six large hydroelectric dams in the basin. As another source also point out, that were the indigenous organized in social movements that manage to stop the *Kararaô project*, which emerged with force in 1989 right after the re-democratization, when the federal government alone, couldn't fully fund such a project. So it was the Indians in the region, who demonstrated to the World Bank (part of the funder) how the project would be harmful to them. Here we meet the role of the Indigenous people, with a clear and active positioning against the project.

About the current project, The National Indian Foundation (FUNAI) demanded from the entrepreneurs for a separate study, considering what was conventionally called in the assessment studies as "Study of the Indigenous Component". The federal agency also defined the particular area of study for the indigenous communities. Thus, would be legalized and recognized lands, villages in the face of demarcation and regularization

⁵³“Much smaller than the 20,000 square kilometres of its original project, designed by the dictatorial government, the current project continues to be massive. With 3568 families officially recognized as being impacted and included in an indemnity project, according to a document from January 2015 (Norte Energia, 2015, p.9), although there is still a divergence in the actual number of families affected. The total area of the dam is 516 km², of which 134 km² are from the Canals Reservoir and 382 km² from the Xingu River Reservoir. The two reservoirs comprise one of the distinct characteristics of this project, one of the changes of its original design. It is thus the third largest hydroelectric power plant on the world scale, smaller only than Three Gorges in China and the binational Itaipu, on the border between Brazil and Paraguay” (SANCHEZ, 2008 Apud GIMENEZ, 2017).

(independent of the land regularization of each one); all of them, should be contemplated by the studies. Initially the number was 10 indigenous lands.⁵⁴

The definition of areas of Influence in mega projects like this is a delicate and controversial topic, given the endless currently discussions⁵⁵. Meanwhile, National Indian Foundation - FUNAI decided to prioritize in-depth studies on the two lands seen as the most affected, the Indigenous Lands of *Paquiçamba* and *Arara* of the Xingu's Big Bend, because they were located in the Area of Direct Influence - AID in the surveys) and it was expected that they would be affected by the reduction of the Xingu River flow, as is already known, happening today (See image next).

In this sense, these three Indigenous Lands have become Group -1 and the priority assigned to these three cases is justified due to the geographical proximity with the project. The other seven indigenous lands are territorially continuous (upstream the dam), which was also considered an aspect to be treated as in isolation been then the Group - 2. The other group would be regarding the urban Indians living in Altamira or in the region of Xingu's Big Bend. Such data, were extracted from the Environmental Impact Report – RIMA of the project, which has the purpose of being a language accessible to all. Although, it in a closer reading, it was visible aspects of ethnocentrism in the narrative and the anachronism regarding the indigenous way of life.

Along the criticism towards this project is also questioned the fact that it presented itself as with a "modernizing perfume". One strong example is that the normal name in Brazil "*Usina Hidrelétrica* - UHE (can be translated to Hydropower Plant) would be the conventional name); but instead actually the tendency and this case calls itself

⁵⁴ They are: Indigenous Land Paquiçamba (Approved and Registered since 1991); Indigenous Land Arara da Volta Grande do Xingu (Declared in 2008); Indigenous Area Juruna km 17 (Awaiting identification); Indigenous Land Trancheira Bacajá (Registered since 02/10/1996); Indigenous Land Arara (Approved in 24/12/1991) Indigenous Land Cachoeira Seca (Declared); Indigenous Land Kararaô (Registered in 06/10/1999); Indigenous Land Koatinemo (Registered in 2003); Indigenous Land Araweté/Igarapé Ipixuna (Registered); Terra Indígena Apyterewa (Approved in 2007).

⁵⁵ Each municipality is inserted in an area called Indirect Influence Area (AII), established according to the previous studies of the environmental impacts necessary to the environmental and social licensing process of the project, areas where the impacts are considered as indirect. In the same way, it was agreed in Brazil to call the Area Directly Affected (ADA) the perimeter of the construction site for the project receiving (channels, powerhouse, dam, reservoir etc). Thus, from this, is established the Area of Direct Influence (AID) where the limits of direct impacts are also delimited and mapped.

“Aproveitamento Hydroelectrical Belo Monte - AHE”, that can be translate to Hydroelectrical Utilizations of Belo Monte. Such a semantic operation by withdrawing the word “Usine” is clearly to extinguish the notion of power plant (therefore of industry), in order to make the project more palatable in front of society in general, displeased in general facing countless, immeasurable, uncontrollable social and environmental impacts in this Amazon region.

As a way to inventory and safeguard the aspects of landscape heritage is possible to demonstrate among the Images below:

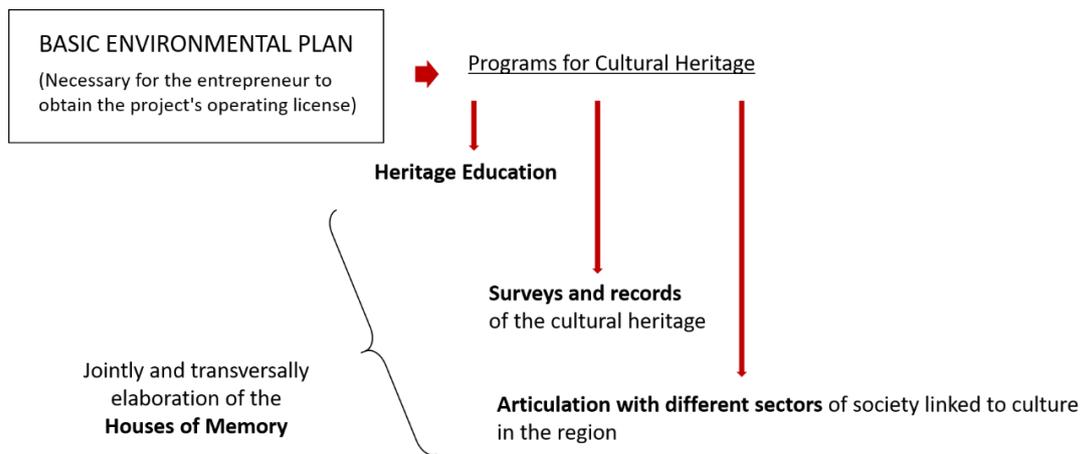


IMAGE 7.3.2-1 Scheme of the basic plan (according with Gimenes, 2016) which comprises the landscape aspect in the guidelines for company actions (the programs) in order to repair the impacts caused by the construction of the Belo Monte hydroelectric plant.

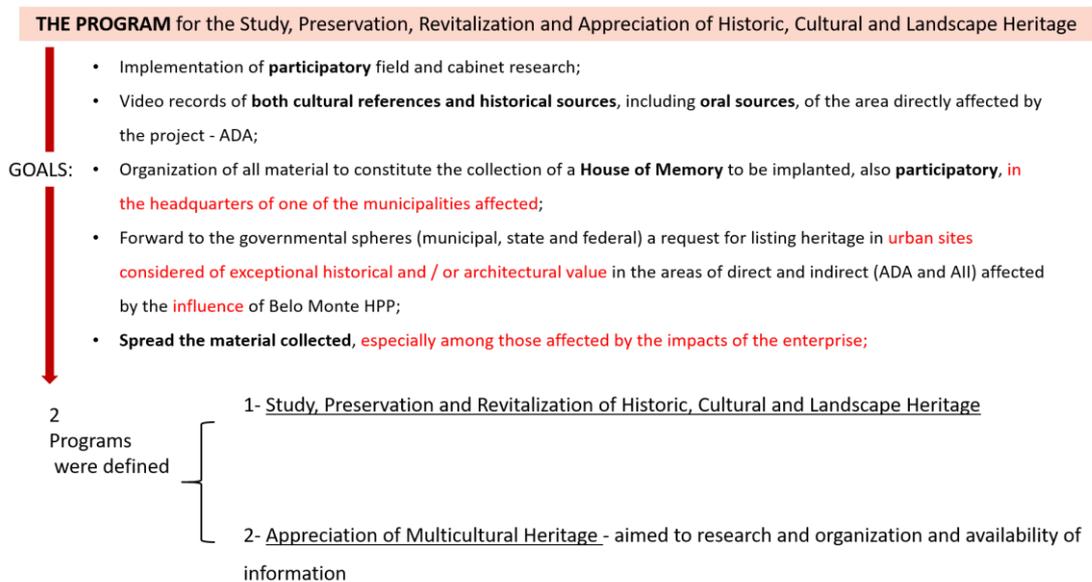


IMAGE 7.3.2-2: Representative scheme made according to Gimenes, 2016. The information of the only planned program that is reported to take care of the landscape theme in the case of the Belo Monte project (with the exception of the Heritage Education Program).

To summarize, according to the PBA, the Heritage Valuation Plan of Belo Monte established the need to also coordinate a Preventive Archaeology Program that resulted in subprograms being: Integral Archaeological Prospecting Projects; Archaeological Salvage Project; Design of Registries and Analysis of the Registrations; Predictive Archaeological Modelling Project and Heritage Education Project.

With the official name "Plan of Appreciation of Culture", some actions were planned. These are the compensatory measures related to the mitigation programs of the impacts caused by the Belo Monte project. The procedural rite is that the company executing the project, Norte Energia S/A would be required to deploy, so it could obtain the Operation License - LO, which in turn is granted by government entities.

As the indigenous component (to use the words that the licensing process invented), were considered separate, and for then other programs were design, it's an important issue that they aren't in dialogue with the actions to preserve the aspects of heritage as a whole, so they aren't connecting with the other communities and environmental issues, as listed above.

The PBA defined the actions planned to be implemented as soon as the project obtained the installation license - LI. Overall compensatory measures related to the negative or positive impacts are predicted without regard with the Indians. As we have seen, they enter into a single, isolated chapter. The researcher who proposed to do the analysis of compensatory measures in the cultural heritage states:

It should be noted that in this plan, no attention was paid to the indigenous populations, who obtained a specific arm of PBA. As a result, the surveys of heritage research do not contain the characteristics of the indigenous ethnic groups present in the region, except in a marginal way (GIMENES, 2017. p.2).

Concerning the impacts and measures envisaged, it is accepted that these programs are conceived to compensate the loss of the cultural assets, suffered by the regional population, and consequently by the national population (Sanchez 2008 apud Gimenes 2017 p.3). the authors cited, in the case of Belo Monte and dealing with environmental licensing in general, advise researchers that they should work with the hypothesis of

compensations for the loss. To us, however, this not seem to be the central issue. Gimenez tells us:

Since it directly reaches places considered as cultural reference of the population, as well as dispersed communities that performed celebrations, may interfere significantly in crafts and break of the conditions in which the existence and transmission of certain knowledge was possible, the impacts of the hydropower plant are considered **irreversible**, that is, changes with "extreme difficulty returning to the condition precedent" and **permanent**, as they are definitive changes (SANCHEZ, 2008, p.463 apud Gimenez 2017 p.5 **emphasis added**).

According to him, who also participated in the implementation of the programs, the work was extended to all municipalities that were included in the area defined as AID (Altamira, Anapu, Brasil Novo, Senador José Porfírio and Vitória do Xingu). It affirms, that the studies were raised as a priority in the Area Directly Affected- ADA (the construction site and in the places where the reservoirs would be formed); also expressed that as the fieldwork presented the demand for further studies, it was possible to expand the areas of surveys.

What the author emphasizes in his article is the identification of the Celebration of Saint Bernard (which was recorded in two municipalities) and the collection of testimonies and records made in and on the River Iriri, because appeared intensely in the speeches of all as a place of importance, demanding the expansion of the research area. "Having as a guide the methodology of Iphan in its National Inventory of Cultural References - INRC⁵⁶ - including, among many materials. As we have notice, the research for Belo Monte applied its guidelines, while at the same time getting distance from its registration methods on standard forms and scripts⁵⁷. (GIMENES,2016). The participant of the programs implementation explains is that in the field works two ways of interviewing were adopted:

“(...) life history, "whose scope is confined to cultural assets considered historically and intended for the constitution of oral sources for ethno-historical study, "and interviews interested in the "meanings and values" of cultural assets. In both cases, the interviewees

⁵⁶ According to the Manual for the National Inventory of Cultural References – INRC; of the year 2000; two main objects are: 1) to identify and document cultural assets of any nature to meet the demand for the recognition of assets representative of the diversity and cultural plurality of the groups forming the society; and 2) to apprehend the meanings given to the cultural heritage by the inhabitants of listed sites, treating them as legitimate interpreters of the local culture and as partners of their preservation preferences. (IPHAN, 2000).

⁵⁷ “Such an inventory would become a requirement for environmental licensing in subsequent years. For Belo Monte, however, there was no such orientation” (Gimenes, 2017 p.6)

themselves, the holders and living of the local culture, and the specialists on the subject, who had knowledge about the cultural assets of the region, were much more considered. (GIMENES, 2016 apud CALDARELLI, 2014 p.16).

He also affirms that in the case of interviews interested in the "meanings and values" of cultural assets with what he calls "informants" it also resulted in the collection of records, since when the interview was made it was also possible to record types of crafts and activities, the forms of expression and the way to build traditional buildings.

According to the diagnosis of the impacts predicted by the consulting company that elaborated the Basic Environmental Plan -PBA; five workshops were planned with the purpose of promoting the integration of people from different locations (he calls them stakeholders); and announce that it was observed in locus, the need to expand the network of people who could contribute in the works, as quoted next:

“(…) it was noted that it would be of vital importance to establish other channels of communication and local interaction within each participating municipality to better capture the specificities of each locality, as well as to ensure a greater presence and more frequent interaction with socio-cultural actors. (...) **The information collected in both the activities and in the workshops strongly influenced the decision making about the cultural reference records of the study program.** (SANCHES, 2016).

Although the Iphan references were not used in the methodologies, they were the base for the work of the researchers contracted to conduct the surveys of Heritage. The researchers adopted the concept of "cultural references"⁵⁸ as a global notion of heritage surveys, according to the INRC - Iphan 2000 Application Manual. The works in Belo Monte divided the cultural references in (**celebrations, forms of expression, buildings, places, offices and ways of doing**). The researchers also created the category of "**life history**"⁵⁹. It is expressed the relevance of the cultural references once by seen the quantity of the identified assets. As well the files following the INRC-Iphan standard once was a product-

⁵⁸ References are buildings and are natural landscapes. They are also the arts, the crafts, the forms of expression and the ways of doing. It is the festivals and places to which memory and social life give a different meaning: they are considered the most beautiful, the most remembered, the most beloved. They are facts, activities and objects that mobilize closer people and bring those who are far away, so that the feeling of being part of and belonging to a group, of owning a place is revived. In short, references are objects, practices and places appropriated by culture in the construction of the meanings of identity, are what are popularly called the root of a culture (IPHAN, 2000, p.29).

⁵⁹ “It was understood that such a category could encompass historical and cultural elements rooted in the lives of the stricken, their history and their present in drastic transformation. Without people, their context and their history, cultural references are mere records" (Gimenes, 2017 p.7).

requirement of the ethno-historical surveys, then Iphan could give his licence for the continuity of the construction of the Hydroelectric plant.

According to the same author, at the end of 2014 a collection was gathered to be kept in the Houses of Memory records of thousands of photographs, hundreds of hours of video recording, been almost six thousand digital files:

- 158 life history interviews (videos)
- 168 buildings (videos) and 2978 buildings (files)
- **245 points of landscape interest (videos)**
- 927 celebrations (files)
- 85 of expression forms (files)
- 158 of life stories (files)
- **1249 places** (files)
- 540 of crafts/tipes of works (files)

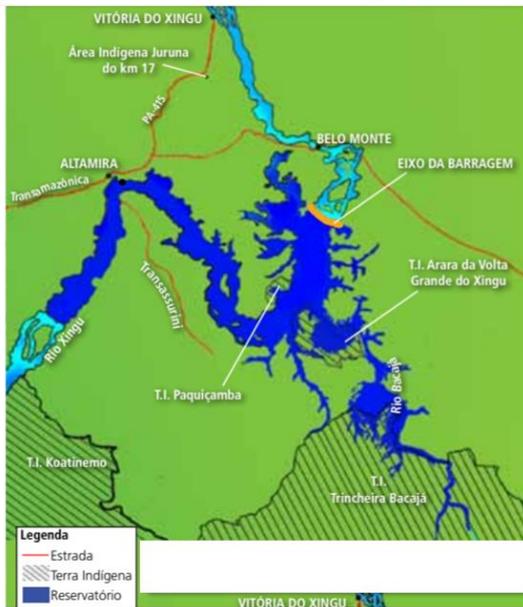
It worth mentions that "the legislation has regressed perversely". Subsequent to the project of Belo Monte was approved in 2015, an Inter-ministerial Ordinance attached to an Instruction Normative of IPHAN, which **restricts the environmental licensing to the assets already protected by the State**⁶⁰ (Gimenes 2007 p.13 **emphasis added**).

In general, is considered together with the author in question and also supported by Iphan and ISA; the fact that measures that are restricted to data collection, registration and archiving in the Houses of Memory do not guarantee the "sustainable continuation of references", since, for that, it would be necessary to guarantee "living conditions similar to those affected". However, several evaluations were carried considering that those actions weren't satisfactory, once: "It has become clear that there has been no realistic consideration of the time required to adequately fulfil complex socio-environmental obligations in such a sensitive socio-environmental context". Among that it should be noted that until the completion of the work in question the Houses of Memory had not yet been made, as well that the execution of a museum plan doesn't even had started (ISA 2015, p.48 apud Gimenes 2007 p.11).

⁶⁰ "In other words, only the assets already registered, or valued by the institute, been extended as well to those assets with an inventory registration in progress, are those that can have some kind of guarantee in face of the arrival of an enterprise that threatens them. **To understand the implications of this If Belo Monte licensing was in effect, almost all research would not have been carried out and it would be difficult to talk about memory.** This is because, in the region, the registered assets can be counted in the fingers". (Gimenes 2007 p.13 **emphasis added**).

RESERVOIR OF THE PREVIOUS STUDY (1980 AND 1990) AND ACTUAL RESERVOIR. THE SQUEME IS ALSO SHOWING THE INDIGENOUS LANDS AFFECTED AND THE ROADS

Reservatório do Estudo Anterior (anos 80 e 90)

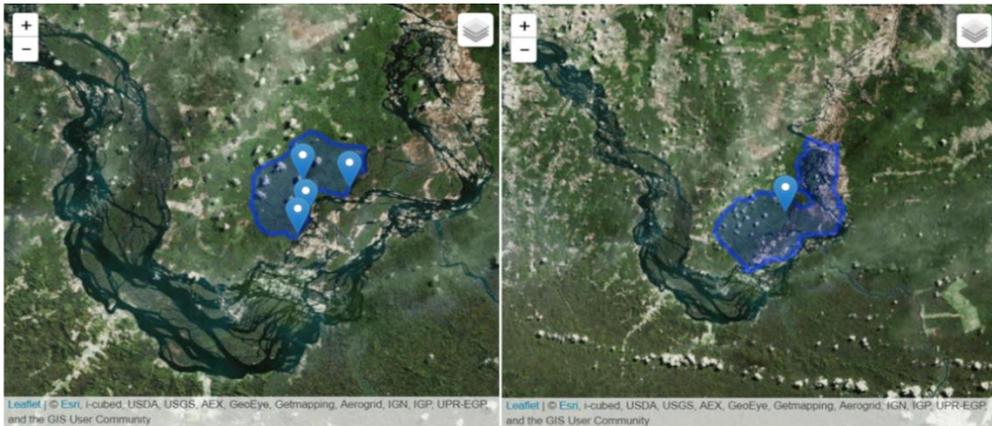


Reservatório Atual

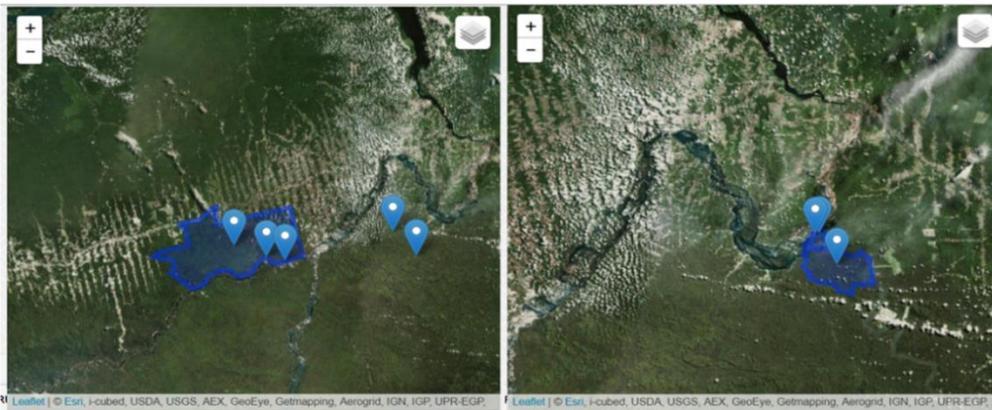


IMAGE 7.3.2-3: Adapted from the Environmental Impact Study made by the consulting firm contracted by the Norte Energia S/A. The consortium that was responsible for the implementation of the hydroelectric power plant. The Environmental Impact Study it's is an obligatory part for the licensing of the enterprise which should be with a simple language to be more accessible to all. SOURCE:RIMA/Norte Energia 2010

The Image below summarizes a few aspects discussed here.



The above images show the Paquiçamba indigenous land and the Images beneath the Arara lands. Source: National Foundation of the Indian - FUNAI).



Next, the images of the Landsat from NASA observatory before and after de dam construction (2000 and in 2017) exposing that although they were not "flooded" they were terribly impacted by the drought of the "Grande Volta do Xingu "Grand Tour of the Xingu River".



IMAGE: 7.3.2-4: Images of with information added showing the changes implications from the sky view.

7.4 ESSAY ABOUT THE POLICIES: THE LANDSCAPES OF HYDROELECTRICITY IN FRANCE

“Cachez ce pylône que je ne saurais voir”⁶¹

In order to think about the policy development in heritage and landscape of hydroelectricity, the cultural field stands out as is the main representative regarding the conceptions of the main ideas, measures and of specific indicators of monitoring and management. In this regard, the French trajectory it's a good example due to the accumulation of experience, the vanguard movements, and because they serve as a model for other systems, either because they have triggered important discussions or because they have proposed international approaches through the various entities that have emerged as UNESCO⁶². Heritage policies aim to act towards the preservation of certain assets, material or immaterial bearing certain symbolic values attributed by society. Its purpose is to consolidate the collective identity (of a nation, for example).

It needs a regard concerning with the trajectory of how the notions of cultural heritage begin to incorporate in a dissociated way, the concepts and the policies not only of heritage and culture but about the landscape and its necessity of preservation. It is through the instruments established by UNESCO, that the landscape comes to be imposed and affirmed, first mediated by the dualities between natural and cultural heritage, until that in 1992 the cultural landscape is institutionalized. What is relatively recent.

This is done through heritage letters and resolutions relating to cultural heritage at Unesco, in the international council on monuments and sites – ICOMOS as well in the European Community instances; since they facilitated the discussions in several common issues. Thus, converging in the understanding that the landscape was not an inert environment, only a stage of social relations, but an integral part of relations (an inseparable part). In the sense to demonstrate this process emphasis is given to the Athens Charter (1933) that set the attention to the "surroundings" and its attributes, the

⁶¹ The idea of visual mutations as a feature of all the industrial and electrical sectors is explained in: "Cette mutation visuelle marque tous les secteurs industriels et énergétiques (...). Hier symbole du développement industriel, du désenclavement, de l'aménagement du territoire, le pylône est aujourd'hui intolérable. Alors que pendant deux siècles, ceux des deux premières révolutions industrielles, les installations industrielles se devaient d'être visibles, car leur présence était un signe d'entrée dans la modernité pour la ville ou le village qui les accueillait, dorénavant nous voici dans l'ère du « Cachez ce pylône que je ne saurais voir » et le XXI^e siècle voit triompher une nouvelle esthétique industrielle, celle de l'invisibilité » (BOUNEAU & VARACHIN, 2001, p.15).

⁶² About UNESCO, the 1972 Convention on the Protection of the Cultural and Natural Heritage of Paris is particularly noteworthy, as it is defined by the World Heritage Committee (of an intergovernmental nature created in 1976) as caring with the humanity heritage. It was in this context that the landscape emerged as an integrating element of what was neither a natural or a cultural asset.

Washington Convention (1940) and the natural panoramic beauties whereby the landscape was valued cause of rare beauty, the Paris Recommendation (1962) caring with landscape and human interventions, the Venice Charter (1964) when the concept of the environment is broadened to ambience, the Nairobi Recommendations (1976) the Declaration of Caracas (1992) and so on, over the 1980s. There are many examples that gradually incorporate the landscape as an object of heritage policy, which many authors understand as a response to the disappearance of landscapes.

Due to the process of deindustrialization, it is understood that it takes place from the decade of 1970, is that the interest for the study of the landscape of the industry or the landscapes of technology, mainly among the historians is consolidated. In that time industrial plants were considered landscape symbols of the domination of nature. (MATOS, 2017 APUD BLACKBOURN, 2006).

From this point on, we understand that what defines a territory is the exercise of power under a certain space (according to classical definitions in Geography). To that, we add that landscapes are inserted in certain territories. It is under the territorial logic that the management policies directed to the landscape and the ecumene are given. It is necessary then to situate these two distinct concepts so that there is no confusion. Then, there is a trajectory of valuing what is about to be lost, the investigation had identified, so far, that there is an identification of value contained in the landscape, but what exactly is this value attributed to the landscape of hydroelectricity? Moreover, there is no escape from the fact that reading the landscape will aim the conception of a speech or a project about it (?) that happens to be a political project. This way this text is an essay trying to approach the theme.

From the nineteenth century on, historiography distinguishes notably the heritage policy in the French model and that of the Anglo-Saxon model. This last one is based on entities of organized civil society, which sought to value aesthetics and worship of the past. While in France stand out the state, centralizing decisions and focused on the consolidation of the national character but that also shows itself as aiming the political interests (FONSECA, 1997 apud Melo 2015).

The interest in safeguarding the industrial heritage arose in England, during the 1950s known as "Industrial Archaeology". The event corroborates into the relevance of industry to the British as is historically also for the world, considering its most diverse stages since the first industrial revolution. Throughout the 1970s, it is being set a multidisciplinary field of studies. In 1973 The First International Congress on the Conservation of Industrial Monuments (FICCIM) had authors like Robert M. Vogel, in the US; Marie Nisser in Sweden; Massimo Negri in Italy, as Neil Cossons and R. A. Buchanan in the United Kingdom and as Maurice Daumas in France. This last been the responsible by the creation of the magazine *L'Archeologie Industrielle* in 1976. The formation of the International Committee for the Conservation of the Industrial Heritage – TCCIH is distinctive in assembling meetings and conferences.

The policies aimed exposes the importance of the Council of Europe Recommendation on the Protection and Conservation of the Industrial, the Technical and Civil Engineering Heritage in Europe; or the Council of Europe Recommendation on European Industrial Cities among others. Furthermore, it was of great importance the process of conceiving and conducting inventories. In France importance stand out the “Inventaire Général du Patrimoine Industriel” established in 1986. (ROSA, 2000).

Arnaud Passalacqua studying the changes in the landscape due to the electrification of transport in French cities at the turn of the nineteenth century to the twentieth century, identifies that the concern with the aesthetics and the beauty of the cities, in fact, omitted a concern of the "cultural or political intellectual elites" who felt threatened by the fact that greater technical agility and (and economic benefit) would mean an invasion of workers from the periphery toward the centre of the cities. That is why he considers the hypothesis that there is an instrumentalization of the aesthetic argument of the landscape that moves to the debate on the landscape. (PASSALACQUA, 2012). This can evidentiate a contradiction once:

"The history of the individual is the history of whom produced the space and was involved and related with in, so it can be appropriation. But it is also a contradictory history of power and struggles, of resistances composed of small forms of appropriation" (CARLOS, 2007, p.17).

For this it is revealed that the Electric Energy Industry operates through logistics that practices the opposition between local and global. And at the local level, what prevails is the private interests identified by the elites who coordinate policies geared toward culture, land planning, and so on. In this context, minorities represent the possibility of appropriation of space (in the ludic form, by the body, by the senses) that gives meaning and identity to the place as the place of the reproduction of life.

In addition to a growing fight for the interests of local communities, the environmental issue that translates to the landscape is currently being challenged. The exhibitionism of industrial plants as a symbol of modernity, today adapt to the growing estrangement and rejection that they arouse among the inhabitants imbricated in these landscapes. For this, new conceptions were necessary to establish the "visual mutation" by the invisibility of the landscape of the electrical systems. (BOUNEAU & VARASCHIN, 2012)

"Ce défi environnemental de plus en plus pressant recouvre un défi démocratique d'une complexité sans précédent par la multiplicité des « stakeholders », parties prenantes aux enveloppes, aux alliances et en définitive aux postures très volatiles, qui dépassent(...) »**Pour intégrer les exigences locales dans l'impératif de l'équipement collectif, les procédures de consultation et de débat ont donc été considérablement renforcées**, sans pour autant résoudre l'équation posée ni entraîner l'adhésion du public" (BOUNEAU & VARASCHIN, 2012. p. 14-15 **emphasis added**).

At a given moment, it is evident the lack of the legal instruments that guarantee democratic principles in the decisions, thus the insufficient policies demanded changes. The aforementioned authors reveal to us some other points of inflexion and tension for the thought about the landscape of the electricity in which they are involved in the institutional policies, being these:

- The law of electrical works, from 1906, had complexified in the 1970s with the intentions to ensure a better protection of the environment and a greater participation of the public in the development of the projects and management. Further, the "Barnier law", under the auspices of the National Commission for Public Debate (CNDP) also grounded the involvement with the public in the decisions.
- Steep by steep increases the discussions about the security of regions and of specific places that could face an electric blackout (Provence-Alpes-Cote d'Azur as an example). Same time has placed the need to guarantee the vocations of a territory of "remarkable spaces" then the issue would be: How to arbitrate between these different general interests, which often collide on the same territorial scale?
- The decline of certain mystique that involved the electrical installation became a real manifest (landmarks) of the networks of power. This what reflected in a profound change in our society that was no longer identified with the development choices by the state (a strong state and associated with the technostructure) the claim was in the name of the common good.
- Although everyone agreed that the collective was been submerged in name of particular interests, the authority of the elites was still recognized. What the authors think thus, is that there is a moment of change where the elites were totally disqualified.
- The paradigm presented is how to conciliate sustainable development at same time "deregulation" has become a need for the state. They consider that this is going to be strongly reflected in the landscapes. Also, an important observation regarding the deregulation trajectory in France (partly counterbalanced by the search for new forms of regulation), but that allowed the multiplication and segmentation of stakeholders in energy landscape issues.
- The way out of this issues seems to be calling the logic of co-construction and co-habitation as not a simple juxtaposition of the stakeholders: But it needs to observe the process as itself regarding the specifics territorial scales of analyses.
- It is must create the necessary spaces for dialogue and make the negotiating a real process. To surpass the specifically visual approach to a social approach, been as well caring with the economic externalities.
- They speak of a transitions: From a logic of avoidance, circumvention and camouflage, to a logic of opportunity that needs to adapt the resources and markers on each territory; As well the transition from a sectoral approach (that can isolate industrial issues), to a transversal approach, indicating then the landscape studies and projects as the eloquence of each territory.
- Another need is the shift from a single responsibility given to the engineering company (the entrepreneur) to the idea of shared responsibility. Been able to mobilize all the stakeholders involved.
- The conditions of shared responsibility can be a way to the electricity can synonymous of "progress", thus assuming its cultural ambiguities, as the life models and ideals of development, or even of civilization contradictions.

According to an article of an economic consulting company, the French parliament approved in 2015 a sweeping law on energy transition and specifically about the hydroelectrical concessions was placed significant changes. It was established the need to understand that the system even if it operates from different concessionaires, can be considered a coherent hydraulic system (grouped by valley/territory). In that analysis, the changing on the energy code established the possibility of major interventions by the state in face of the need, for example, to renovate the contracts of exploitation of a hydroelectrical power plant, or in the other hand extend the timeframes for its operation (that can be fixed by a decree). The fact is seen as an indication that fewer concessions would be set in the short-term future. As well this new regulation would allow extending the years of operations of one concessionaire given the fact that in case that was realized improvement works and substantial investments on the power plant. This regulation was seen by the "marked" as a substantial reduction of new concessions been put up for renewal the contracts. Also was analysed as a fact that could "helps the government to achieve its 2022 target of increased hydropower peak capacity" (NERA,2015 p.5).

Another change is set regarding the *Société d'Economie Mixte Hydroélectrique - SEMH*, a new model of company (semi-public) announced, in which could exist along the duration of the concession having the state plus its public partner (that signifies local government instances) as with the ownership of the amount between 34% to 66% of the capital (also having the corresponding voting rights).

These new regulations were seen as extreme measures to limit the market liberalization (the article considers that this marked is now long planned); and thus is relevant that either having the minority or the majority of the control of assets (in the government choice), the state will be present in the sector no matter what. For that, we can dare say that this had signifies a nationalization posture for future of the management of the hydroelectrical landscapes in France. Thus, the article highlights that the French government was pressured to accelerate the new concessions by mentioning that the European Commission warned France with a letter of notice for "failing to liberalize its hydropower market as planned". To that, we add that was also because of the European Commission pressures that Electricity of France - EDF is no longer a state company since 2004. Although, for the consulting company:

“(...) strong interest by investors as recognized by the government: on top of the incumbents (EDF and GDF-Suez), Vattenfall, ENEL, E.ON, Statkraft, Fortum, BKW International, Direct Energie and Axpo, among others, expressed interest Investor appetite for French hydro assets was driven to a large extent by the appeal of investing in a renewable energy, which doesn't suffer from intermittency and is not exposed to the same type of risks as other renewables, and thus ideally complements a portfolio of other green assets while bearing none of the regulatory risks of thermal energies.(NERA,2015 p.4).

To us, remain the interrogations once the justifications for the open market to acquire the hydroelectrical plans are the same all over the earth, despite the regional (north/south) or climatic and environmental conditions, and local and territorial characteristics and

political differences; been to us a sign that something is suspect at least at the level of discourse.

According with recent article on *Le Monde* journal:

“EDF exploite 85% des centrales hydroélectriques françaises. C’est ce qui pose problème à la Commission Européenne: depuis plus de dix ans, la France fait miroiter à Bruxelles qu’elle va permettre à des concurrents d’EDF de devenir exploitants de certains barrages. Concrètement, il s’agira d’une procédure d’appels d’offres qui permettra à des acteurs privés, français ou étrangers, de se porter candidats et de remporter une concession pour gérer le barrage” (Nabil Wakim; Le monde.fr 2018).

As for the newspaper above mentioned the concessions do not seem to be an urgency of the last governments, independent of the ideological orientations regarding the economic policies. The European Commission sees a high the concentration as the hydropower plants are essentially controlled by EDF and Engie (via Shem and Compagnie Nationale du Rhône). As the source mentioned that they are in charge of 12% of the electricity production, 70% of its renewable electricity and with significant financial repercussions. As seen in the media, the trade union organizations in the sector were very reactive, but are indeed taking part in the discussions.

Again with Besse, and his intension / approach that one should read the landscape, extract its signs, symbols and the - forms of organization of space - because this reveals an intention or a project about it - we can understand that each type of landscape will be the reflection of the productive, material and immaterial forces there. Milton Santos reminds us that knowledge is also part of the productive forces (MATOS, 2017 Apud BELTRAN & CARRÉ, 1991); shows that in France as well as in Portugal and other European countries the installed power of hydraulic facilities increased 94% (between 1914 -1918) due to difficulties with the importation of coal at the time in the context of the first World War. The increase of requests for exploration of the hydroelectric potential for electricity generation was a reality fact.

If we follow the above thinking, the war had driven and foster a whole new chain related to hydroelectric power (as is given as one of the reasons) for the development. Other explanations also required to illuminate the context of the expansion of urbanization after the industrial revolution. Although we run the risk on this association, since it is known that wars unleash much of the technological innovations we know in the modern era. At this point, the cultural landscape replaces the natural landscape, also in an accelerated way, the field universe is invited to produce with more force, the transport and electricity networks guarantee urbanization at the same time as industrial decentralization was now allowed. (SANTOS, 1988). In this context, the technical objects in the landscape are more intensively observed, the dam industry is also announced in this context. Moreover, in the institutional approach, the ideal of the industrial landscape is synonymous with modernity, or synonymous with the dominion of nature by man. Like a path without a return.

“L'hydroélectricité est très vite désignée comme une menace pour ce qui porte au plus haut degré le sublime des paysages de montagne et l'image de leur naturalité intrinsèque: torrents, cascades, lacs... Or, en l'absence d'un régime juridique spécifique, les aménagements se multiplient sans véritable contrôle” (HEAULMÉ, 2014 p.3).

In France, a turning point was identified in the movements to preserve the springs of the Lison River threatened by hydroelectric projects. This case shows that in the earlier twentieth-century landscape damage had become a political issue seen as part of the parliamentary discussions. It is an emblematic example since it was seen an uprising of local politicians when they came across the need of a legal instrument that would guarantee that public areas and public projects could have priority regarding the right to property along the important rivers. This is because at the beginning of the 20th century; if the title of the land was demonstrated the negotiations with the companies interested to explore the water power were free; industries of electricity also were free to negotiate in their own benefit (BARRAQUÉ, 1985 apud HEAULMÉ, 2014).

For those who saw in the landscape an economic resource related to leisure and tourism, as the case of the Touring Club de France -TCF or the Club Alpin français- CAF, the civil society organization was the way to reverse these projects, stands out that it is very early that in France was established the *Société pour la protection des paysages et de l'esthétique de la France* -SPPF, in the year of 1901 been supported by the local communities. The importance of this is because the movement guarantees the promulgation of a law (June of 1906) that for the first time mentioned the landscape as a target of protection policy. Later regarding the increase of the conflict once that the Hydroelectrical projects were multiples other regions were target for the projects: “the Jura (la Loue), the Alpes (le Guil), the Cévennes (l'Orb) as well the Pyrénées (Gavarnie)” (HEAULMÉ, 2014 p.4).

With the First War hydroelectric power plants came to be seen as a strategy issue that should therefore be controlled by the state. However, the policies of preservation of local of tourist interest due to the landscape remain protected and weren't disregard or just cancelled. This time it is reported that the discussions migrate to the areas of committees where the local representatives, academics and scientific society, also the companies would have representativeness, there is a situation for the reconciliation among all⁶³.(MILAN, 2007 apud HEAULMÉ, 2014). While speaking about the a political invention of the landscape, another turning point that it worth mentions:

63 Emanuella Healmét remembers: Figures as Pierre de Gorsse and Louis Le Bondidier, the centrality of the Musée Pyrénéen de Lourdes, the Fédération des syndicats d'Initiative du Sud-Ouest, also the historian Raymond Ritter (Vice-President of the commission départementale des sites des Basses-Pyrénées) the geographer and botanist Henry Gaussen; the Federation of the Pyrenees of Mountain Economy (FPEM) accentuate the representativity against the dams. What prevailed was the understanding that the use of water was the main motive for the conflicts. There was, however, the understanding that water was also "landscape."

“Tout se passe ainsi comme si, sous la pression des projets d'aménagement hydroélectrique, les autorités valléennes avaient été poussées à prendre conscience de la ressource paysagère, à la revendiquer comme telle et, dans le même mouvement, à (se) représenter le territoire local comme un tout, constituant un système de ressources dont le système hydro(géo)logique est le fondement et le paysage valléen le reflet. Avec cette approche du paysage beaucoup plus territorialisée et dynamique que celle des protecteurs des sites, le conflit ne se réduit plus au seul conflit tourisme/hydroélectricité”.(...) “Apparaît ainsi une divergence fondamentale entre défenseurs des sites et élus locaux sur le sens même de la protection. Pour les uns, il s'agit de préserver des paysages pittoresques et un compromis peut être trouvé avec l'hydroélectricité. Pour les autres, il s'agit de préserver un territoire cohérent et l'aménagement énergétique est incompatible avec les choix d'aménagement anciens de la vallée” (HEAULMÉ, 2014 p.6-7).

Our understanding is that the implementation of the hydroelectric projects exposed in the case of the Pyrenees territory, at a given moment the discourse of the compatibility of uses and interests was presented. The local governments could then consider that it would be possible to maintain tourism and leisure of altitude and at the same time guarantee the presence of the dam industry in the region. With Renan Viguié it also observed that the introduction of electric power lines in the exchanges between France and Spain in the Pyrenees has provoked conflicts between the local opposition communities and the engineers responsible and representatives of the EDF at the time concessionaries of such structures. (VIGUÉ, 2012).

Behind the double intentions that the French government assumes (in setting up national parks then protecting the natural beauty's and the guarantee the integrity of landscapes but also ensuring investments of the post-war period) which, to our surprise, also provoked the reactivity of the communities. There is no doubt that even in the face of this proposition the French experience is of an intense social organization, and this type of combativity is seen by analysts as a concrete proof that it is a heritage at stake. A possible conclusion is in the direction that the conflict is not caring just with the areas with the resource or of with the safeguard of the landscape but the “true matter” can be seen as arises to the political level⁶⁴.

⁶⁴ “Pour les locaux, confrontés à deux logiques d'exclusion, celle de l'hydroélectricité qui capte à son profit une ressource locale et celle d'une protection qui les dépossède d'une partie de leur choix d'aménagement du territoire, la question paysagère ne se réduit ni à la protection des paysages ni même à la préservation d'une ressource paysagère, mais est devenue une question politique de gouvernance territoriale” (HEAULMÉ, 2014 p.16).

8. FINAL REMARKS: THE SYNTHETIC EXAM OF MOSAIC ANALYSIS

The more places become globalized, the more they become singular and specific, that is, 'unique' (SANTOS, 1994 p.34).

What was the premise to think of dams landscape or landscapes of hydroelectricity? Or why to think of hydroelectric landscapes?

The landscape has above all a symbolic and subjective connotation in a way that reflects the society that contemplates it. From there, it is understood that the landscapes are at stake as it signifies the values and intentions of the groups involved in it. However, denying its symbolic content and understanding it as a synonym of nature or of the environment, as well as understanding that such place can be dramatically transformed by projects of great magnitude as are dams, allows recognizing the assumed risk of losing the meanings that historically define the landscape. Besides that, we are dealing as well with uncontrolled and unpredictable alterations – causing the mutation of the landscape. We are dealing with a process of great impact and extensive consequences for the groups that subsist and build their relationship with the landscape. What seems worrying is that the conflicts about this subject are kept out from the public eye.

In short, it was noticed that the intervention in the landscape by the construction of hydroelectric plants is one of the industrial modalities that puts in check cultural and historical trajectories of certain (specific) social groups. As well the construction of a dam also interrupts and modifies the natural features and physiognomies, to quote only two examples: the extremely singular fluvial geomorphology and the hydrologic regime of the sites targeted for the installation of dams. It is identified as important to rescue the interlocation of the concept of Geodiversity to subsidize the actions of preservation of the landscape of dams, being possible to involve in this approach the cultural issues contained in the landscape.

Was the central hypothesis that this research sustained:

The landscapes of dams represent an important form of heritage that goes far beyond the scenic beauty of the site particularities in which they take place; is the social history that these landscapes reveal that needs to be documented.

Trackback those aspects is what comes up challenging the researchers, once that is precisely because they are places of considerable landscape exceptionality and rare natural physiognomy is that historically the societies imprinted and reserved to these places meanings and marks of the ties of their relationship with this space. There is an anthropological dimension present in the landscape of dams that needs to be discussed, and this "sense of place" can be thought the landscape analyses.

As this research sought to identify which treatments were given to the landscape of the sites targeted for the construction of hydroelectric dams. From there, other questions emerged, among them: Why are there no locational alternatives for large dams? How could this be discussed with society? Why is this not a subject of public consultation even through a plebiscite?

At the limit, we can speak of the crisis of the landscape instead of its mutation. A debate that emerges in the practical and theoretical field precisely because of the unquestionable technical argument that comes from construction engineering, which breaks out, through technical language, a possible dialogue (as we saw in the case of Belo Monte hydroelectric power plant); by sustaining that dams are projects of "irremovable typology" and that they are justified only if is built in a certain way and in a specific place. Thus, landscapes and all the social meaning that it symbolizes are annihilated. Where there is a dam there is a heritage at stake? Probably yes.

In the field of study focused on dams and landscape or landscapes of hydroelectricity, this dissertation was presented as a simple contribution. In the bibliographic review, the diversity of the concept interlocution was presented given the interfaces with subjective meanings also approached. An overview that sought to demonstrate the interdisciplinarity in which the concept manifests itself by understanding that the analysis of the landscape is an effective and a potent symbolic resource for thinking about the ways of life and of occupying the terrestrial space.

The effort was also to approach the obvious contradictions under which these enterprises operated and justified their actions. In short, to try to relativize the economic and political

rationality that guides the "dam culture". This *modus operandis* acts in the contemporaneity and it intends to control or to block irrevocably the right of access to water, housing, and collective memory (to stay with few examples).

In this way, the work presented different meanings that the landscape assumes - in dialogue - and observable in different regional contexts, also testing different ways of investigating landscape (as the example "as a traveller or as a researcher"). But also respecting some common criteria according to the method of landscape study suggested by Augustin Berque in 1984 (even though it was partially applied) his idea of inventories was present as a path to be crossed integrally.

The research wasn't guided by the enunciation of case studies followed by a comparative analysis, but rather points to different aspects of landscape heritage (the reference is to the multiplicity of possible approaches to the theme - the mosaic). In a way that different meanings of landscapes were exposed, which in turn were "tested" in order to coop with determinations of a basically unique logic, which operates worldwide in the how and why the dams are built.

A common feature, observable in the cases of Alqueva and Belo Monte, is the discourse of the sustainability (as an argument) intending to "justify corporate social responsibility". That, however, cannot endure a more detailed analysis of responsibilities versus counterparts. It is amazing how through "word games" conquered minds and hearts. As well we have seen decisions that are simply not justified. The methods practised in the inventory of river basins (White River case) supposed positive impacts were added (it is not known how they are conceived!) in a stage of fragile dimensioning of the regional context, and that is done to corroborate (to positivize) the construction of hydroelectric power plant. Or from the equivalence given the landscape to its character of nature as a way to erase the social conflicts expressed and visible in and through the landscape. In several examples, it is possible to identify the naturalization of human rights violations. Social and economic injustice, the disrespect or disdain with the diversity (in all senses of the word) which often bases the installations of a hydroelectric plant. As we can see the reading of the landscape often does not evokes a harmonious picture.

Moreover, in territorial planning, some ideologies subjugate and undersize and therefore disqualify and devalue the claims for the safeguarding and preservation of the cultural

heritage. We may think that hydroelectric dams are not clean or renewable sources of energy(?). This seems to deal with an ideology at least (and we need to problematize it). We have seen the stretch of river that has dried up, causing the death of fish species in the Xingu River, as they cannot reach the food from the river banks, severely damaging the indigenous way of life-based in the fishing activity. A picture that doesn't look at all sustainable. especially considering that it is a nucleus of biodiversity of fish of world relevance where the extinction of species is foreseen. Still, there is a naturalness in the air.

In short, through the cases presented in different regional contexts, the exercise was to understand, analyze and even criticize the landscape as it is, understanding what to bring to the debate different ways of thinking landscape heritage can subsidize protection practices and propositions of the landscape, rather than merely identifying the problems identified. The results then must illuminate each other.

The need to understand the landscape as an object of patrimonialization is verified in the research (this necessity was verified as extreme in the case of Brazil). It is necessary to evaluate the forms of preservation and safeguard but currently, the contradictions offered by an economic system that is projected worldwide (and which alienates the means of its ends) configure a problem. Cause in such way, that the resources created for the appreciation of the landscape produce their negative, that is, the economic exploitation of a heritage ends up emptying the cultural and historical senses and often omits their meanings (which can be observed in various interventions of historical sites throughout the world and also by the example of historical and cultural tourism). When we had study Alqueva, we identify that the productivist view actually prevails as expressed in the North American students' analyses, since they transfer the "Tuscany ideal" as an example (as well with some irony) of approaches that imply wine-tourism in Alentejo. Another example to that is was presented by the Italian researchers who saw that monuments could generate mocking and disdainful; that the holding company of the structures intentionally sought to hide the landscape of works related to hydroelectric of Vajont as a way of not dealing with people's testimony, then addressing the issue of intentionally Erased Landscapes.

Consequently, the landscape heritage (as long as a public policy) is seen here with many reservations. From this contradictory, we try to think about some problems, such as the

"use of ecology" that in several ways may have contributed to take the focus away from the great causes of the conflicts expressed in the landscape. Or, the silence of the social sciences against the economic sphere that defines the history and destiny of certain localities, although it appears to society in general, as decisions attributed to the justifications coming from the political sphere. On this, we find that the waterfalls and rapids that had been foreseen in law as of heritage interest - therefore "to be protected" - had their name (the toponymy of the place itself) erased from the text of the law after approval by the deputies for the reform once they were interested in the construction of the hydroelectric plant, but we know that even if an entire article is annulled they must appear - due to historical importance - in the body of the text of the law. Even so, public prosecution and social scientists remain in silence.

The landscape is a concept that makes it possible to speak at the same time of public policy and the arts and mysticism or ecology. The different interpretations about it, and the gaze into other fields nearby (disciplines) can subsidize the debate on the planning of the landscape, here, after all, the interdisciplinary vocation was verified. However, and this is delicate, such multiplicity of approach can sublimate/disguise central issues. This is because we have verified that in the hydrographic basin inventories in Brazil, the practice is also to map other resources in order to accommodate other interests (ports, mining, etc).

And yet, about this, the studies carried out on Italian landscapes have raised the problem of being very diffuse the demonstration (in fact they raise the question of invisibility) of the relationship between place of production and place of origin of electricity, which complexifies the understanding for the public and thus the participation of society. For us, this framework simply precludes the comprehension of networks and territories of electricity to the common people.

Still regarding interdisciplinary approaches, we find that errors persist, and perpetuation of prejudices in understandings exposes simplistic approaches or even with the participation of disqualified professionals to deal with issues of great complexity (the problem of anachronism and ethnocentrism). As in the case of Belo Monte, where compensations for the impacts on the indigenous by the entrepreneur of the project were strongly criticized. Or the narratives that expose the lack of knowledge with the causes of

agrarian reforms and their social movements in Roraima as we have seen in the case of the White River.

We understand this was the path: with a critical view, to reach the operationalization of the landscape in contemporary research and practice. However, the case studies are intertwined and related, they are singular particles of a total and structural reality, of independent and noticeably distinct cases (in France, Portugal, Italy, Brazil, etc.) as well as the multicoloured pieces, built in a mosaic. The term mosaic, by the way, is often used even as a synonym for the definition of landscape understood as a mosaic of times and objects. Meantime, this idea intentionally wants to provoke the exercise of the thinking between the global and the local.

Even in the environmental sciences mosaic is applied to identify landscape systems. It is recalled that from Ecology a debate emerges on the evident and constant problematic in landscape practices that are expressed when the human or cultural factor defies the systemic theories, empiricism, formalism, functionalism and positivism in interpretations of social phenomena. It is worth highlighting the efforts of Brazilian archaeologists to apply "detachment the absolute chronologies" in order to approximate cosmology of indigenous narratives. We also find it interesting to bring in this work the approach of paleo-landscapes and the importance of preservation of the refuges (which Aziz Ab'Saber spoke) located in areas of Amazonian waterfalls as they subsidize studies of past climates, which we know so little.

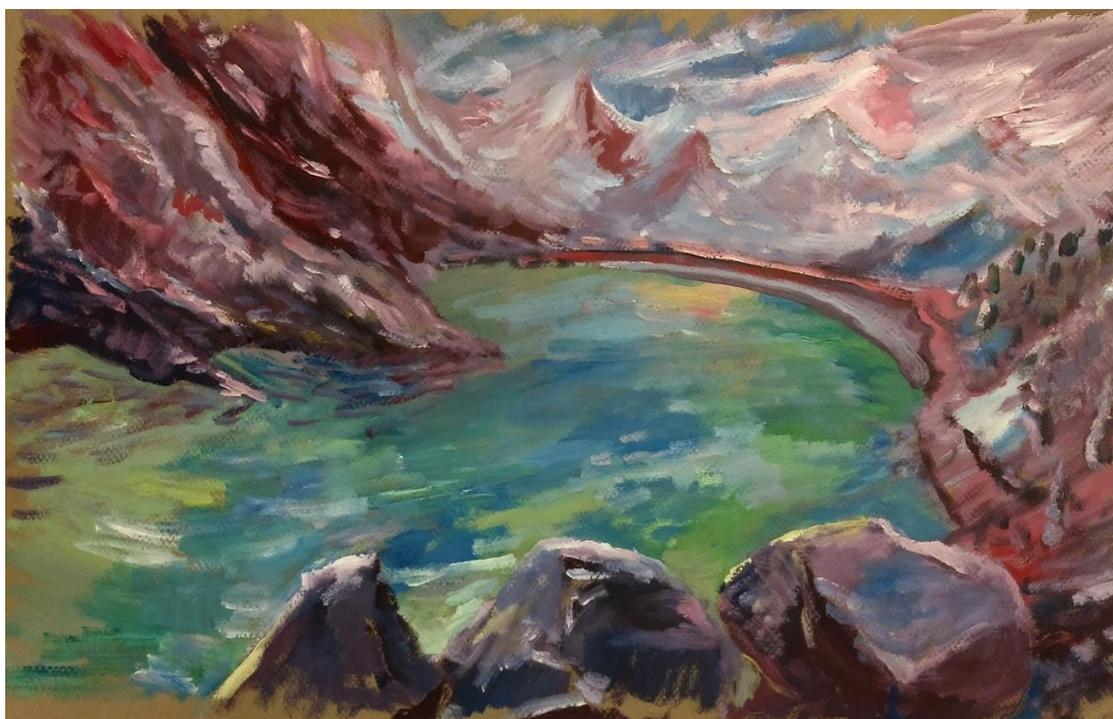
Nowadays and for some time now, we have lived with relative normality with the fact that science works in service of production, according to which new technologies (including the electric power industry) orchestrated by the globalized economy, entail enormous distortions in relation to local natural and human resources. (SANTOS, 1988 apud THIBAUT, 1967).

It is understood the landscape like this, that manifests itself by the local specificities but as belonging to a totality - spatial - and territorial - in which it is part of. The shot was in grasp and reveal what lies behind these technical objects materialized by the energy industry in the landscape, as it had shown some interesting issues. And so, we suggest, simultaneously critically and actively, to construct and deconstruct the ideas about the

landscape and the hydroelectric industry, trying to rescue senses and (landscapes!) often overlooked or even unknown.

The landscape is a resource in which any intervention should be discussed both with the local population and with the scientific community: biologists, geologists geographers anthropologists urbanists and so on. A more democratic process od decision making should be implemented, allowing for everyone directly affected by the alterations to have a platform to voice their concerns through public debate.

Résumé des conclusions: Le paysage a avant tout une connotation symbolique et subjective qui reflète la société qui contemple ce même paysage. De là, il est entendu que les paysages peuvent être vus et compris de façon différente selon les valeurs et les intentions des groupes qui y sont impliqués. Le résultat de l'analyse montre que l'intervention dans le paysage par la construction de centrales hydroélectriques est l'une des modalités industrielles qui permettent de contrôler les trajectoires culturelles et historiques de certains groupes sociaux (spécifiques). Mais la construction d'un barrage interrompt également et modifie aussi les caractéristiques naturelles et la physionomie du territoire. Les cas particuliers éclairant, les uns par rapport aux autres, les différentes situations et les conclusions qui sont exposés dans les remarques finales. De nouvelles façons de penser le paysage, de penser au tourisme, de traiter les droits et l'accès à l'eau sont discutées, et de mettre en évidence certains concepts importants pour la recherche des pratiques observées dans la manière dont le paysage sont considérés et traités comme un patrimoine.



Appropriation of dam landscape:

Une Barrage en France:

Looking at the Plan d'Amount, Aussois.

Oil Paint on paper by Gabriel Bitar, 2018.

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APPENDIX

EXPLANATORY REMARK:

The following pages present the results of a group work called **PROJET TUTORÉ** that is a rule of this master's course. Consist in establishing a group work for the two years with the goal in design and develop a content of a website, which has as a theme, defined by the direction of the course: **Wine and Heritage.**

PROJET TUTORÉ — TRACES DU VIN



SUMMARY

- 1) INTRODUCTION
- 2) PHASES AND MAIN RESULTS
THROUGHOUT THE PROJECT
- 3) BRAND RESEARCH,
WEBSITE APPROACH
- 4) INDIVIDUAL RESULTS
- 5) FINAL
CONSIDERATIONS
- 6) BIBLIOGRAPHY

1. INTRODUCTION

Ce projet lancé durant le semestre à Paris en 2016, représente la rencontre de différentes visions du monde, entre différentes formations académiques à mener dans les différents pays du cours TPTI.

Avec Anna Karla d'Almeida Santos, Gai Kanne et Silvia Tardella; sous la supervision d'Armando Quintas, les efforts se sont concentrés sur le travail en groupe, individuellement et à distance, l'échange et le processus d'expérience pour avoir une position professionnelle pour concevoir et créer un site web sur le vin et le patrimoine.

Didactiquement, cette pratique se répercute clairement dans la contemporanéité en tant que forme de socialisation du savoir et des expériences. Le langage numérique est incontestablement et invariablement une forme d'expression qui s'affirme aujourd'hui, une fois que l'on observe la «démocratisation croissante de la culture du vin»; nous supposons l'importance de projets comme celui-ci compte tenu de son originalité interdisciplinaire.

D'autre part, le renforcement du vin en tant que produit d'une industrie puissante, opposée aux petits producteurs, présente un aspect intéressant par rapport au patrimoine et à sa culture historique.

Ainsi, la recherche à travers le thème est importante pour souligner les tensions et les déséquilibres potentiels. Dans ce contexte, le vin apparaît dans la modernité comme la production d'idées, de lieux et de comportements. La connaissance d'une boisson ancestrale et de ses habitudes potentialise le contenu patrimonial dans des spéciales localités, régions et nations, mais peut aussi bien se reproduire sous l'égide de la consommation sauvage ou du désengagement touristique, un regard décontextualisé et finit par nier sa valeur en termes de patrimoine commun.

L'exercice de la planification, du débat, de la répartition des tâches (compte tenu des affinités) et compte tenu de l'objectif final: le site Web à mettre en ligne est présenté ici concernant ce cadre. Le projet TRACES DU VIN propose une interlocution culturelle et spatiale centrée sur quatre aspects principaux à développer: la culture, des techniques, les paysages et l'histoire du vin en matière de patrimoine.

1. INTRODUCTION

This Project started during the semester in Paris in 2016 it embodies the meeting of different world views, between different academic formations to be conducted in the different countries of the TPTI course.

Together with Anna Karla de Almeida Santos, Gai Kanne and Silvia Tardella; also having the supervision of Armando Quintas, the efforts were to established in the group work, as well individually and remotely, the exchange and the experience process in having a professional posture to design and to build a website about wine and heritage.

Didactically, this practice clearly reverberates in contemporaneity as a form of socialization of knowledge and of experiences. The digital language unquestionably and invariably is a form of expression that is affirmed today once we observe the increasingly "democratization of wine culture"; we assume the importance of projects like this given its interdisciplinary original feature.

On the other hand, the strengthening of the wine as the product of a powerful industry, which is opposed to small producers exposes interesting aspect in relation to heritage and its historic culture. Thus, the investigation through the theme finds important to stress potential tensions and imbalances. In this context, the production of wine appears in modernity as the production of ideas, places, and behaviours. The knowledge about an ancestral drink and its habits potentializes the heritage content in special localities, regions and nations, but can as well reproduce under the aegis of wild consumption or of disengagement tourism, a decontextualized regard and therefore can, end up denying its value in terms of common heritage.

The exercise of planning, of debate, of division of tasks (given each one regard and affinities) and having in mind the final goal: the website to be set online, is here presented concerning this framework. The project **TRACES DU VIN** provide a cultural and spatial interlocution that focused four main aspect to be developed: **Culture** the **Techniques** the **Landscapes** and the **History** of the wine in terms of heritage.

2. PHASES AND MAIN RESULTS THROUGHOUT THE PROJECT

The composition of the group counts on two architects that confer the structural dynamic language of the presented results. In terms of portfolio density and logos and main features for the website. As it should be the language to who communicates through the drawing for example, that turns to the man and his space of conviviality. Great practical contributions to the work in creativity and practicality are mainly referred to then. On the other hand, a geographer and a historian look at these languages with a little more parsimony and care about the meanings and the content of the ideas to be set out. Basically trying to give to the work (with critical eyes) the need to approach the problematics related to the subject of wine and heritage in our results.

Tableau 1		
Professionnel	Formation	Pays
Anna Karla de A. Santos	Architecte et Urbaniste	Brésil
Julien Gai Kanne	Histoire	Tchad
Nádia Matioli Yazbek Bitar	Géographie	Brésil
Silvia Tardella	Architecte ; Études Patrimoniales	Italie

IMAGE 1: Wine group, 2016.

We have, in fact, had some difficulty in establishing the criteria of interest for the development of common proposals as well as sharing the task. at the end, we meet a common or meadle agreement been the positive result, an outcome of this diversities and affinities.

At the beginning, during the semester in Paris, the discussions took place in several oportunities, including the participation of teachers, in the context of some course subjects. Since the attempt was to use similar approaches, as a way of attributing to the work the visions of professionals and connoisseurs of the themes that carried important contributions, which could sometimes have escaped our prior knowledge. Optimizing group projects and concerns about themes to be developed.

Taking in account our personal affinities and what ideas each one would like to work on, long meetings were needed to identify which theme each one should develop according to their capacity and interest at first. but mainly according to what was commonly agreed to be the most important subjects and languages that the site could offer. The attributions for some, represented the individual interests in the project, for others not so much, but the resignation is also part of the group work. Thus, general topics to be addressed were established, which would fit the best for each researcher, however, the research codes that could be employed vary according to the possibilities and the limits of each one. The final themes were as follows.

Tableau 2	
Professionnel	Formation
Julien Gai Kanne	Encadrement Historique du Vin
Nádia Matioli Yazbek Bitar	Les techniques dans le processus de fabrication du vin
Silvia Tardella	Les paysages du vin
Anna Karla Almeida	La culture et art associé au vin

IMAGE 2: wine group, 2018

Still in Paris, we were encouraged to investigate and to follow stipulations (according to the French model as well in contrast to the American model); about the right of image and intellectual property. Since we had to ensure that the creation of a brand, an internet address, and the reproduction of contents (facing a set of numerous and endless subjects); could be established without legal conflicts. In this sense, the learning process was to understand the main legal conflict aspects and to assemble, with the supervision of teachers as well as set definitively what would be our domain of matters. Were the related courses in this phase: *droit de la propriété Intellectuelle* with Anne-laure Stérin and *Projet informatique* Benjamin Rivalland.

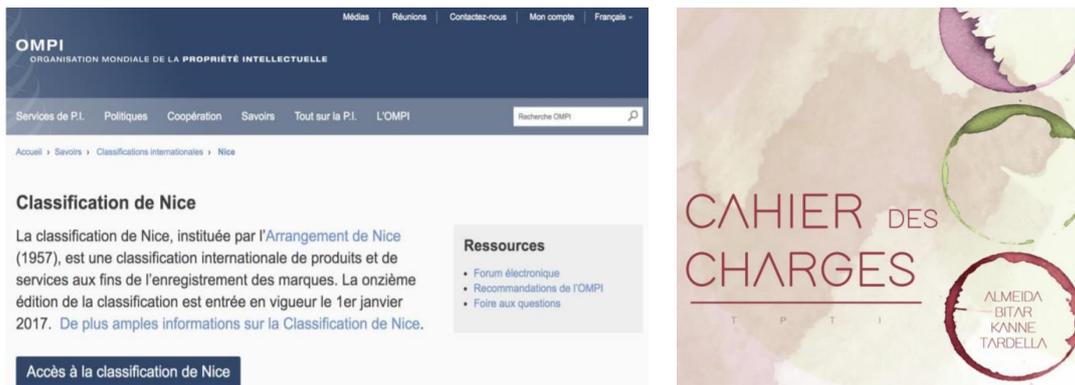


IMAGE 3: wine group, 2016-2017

one of the products delivered during work was the *cahier des charges*, where it was necessary to establish an initial statement of the project. at the time, we had decided to create ludic characters, which according to each characteristic and manner, would approach its theme through publications with accessible and attractive language. among the themes defined at that time, we would like to address: territory and landscape perspectives, the question of the techniques of production through history and its technological evolution, traditional knowledge that resides in the small family productions, the traditions that could have been lost or disappearing, the social and convivial aspects of the drink, the tourism linked to the wineries as a way to guarantee and value the production, the impacts on the environment that intensive productions could acarrrta. considering these themes the target public of our website would be generalized. people who are interested in wine culture and history through different societies and spatial realities.

in addition, the main discussions about visual identity, the name of the website and intentional aspects of the "experience with the wine" for which the website should arouse, were already been design. other practical aspects have also had to be defined such as the possibility of marketing for the site and the management of the site since the concern in this project lies not only in its composition and creation but mainly in the ability to keep it updated. as is the main demands in terms of contemporary interests on the subject always changing and in a fast way.

3. BRAND RESEARCH, WEBSITE APPROACH

Between the essays in the design of our visual identity, name of the site, and mainly and especially its argument and justification, the discussions were extended, what took place especially in the second semester in Padova. Especially due to the diversity of aesthetics taste of each one, regarding the different ideas we have, as is normal. Still in the first and second semester, the work was carried out in group but as well this was an individual exercise, so we could present to the others in each meeting the ideas we can propose. In this sense I can re-emphasize the propositions that I have presented myself for website domain: *Pari passu du vin*; *the rolling wine*; *di vino in stars*; *divine*, *divinosview*, *du vin à la vie*, *wineus* and so on.



IMAGE 4: Some studies for the logo, conducted individually.

Among the many ideas, this were studies shows a boat rod and a lighthouse in dialogues with the bottle of wine. In the sense of navigation (through wine) and discovery, the idea was to set the waters of the Mediterranean Sea, and the lighthouse, the objects metaphorically speaking of encounter and orientation.

When we were pondering whether we should follow the storyline in the literary style of fantasy tales, I proposed that we should follow the division of the site and also the work of the different phases of wine production, which could symbolically relate to themes, in the form to present these ideas.

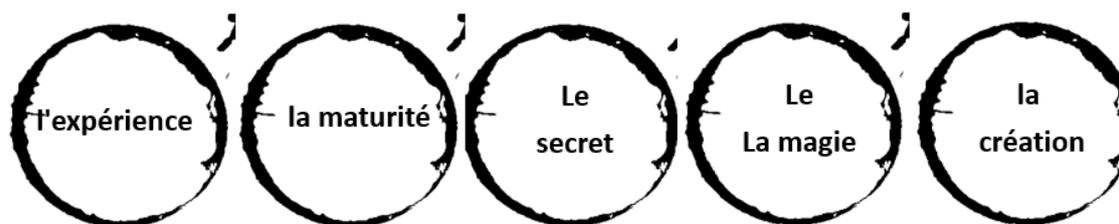


IMAGE 5: proposal presented in how to differentiate the "posts" that we put online in the site, 2017

Harvest: at first the wine harvest is one of the great symbology episodes that expose the relationship of man with his environment. the ideas implied are: the land, the territory and the way of life. the seasons of the year and the wait for the harvest, also speak about the relationship between socia and nature. the ones that could be involved here would then be landscape, history, and origins of knowledge, cartography of wine, in the world environmental and social conditions for activity, that way the identification in the website as **“the creation”**.

Drain, Crush and Pressure: These phases essentially where there is a physical transformation of the grape, the technique that qualifies the quality of the production will depend very much on this specific moment and extreme care. so in this sector of the site could be highlighted the themes that we will open such as the classification of more and less noble wine, different products of grape empowerment and development of knowledge, traditional knowledge, life experiences etc. understanding that the technique would be a manifestation of the appropriation of the nature by the man, therefore identified in the language of the site like **"the secret"**.

Fermentation: This is in fact an alchemy of the productive process of wine. she also deals with "a secret". however, this phase is basically corresponding to the "magical" moment of transformation of grape juice into alcohol and wine. details to be highlighted is the importance of the temperature: there is a certain association between this moment in the idea of "social thermometer", the different conditions, steel or oak casks, barrels qualities that can define the final result, reletad to the taste. From there, the site divides the subjects to be placed online in the themes related to: Creativity, myths, baco, art;

cultural value, *convivialité*, social relations, gastronomy, literature of wine and so on, been the theme for the site identified as “**the magic**”.

Racking, Stabilization, Clarification and maturing: The study on this phase of production is that it guarantees important conditions to clarify and stabilize the drink: free of impurities: (bacteria, organic matter, waste) etc. so it seems a good association, in the context of the site that within the icon in question, it would be possible to find the subjects related to the impacts local and regional impacts of the more aggressive wine industry, which is still often unfriendly, whether in the transport or (and because of it) in the final price, depending on the consumer market. as well as addressing the issues in which wine dialogues with the main issues of globalization and the world wine market that is being built and intensified every day, the theme as “**the maturity**”.

Bottling and Consumption: Last but not least is the bottling phase where the issues to be addressed make "the bridge" between the producer and the consumer and wine connoisseur. In this aspect we can put online the forms of appreciation of traditional cultures linked to wine without the use of agrotoxicos, which are aligned and in tune with the handling of native products etc. In addition, the teas that speak of wine's heritage enter this hall, speaking of the landscapes, the social activities of the convivio, such as the wine tasting, but also it may be possible in this aspect to approach the topics related to the market and the diffusion of habits and even consumerism; been in the website “**the experience**”. As the images above shows.

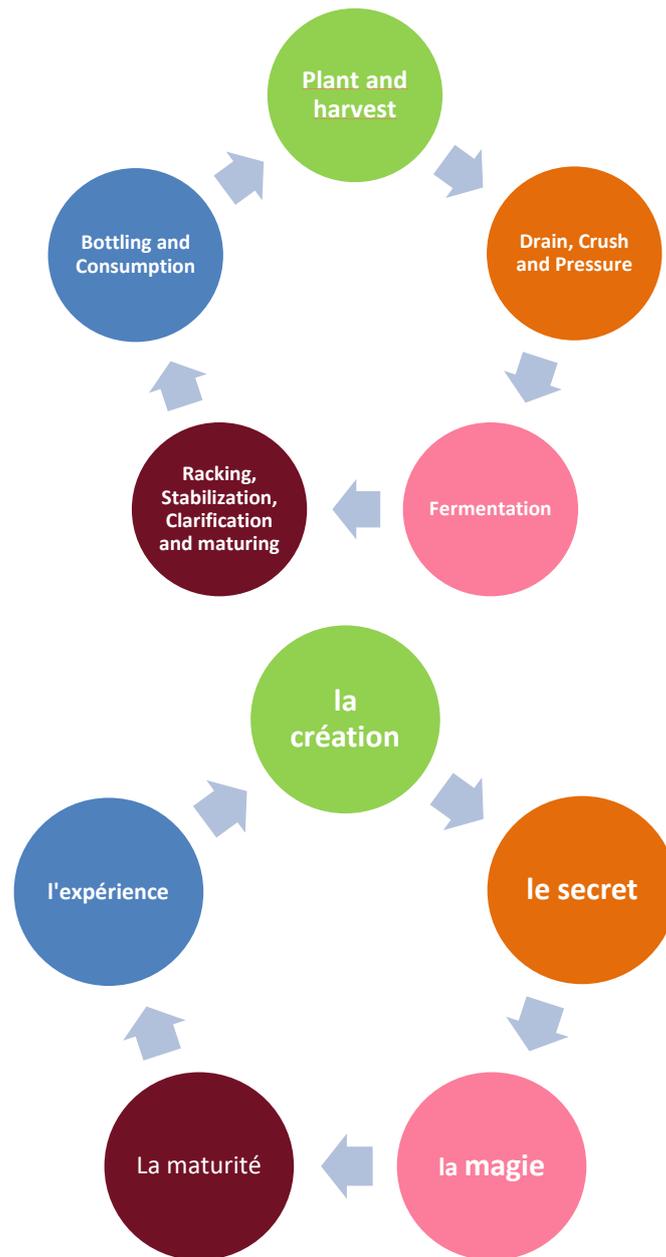


IMAGE 6: Schemes proposed to justify the organization of the themes according to the icons of the site.

Although this idea was appreciated by the group, we did not go ahead because to a certain moment it was chosen a division more simple for each one attribution. Since it would be difficult to know exactly where the contents that interfaces in more than one of these languages would actually be. In addition, the proposal of the "ludic" or the "conte merveilleux" did not go ahead as well once would be difficult to enforce to ensure that in our literary and non-academic languages, the topics could remain attractive to the public, even that would be possible to guarantee a correct approach to the subjects.

However, as it was a study on production techniques (a topic that in 2018 was in my charge to continue); exposes the stages of wine production, from harvest to consumption. It is interesting to note that the environment sublimated partner of this approach, but precisely because of this, we have a text that relates "philosophically" the soil, and its importance to the grape and to the wine producer.

Just as we identified water as being of great relevance. There are external factors that are essential for the definition and characterization of wine production techniques.



IMAGE 7: Study on the web first page. In that particular moment the idea proposed and was been considered by all was to have the name of the website as WINE BOAT as in the to left of the image

The proposition of micro traces (once it was agreed that our website name is “traces du vin” the following themes were suggested for the development of each one by all, freely. An important element that is part of the process of exchange and character of this group.

Traces du vin – Nádía Outubro, 2017

1. HISTOIRE

Histoire des coutumes;

De l'entreprise familiale au marché mondial

Chaîne productive au fil du temps

2. TECHNIQUES

Anciennes techniques et caves;

Artisanat de vin (artesanias)

3. PAYSAGE

Mutation du paysage

Régions viticoles dans le monde

Paysage culturel du vin

Paysage et environnement

4. CULTURE

Univers social, convivialité

La petite production familiale

Vin et Voyage x tourisme du vin

a. *Nouveaux dégustateurs / jeune public*

5. EXPÉRIENCES

divers et variés

4. INDIVIDUAL RESULTS

In the last encounters, the group had to define how to address the issues, not always as all prefer, which is in accordance with our genuine sensitivities, inquietude and interests.

Photographs, conversations with ordinary people, drawings of observation and study, and reports and wonderings, mainly related to the landscape sensations, were the best that I could do in relation to wine. For me, it was the main way to approach the theme of the vine and the heritage. In this way all the individual work can be organized as follows, are notes

on wine and heritage that relate experiences and ideas that can be placed online, as the end result of the work.

what I have to present as results, are about the gender of thoughts interspersed by the fishing and occasions of fieldwork.

These are short texts, because that is how the internet asks us.

A. Recount: “the hunt” to Barolo

A few moments were so interesting in getting closer to the world of the “wine maniacs”. I was able to capture this universe, for example, during the “adventure” of going from Genoa to Turin, and finding cities in the middle of the way, that are not average cities. Cause they are the cities with bottles as valued as is the type of wine Barolo and Barbaresco. Where to many people can go just to find in the among the producer one of the best wines produced on earth. then I meet the reality of the constituted the 'Consortium for the Protection of Quality of Local Wines Barolo and Barbaresco', and second, may register in the notebook, was officially founded in 1934, and the particular characteristics of the wine.

And in this case, discovered all the centennial knowledge that Italians print in this production. On this occasion, I was able to understand how the producers were forced to organize themselves in order to guarantee their protected production of (external) evils. and that this idea of a certificate of geographic origin is somewhat ancient in Italy, and that it symbolizes the cohesion of the producers and the social organization has given the common territory and the resources they share. there is something that is new to my knowledge, there are also in the market, and falsification to deal with. once a wine can be adulterated.

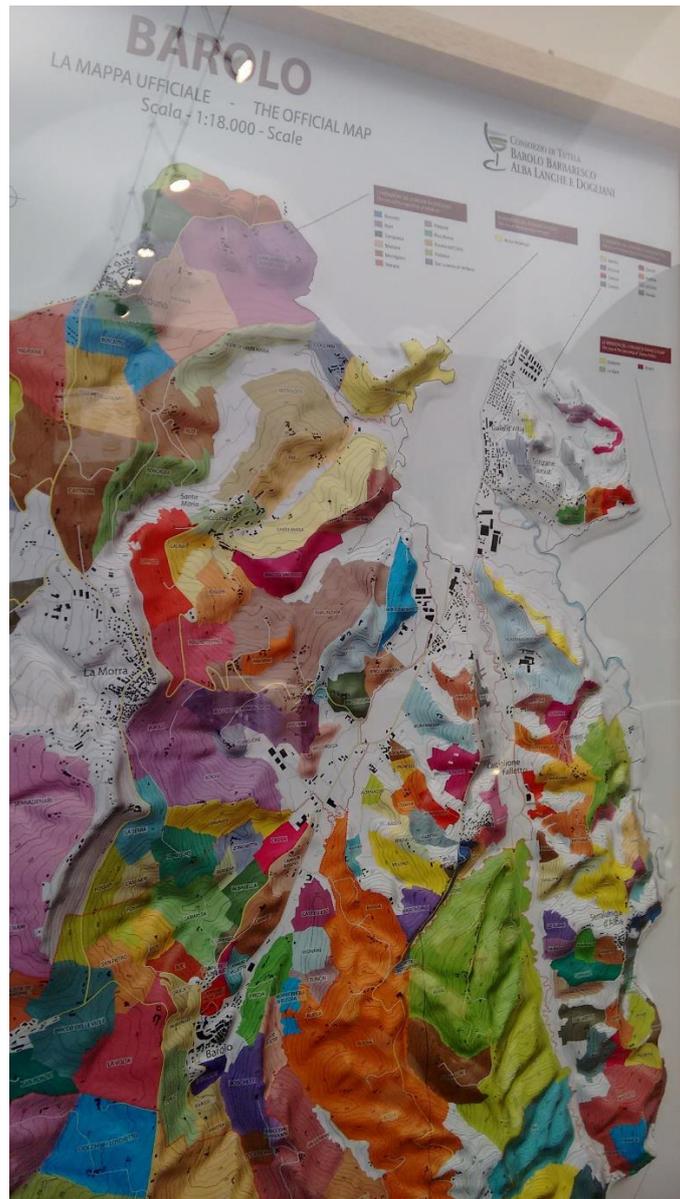


IMAGE 8: the map produced by the Consorzio di Tutela Barolo Barbaresco Alba Langhe e Dogliani. Picture took in a wine shop Source: Author.

B. Recount: A wine landscape in Veneto

In one of these opportunities to travel between Padova and Milano, I was able to approach another geographic context of production of a very special and dear wine for the Italians. The observation of the landscape, you can see the vineyards, interspersed by the production of fruits, especially orange Rossa. Overcoming Vicenza, an industrial production is installed in the landscape east-west of the Veneto, which can be compared to many industrial areas of Germany. It is true that the north of Italia is intensely

industrialized, this is visible in the landscape. In addition to the typical trees called Tipesse, the cherry trees also impose themselves with subtle intensity. The type of wine produced in the region of Verona, in addition to white wine is the white wine secco, and the prosecco. Going through a steel zone, we see that there is no need for disparities in relation to the resources, we see, the Piedmont mountains, where there is already a greater supply of water. There is a symbiosis therefore of a vocation of different productions of the alloys of metal and iron, and of the famous Italian prosecco.

The wines produced in the area of Rovato bring the grape known as Franciacorta, Carlo Mergo wine stands out as a high quality white wine, produced through a system close to that of champagne. But the champagne is only found in that region of France, always good to remember. Cartize is the most important prosecco in Italy that is produced in a very small area, as we were told on this trip by the professor Luigi Fontana, what a pity we arrived in Bergamo, we saw the airport.



IMAGE 9: the landscape of wine in the Veneto display historic cities, heavy industry and vineyards Source: Author.

C. Studies of customs and wine

How can studies of customs help us understand our history? more recently historians have been more frequently challenged to research and know the social relations mediated by the food and social culture of each age and society. About wine, we see the drink being a subject of iconized history, “as an icon” but as a reflection of the social and cultural forms of each society and how these relations can leave traces.

However, it is sought to understand wine as an element of connection and understanding of social relations in space.

Regarding Brazil, the history of wine is closely connected with the Lusitanian wine economy, the control over the importation of the Brazilian drink (made from sugar cane) the "geribita". Wine as well, and this should be remarked. As many records indicate, since the end of the seventeenth century; in diverse trades the wine was currency of exchange among colonial merchants of the kingdom by slaves on the African coast, as example.

One of the ideas present in the social imaginary, taken as a truth, can be sometimes seen as normal. After all, is the Atlantic trade of the drink and contraband, correspond to the increase of violence? As many people can think yes, history shows that this is not quite exactly.

The commercialization of alcoholic beverages was then legalized in 1679 between Brazil (Bahia and Luanda). A trade that was established from this date wasn't referring to the consumption of *geribaita* but the quantity to be consumed, that was the main point. And for the first time, at some point enter the agenda of discussions about the establishment of limits for the ingestion of alcohol. It is noteworthy that in the seventeenth century there is a distillate revolution which mean, not only increased drunkenness in the colony among slaves but also increased the supply of alcohol to the poor people in European countries. (problems with alcohol addiction start to be grow).

For this reason, in the eighteenth century, the consumption of alcohol was seen as an illness, an expression of immorality. We see that in Portuguese society the idea of moderation was based on moralism on this issue, that is, the trial under acts of drunkenness and on the alcoholic behaviour in its colonies, in the case of Brazil.



IMAGE 10: The wine tasting in an Alentejo traditional tavern. Who has lived in Evora knows that the Portuguese are good at drinking. Source: Author.

D. The "moral deviations" against the habit

Foucault called the "cares of self" attributed to the Greeks in antiquity all practices that sought an aesthetic for existence in the search for a life that becomes a "work of art" where he develops the idea he calls the "regime of pleasures" in which there are moral principles as he describes them. In the preparation of the descendants directed to a specific subjectivity, and in these moments always the ideal of control of the consumption of the wine is placed. (AVELAR, 2010). However, wine is presented as a kind of social thermometer in which it is possible to measure the intentions, for example, in a banquet that not only were important to approach amusing people but was also a resource of "moral education of the citizens" and wine appears as a pedagogical function to test future political rulers who would then need to prove their capacity for self-government in these times of drunkenness. The act of drinking wine was then a means of revealing "what would be hidden," the drunkenness exposed man to the temptations of pleasure and

disrupted discernment, so it was necessary not to vacillate, in opinion, and on behaviour. (AVELAR, 2014).



IMAGE 11 in terms of moderation and opinion, about drunkenness, we leave the hint of a good port wine, Don José. Source: Author

E. Temperance and the argument of moderation

In the book "Medicinal Anchor" by Francisco Fonseca Henriquez, in the year 1721, the intention was to expose the reflexes of the drink in the human body and then to suggest other behaviours for those who wanted to have a long life. It is verified, according to the researcher AVELAR, 2010, "the drug's character of the substance", but that indicates the user to all social classes, for which he lists the warnings to the use of wine:

- no wine should be used ("but that strong and generous, subtle, fragrant and moderate in colour"). he spoke directly to the nobility and how she should choose her habits.
- Wine can nourish lean people who want to gain weight or those who want to keep the weight
- "it is very necessary for the poor to drink wine" - that is, wine serves all

- "it must be eaten and out of it by no means"
- "Those who are weak brains and nerves who do not drink wine"

This is a single restriction which indicates, it is directed to those who are not strong for drinking those who have weakness of the brain "and these people would then be more susceptible to Unreason;" disturb the light of reason incites anger and precipitates men to acts that are clumsy and libidinous ".

- Wine makes liars, makes fools of the benevolent, wicked and evil, makes murderers, adulterers, thieves and is the cause of all addictions.

During the period of the Marquis of Pombal in Portugal, the main ethical and moral deviations considered to be a target of repression was the theatre the novels, sentimental music and wine (CARNEIRO 2000 apud AVELAR 2010).



IMAGE 12: "If you drink to forget, pay before you drink". Source: Autor.

F. Preconception?

More recently the transformation of the beverage into an object of consumption, and thus automated by the industrial processes, can acquire a code and a regulation and hierarchy of their own, in the Brazilian case the history of the *cachaça* often counted from the point

of view of culture *sertaneja* (from the beck land) popular culture, is now the object of a historicization that seeks to form the opinion of a consumer interested in becoming a deep expert of the subject, a specialist, as it also happens with the demanding wine tasters and researchers.

In medieval societies in the cases of the Germanic peoples in northern Europe, the figure of the chiefs of the tribes were true drinkers, which expressed their virility and greater capacity for struggle, and therefore their power of war, was for them alcohol a decisive factor for the victory in the battles fought by this warriors. At that time To drink the mead, or the fermented liquor of milk of cereals what would occurred before the battles, and also after, was cases that denotes that the drink was a symbol of something positive and that characterized social cohesion, through ceremonies. For ancient Mediterranean societies, the wine was a necessary part of the food. This function, considering that it was even difficult in several cases at that time to find drinking water, it was common to even drink the salt water of the Mediterranean sea, there was wine production in which sea water was added.



IMAGE 13: “Tasting wine” year 1800 Autor: Johann Peter Hasencleve, National galerie in Berlin

G. Luxus against Virtus

Wine, from ancient times, is associated with the celebrations by the gods Baco, and Dionysius, and wine was the connection among the gods.

On the other hand the clans of that time or the elites protected the notion of virtue, and valued the signs of permanence and tradition, the cycles of harvesting and renewal of people and animals, the stability of properties, meaning monotony of natural or social cycles, and in this sense did not approve practices condemned as anarchic "without roots and traditions" as practices associated with the "luxury" as opposed to "virtue".

It is around the fourth century when the vineyards spread and the consumption of the drink became popular, that wine was consolidated as an important pillar of Roman society that would then be the object of combat by the church, in this distinction made, namely the Germanic societies of Northern Europe who worshiped this drink in collective ceremonies associated with the bravery and courage of the figure of the warrior, through the wars and festivals and the Mediterranean peasants who authenticated their more moderate consumption since part of the diet.

Wisely the priests of the time use these signs to actualize these customs as proper of the Christian religion; being, for example, the Roman idea of the Luxury which condemned the excessive use of the drink, incorporated by the church that presents the wine like the blood of Christ. Thus the Nordic peoples are being "colonized" by these ideas in order to implant into their culture the idea of moderation, the church will represent the role of drafting laws and norms that will later be assumed by the state.

In general, during medieval times, Christianity tended to moderate the consumption of wine, which made room for the autonomy of those who were not over the eyes of the church. But in the modern age, this changes once the echoes about moderation are enlarged, passed by priests, but also by the holders of science, such as doctors, and there is an intensification of the mechanisms of control over sobriety.

Gradually, the courts stand out as living models of society, inspiring and reflecting on what was right, and for that reason, the bearing of sobriety becomes a symbol of

distinction and nobility. The production of customs, behaviours and fashions resides in this social stratum during the seventeenth and seventeenth centuries.

The rise of the bourgeoisie and the identification of the most popular classes with the nobility takes place in the formation of the national states, which assume at the hands of moralistic doctors and bureaucrats in general, the function of controlling the excessive use of ethyl, the idea of rationalization of use, as a way of maintaining order the principles of civilization.



IMAGE 14 : *The Money Changer and His Wife*: year: 1514. Autor: Marinus van Reymerswaele, in: Mseum of Louvre website.

H. Cultural Perspectives

Many regions of the world compete for the best position as wine productions from Burgundy, Tuscany, Maipo wines in Chile, wines from the Douro wines, Dão, Alentejo, etc. However, if the consumer does not appreciate the unique characteristics that each region offers to its products, then the competition takes place within the field of competitive advantages, that is the one issue that presents the best cost benefit.

Often these competitive advantages are only relative to the costs of production being smaller, but there are many factors that will compose the final price as freight price to the destination, tax advantages and disadvantages, government subsidies targeted to certain products. It can be highlighted that the production of wine in the Alentejo has been highly valued and sought after by investors seeking to take advantage of the content of local tradition. such as storing the wine in these barrels.



IMAGE 15: Such traditions is identified by keeping the “storing the wine in these barrels”. Source: Author

I. Historiographical Perspective: To think wine's valorisation in capitalism

With Fernand Braudel: Wine brings together the whole of Europe, an "obstinate hindrance" to Islam. A paradox between luxury and the popular. Peripheral *botequins* on the eve of the Revolution consumption will go in the order of 120 litres per person per year since the wine of poor quality becomes a cheap food.

The unfolding of the contradictory relation between capital and labour points to the denial of the fetishist substance of valorisation of value, abstract labour and the generalization

of a scenario of social crisis - phenomenally outsourced as the financial crisis, deindustrialization, unemployment, or even economic growth. In any case, this process is always associated with the increase in the debts of the national states and their necessary crisis. For Robert Kurz: The valorization of value: capitalism does not aim to increase well-being but only to value itself, ie the production of a mere "abstract wealth" (Marx), and in this sense, the satisfaction of material and may be at best a by-product of the most important process of valuing value.

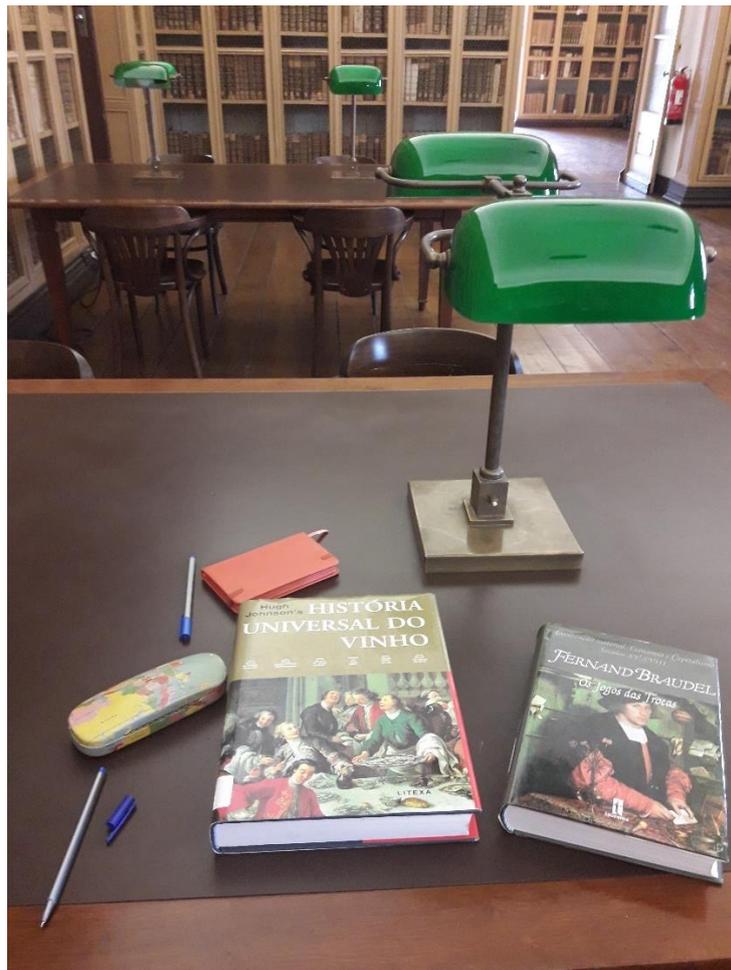


IMAGE 16: Studies on wine in the Évora Public Library, a record. Source Author.

J. “Civilizations do not always say no”

"Civilizations or cultures - there is no inconvenience here in the confusion between the two words – as the habits are endless field of pressures, of the condescension of advice of affirmations all reality that for each one of us seem personal and spontaneous although so many come to our times from far away. They are an inheritance in the same way as the

language we speak. In a society, every time that cracks or gaps tend to open up, the omnipresent culture closes them, or at least conceals them, ends up imprisoning us in our task "(Braudel, p. 495).

In Europe when life “reborn”, in the eleventh century the market economy momentary sophistication are other scandalous novelties ... in principle civilization, old character is hostile to innovation. It says, therefore, not to the market not to capital, not to profit. At least it shows itself suspicious, reticent, Over the years the demands and pressures of daily life are renewed.

European civilization is caught up in a permanent conflict that divides it. It is then that you give the starter a signal against it. "The touch of the cordon is always the link of an agricultural production to the general economy.

Research: Wine as an example of the first agrarian capitalism. Examples come from Burgundy where there is expulsion from ecclesiastical properties in exchange for advantageous prices. That is one of the goals for the next texts.



IMAGE 17: Portrait of grapes for sale, today anyone can produce grape if there is space and climatic conditions, but between having the fruit and the product, there is much to do and think. Source: Author

K. The Great Wine Thinkers: Notes on Hugh Johnson

The wine has a load of sacramental meaning: healing powers, of which there is a life of its own, source of comfort and courage. Unique known, anti-septic, luxuries luxury.

It can be said that wine gave men the first classes of ecology that was present at the birth of biochemistry. That he impelled men to progress in their knowledge and at the same time degraded them by the lethargy that can cause him.

- Wine is now a vast international business
- A cultural network that extends
- An art form

The wine culture reached the apex (for that era) to the south of Italy coming from Greece in 800 BC. The vine was the anchor the Greeks cast in Sicily (Siracusa) and in the Italian litter. Before that, there was already the wine culture inserted by the Etruscans today in the region known as Tuscany, but little is known about it. The Etruscans much in the likeness of the Greeks made and consumed and sold beyond the Alps to Gaul. He had been in Burgundy before the Greeks had sold the drink and not consumed it. (but the wild grapevine was already growing naturally in Italy) Hannibal the Carthaginian general crossed the Alps with his elephants in 218 BC (context of the Punic wars) wine then ranks 1st in terms of profitability, cultivation for marketing - the first to write about was Cato: the Cato Manual on Agri-culture.



IMAGE 18: Pintura *mural* etrusca, representando a un músico, en la llamada «Tumba del Triclinio», en Tarquinia, h. 480 a. C. in Tarquinia: Italia



IMAGE 19: *The Eruption of Vesuvius* Pierre Jacques Volaire in painted in 1771 in Art Institute of Chicago.

The poets Horace and Virgil already worried about working conditions on the vines. Of course, there could be damages as well as influencing the quality of the wine as well.

The work that most stimulated the knowledge and growth of winemaking was the Wizard's manual. A Manual of Agronomy where he systematized the knowledge observed in Phenicia and Canaan. With the destruction of the city of Catargo the only book saved by the Romans was the "Mage Handbook" - 26 volumes were translated into Latin and Greek in 143 BC. But they are lost today, we only know them by citations.

L. From sertão to *sertão* (*back lades*), the wine and its production in the imaginary, the Montado and Sobradinho

On the banks of the São Francisco River, which tragically I could see in daylight, the cities of Juazeiro and Petrolina seem to be oases on this dry land. How much the exploration of the waters of the old river was attributed to an urban and particular ideal as in the production of grapes, not rural and social, the problem of the expulsion of the peasants from the countryside but also of the city, of the poor representativeness of INCRA, transposition and irrigation projects, are issues that surpass this story. We have seen the critical form which has been made of this violent split, which is visible in so many traces of modernity and pastness that coexist in the landscape of the two, which do not fail to treat this disparity culturally. I think it was important to visit the Ouro Verde winery at full production, but it was perhaps problematic not to know the sobradinho dam, and to see one of the largest lakes in the world, to check the state that was present at the hands of CHESF, was so close from there We had lunch at dusk in Casa Nova and did not see the city that was covered by the waters. Also goes back a chronological history that has been forgotten after the construction of the dam, since it was much that transformed the upstream and downstream river. Jsut like I have studied in Alqueva.

M. Insights in Alentejo (Note a)

If we take the scenarios of the ecosystem of Montado Alentejano, and its wine, considered an exponent for Portugal and of world-wide importance, there is a whole web of stories, and different contexts to understand what is spoken when talking about Alentejo wine. Travelling through this almost deserted "sertão" to come from tropical areas, is an experience of recognition of this universe in terms of heritage ancestral knowledge and

social coexistence. Around the culture of wine, one becomes aware of symbolic readings in which the landscape ends in rich subjective meanings attributed to wine, such as the Alentejo song that also speaks about the drink. We have here a space-time (simultaneous) reading, perhaps much more effective than the earth or social sciences can do, once it is found in the trajectory, or in the crossing.

In the exercise of observation of the landscape it is possible to identify forms and contents, once more concentrated on the proportions and surrendered by the measures of perspective, we end up letting escape the meanings of landscape composition, once the gaze is selective. Thus, the ability to betray the forms seems to be an undeniable resource, even when the intention is to capture something of the experience, like a photographic click, a testimony more than an account. This somewhat dualistic conception becomes more latent as regards the preoccupations of making reference to the lived space or the social relations superimposed, in time and space, contained only by the reach of the view, extreme abstraction. This contrasts with the power of the design that keeps the fidelity of forms, and confers the illusions of space; but does not translate the feelings, and other determining relationships, is cold.

Then, one looks at the sight, tries to remain soft, in an attempt to rescue the subjective meanings present in this landscape of wine. It reveals a cinematic landscape, holm oaks, drought, From there, there are examples that in this understanding refers to the "scarce" horizon in waters and food, and the scarce horizon, because it is difficult to apprehend, and symptomatically, as difficult apprehension are also the people.



IMAGE 20: The landscape of the ecosystem called Montado is the one where one can also see, in a balanced way, the production of wine. Source: Author.

N. Insights in Alentejo (Note b)

Trying to understand the narrative of the wine stories in Montado, the one that speaks of feeling of belonging, from which I came to question myself right there, that was perhaps the most important message. This is the reason for the discussion that has so often been waged, of which is our true connection with the place, and of the weight that the metropolis places as a paradigm. However we see that the internal and external space are confused, perhaps because they read each other, and from there we get closer to trying to break something of human existence, and our role in community and as a researcher.

The attempt to observe and draw, is not an omission of the study and reading to which we propose, is then a form of apprehension of part of reality, sign: Modernity, which we try to understand. They are also forms of interpretation and representation of the world, Chemistry to Physics, but then where is the border between one reading and the other? After all there is a language for Art and one for Science? And the question arises, are we doing science?



IMAGE 21: Field exercise, drawing and questioning how much wine is investigated. Source Author.

O. Insights in Alentejo (Note c)

Advancing through the Alentejo, endless plains and punctual hills there is a world full of messages, where the vineyards are the to be founded. Landscapes that translate extreme contradictions, and ask for deep seek for answers, in order to persist in the search for a language capable of expressing the relationship of men/ nature. I is placed also the duality countryside and city. Science sometimes appears arid, and the language of perception through the arts seems ever more faithful to the sensitive perception of the world.

There are not many answers, according to Einstein, everything depends on the reference point of the eye. In this way, the symbolic space of the wine culture, in which I was inserted, speaks as much of the real world as this or that text of the economy of wine production, both deal with things in motion.

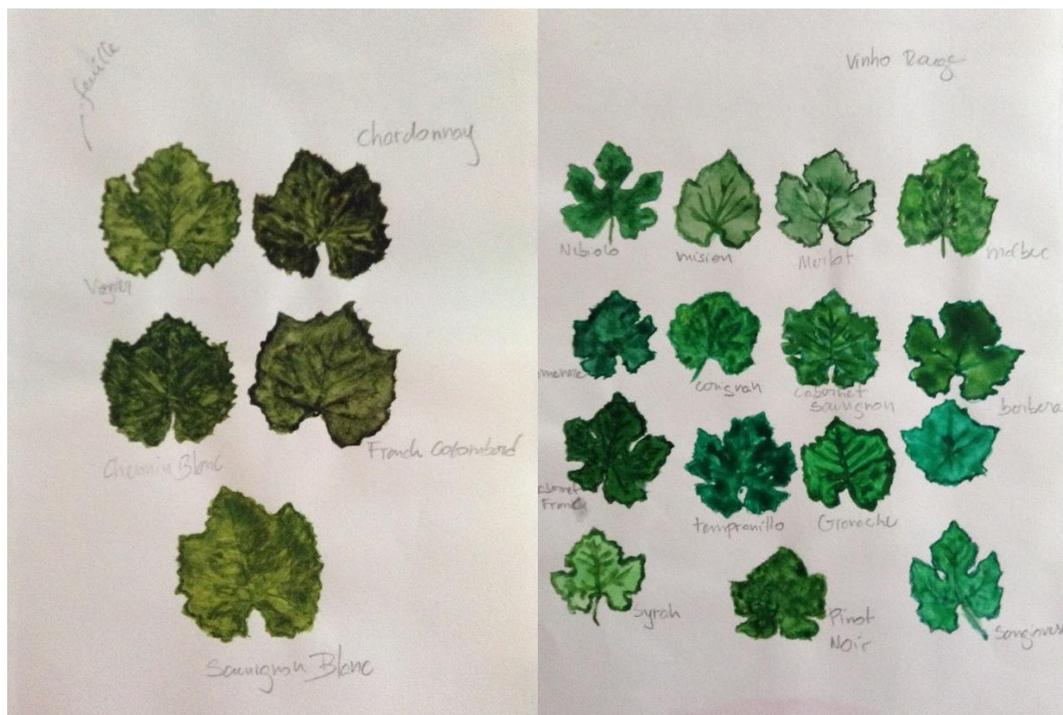


IMAGE 21: Exercise of identification of the grapes by the type of leaf. Source: Author

P. Insights in Alentejo (Note d)

With the attempt to explain what was observed in these incursions in the Alentejo, in its environs as example of Évora and Monsaraz, encompassed not only the details of flora but the surprises with an existing fauna, one cut out of the topography, where the hill or the mountain perceives it as a testimony, in which the sound of the waters, which are the very constitution of the landscape, is a portrait in which we try to express, understood as valid as an account, an interview collected. Going through the spaces and the landscape of wine, we get many feelings. We are faced with life and its explanations for itself. And what can be advanced under this idea that is left from the abandonment of the deep Alentejo, from the enraged dominant classes that continue to remain the same exploited, in a society that has historically this analysis can be seen literally as a pretext for raising a discussion of its content and its connectivity with an in locus experience. Link the interface to groups, given the similarity of the causes. A see:

This refers to a rurality or the *sertão* has traditionally been defended by the predominance of personal dominion and local detention, but on the other hand urbanity is marked by alienation, separation, exteriority and abstraction, and I find place in this logic So right as the market, by the time imposed by modernity that tends to encompass all social spheres

and mediate the relationship between people, and between them and the materiality of the world. This study is the study of a record and other scripts to the site, through the practice is not logic, but deeply inspired by the wine.

5. FINAL REMARKS

First/final approximations. How to finally know the different techniques of wine production?

The production or alchemy of wine is not something that is discovered, at first sight, many and diverse secrets of this technique overlap if they interlace and are confused according to the main cultural but also geographical diversity of each place, each region. An essentially empirical science is the one of investigation according to the different productive zones of the temperate countries, Italy, France Portugal.

The sommelier, nowadays, figures like Robert Parker "the wine advocate", the one who assigns a note with 9, 5 for excellent wines, ie (what are the criteria?) Are no more than specialist in grapes and localities, in the world of contemporary production. By the way, incredibly competitive, the picture that intensifies more and more increases. The wine expert is knowledgeable (of interdisciplinary vocation) of the specifics of each locality, ecological characteristics, flora and fauna that are data that invariably influence the vines, the quality of the water the Maritime dimension the continentality, the solos. In fact, the definition of soil is not the same in engineering, agronomy, or geology; for the winemaker, the soil is the livelihood and source of life and inspiration. No nuances or subtleties aromatic, let us concentrate on people who make wine life.

It is the natural pictures, the landscapes, that define the qualities of a wine. These characteristics, however, are not standardized; there are many different conditions and forms of production. If we think, in the relationship between a craftsman and his physical-ecological environment, what will define the quality of a wine, will be the ancestral affinities and tastes. The small traditional producer of wine, one who inherits tradition from the centuries-old properties, which is connected to the earth, organically, and almost self-sufficient; is today inserted in an extremely competitive market that gradually over

the last few decades has been forced to not only describe and report what it knows but share its production techniques throughout the world. Over time the production becomes also part of the commodity, or the commodity fetish (create note) if we can so speak. At the same time the small producer of excellent wines who had never used any pesticide, had to travel through the worlds of theory, adjust to the taxing standards of the quality labels of "geographical indication" that incorporates value to the product.

It is seen that he had then to calibrate his ways of acting, and especially we see in twentieth-century terms (the century of specializations) to finally improve his methods, and techniques (if not) only the discourse about his techniques. Since everything is currently specified, and if it proves everything is regulated certificate.

Compositions, fractions, utensils, today everything is demonstrated, variables to embody in the products a value sometimes supernatural, but in fact, there is the weight of tradition, wine and heritage seem to become one. We see perhaps the best wine in the world, a bottle of \$ 5,000, or vintage versions that cost \$ 20,000 a bottle like the Romanee-Conti; or how to assign these values? Why do wines vary? It emerges as the basic question in the part that fits me in this work: The investigation of the differentiation of areas, new techniques possibilities that arise, and results of this production.

During the practice of research in contexts like France Italy and Portugal, and Brazil, I basically see myself in the main wine-producing countries in the world (without Brazil of course); but in Europe there is no doubt that they are about these although I have yet to perceive an almost intoxicating imagery that Italian wines are the best, now, much has been heard that Spain is secondary in the question. But much is known that the wines of Burgundy are also world-wide to a Barolo or Barbaresco.

It is rather possible to look at this picture with a genuinely "nativist" vision of football where we get lost around inquiries and judgments "this is better than that" but what seems to us to be more reasonable is to assume that in such a context of wines of very high quality is very difficult to establish what is the best and the worst. There are endless assumptions that can determine such positions. It was still possible to look at this picture objectively, in search of answers that are there, for frank access, the investigation meanwhile and sees "positivised". But it is not a question here of merely exposing the information, exercising the endless description of landscapes or, in my case, in charge of the techniques of wine production, demonstrating by A + B how wine is made, that is, already widespread. which interests us, however, I have discovered to discover what I find in the plane of the imaginary, in the context of ideas, as wine is seen today in the

world, as through the story that tells about wine, it is justified at the same time the pleasure provided by the drink and its adversities, as inherent in a globalized and controlled market and extreme competitive.

As a geographer, it is not surprising that when you go through the places you put certain generalities, we do not want to make comparisons as well. We want, however, to deepen the analysis, better specify the scales, to try to report what has been done; Can wine even suggest geographies, will a Wine Geography be possible? Of course, the region of the Douro or of Tuscany are landscapes and cultures where the identification between the product and the place are no longer separated, are faces of the same indivisible reality. But this is how the Parsian sciences treat them, just as there is today the History of Food, it is not for that reason that we want to walk, we do not care to enter into specializations in logics like the "I-entrepreneur". Can wine approach culture theories, can it expose its markets and projections of modes of production to over the world? Finally, discussions and debates on how to approach wine themes are at big business fairs or even local productions, at the most important restaurants and in the supermarkets or in the regular supermarkets, where a winemaker will add his wine in the evening.

To understand this universe there is no doubt that the soil, and the study of its components and its evolution is important.

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