ABORIGINAL CULTURAL CENTRE A JOURNEY INTO THE WOODS

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ABORIGINAL CULTURAL CENTRE IN KAKADU NATIONAL PARK

A journey into the woods

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Introduction

The Aboriginal people in Australia are the first population living in the country, for approximately more than 60,000 years. After the colonisation, the aboriginal people have been struggling with Intergenerational Trauma, generated by the disadvantage and dysfunctional experiences through the time.

Nowadays, Australia is making new reforms that helps the aboriginal people to heal from this disadvantages, starting to acknowledge and respecting their cultures and way of living. One of the many ways to search for this aim, is with Cultural Tourism.

This research study is about a Cultural Centre in Kakadu National Park, located in the Northern Territory of Australia, because it could be a way to sensitize the visitors about the culture of the local aboriginal people and how important they are in the context of Australia and land, because they have been protecting the country since the beginning.

There are many clans of aboriginal people in Australia, they are divided depending on their language. In Kakadu National Park, the aboriginal people are called Bininj/Mungguy. Their culture and language have been existing since 20,000 years ago.

It is very important to consider the social, environmental and economical aspects for the design decisions. In a social way, because the land is managed by the aboriginal people. In an environmental way because it is extremely important to harm as less as possible the land, also because the land is part of the identity of the aboriginal people. And the economical aspect, because the land is managed by the Bininj/Mungguy, and this could help them by creating new employments to generate new opportunities.

The main theme of this thesis is to study the environmental, social and economic performances that should be considered in the design approach of the Cultural Centre. Following diverse operational process, such as historic and site analysis, definition of the programme, case studies and also considering sustainable principles, in order to analyse the innovation and subsequently make comparisons of the results of the economic, social and environmental analysis of the building.



Literature review of the General Topic

THE FIRST PEOPLE IN AUSTRALIA

Australia is one of the last countries to be colonized by Britain Empire, it came to existence in 1901, it has become a country in the last century, but the history of Australia goes back to almost 60.000 years ago, because the humans have inhabitated this place since long time ago.

The first people living in the land of Australia are known as "aboriginals" or the "Indigenous Australians", they began to exist since 65.000 BC years ago. About 700 languages were spoken by different Indigenous communities, they were self-sufficient and harmonious, because they have always lived connected with the nature and knew how to live in the land as they were one.

The Indigenous were organized in semi-nomadic small tribes and lived along the foreshores of the harbour, they fished and hunted in the waters and harvested food from the bush, they did not have the need to travel far because the resources were abundant and also because the trading between other tribal groups was well functioned.

The people only needed to work about 4-5 hours per day to ensure their survival, they knew very well their land. This is why they had a large amount of time for leisure, so they developed a very complex ritual life, language, spirituality and law, with everthing connected to the land.

A common spiritual belief between the people was "Alcheringa" or "Dreamtime", a philosophy for the understanding of the world, their existences and the secrets of life, they were stories told by the elders from one generation to another. (Broome, 2010)



Indigenous tribe on the banks of the River Torrens, 1850. Painting: Alexander Schramm



Mounted police engaging Indigenous Australians during the Slaughterhouse Creek Massacre of 1838. Painting: W.Walton

COLONISATION

Lt James Cook arrived to Australia in 1770, this was the first mark of the beginning of the end for the ancient way of life of the Indigeneous people. Lt Cook declared the land he called New South Wales to be the property of Britain's King George III, and ignored the fact that it was already populated.

In January of 1788. arrived the First Fleet, commanded by Captain Arthur Phillip, with the mission of establishing a penal colony and take control of the land of Australia for the first european settlement.

As the sailors arrived and started setting up colonies, the indigenous people did not retaliate at first. The colonists eventually forced a lot of Aborigines off their land and many were killed. The europeans brought contagious diseases and the aboriginal people did not have the resistance to the deadly viruses carried by the sailors and convicts such as smallpox, syphilis and influenza. Very soon, over half the indigenous population living in Sydney had died.

The Aboriginal people were considered as animals for the settlers, so they needed to eradicate the fauna to develop farms and new settlements.

Since the invasion, the Indigenous people have been oppressed for thousands of years, violating their natural ways of living. (Broome, 2010)

INDIGENOUS PEOPLE TODAY

The 3% of Australia's population are Indigeneous people, there are approximately 208.500 indigenous people in New South Wales, which represents the highest aboriginal population, while the Northern Territory has the biggest proportion of Indigeneous people, it represents the 30% of the Northern Territory's population. So statistically speaking there are more people living in major cities than in remote communities.

INTERGENERATIONAL TRAUMA

After the colonization, the aboriginal people have experienced trauma, including violence and loss of culture and land. They had to go through some policies of the western people, that did not know how to deal with aboriginal people, such as the forced removal of children, basically they tried to erase their culture and identity by pushing them to live like europeans. This trauma continues to be passed from one generation to another, and the people that have suffered this trauma are more likely to engage in self-destructive behaviour and enter and remain in the criminal justice system. (Beverly, R., Swan, P., Martinek, N., 1998).

HISTORICAL INJUSTICE

The Indigeneous Australians today continue to have problems because of the impact that the Colonial attitudes and actions made in the history, even though the aboriginal people have resisted to overcome the effects of colonisation. The Colonial attitude have affected in great scale the social and economic aspects, with the actions of dispossession, marginalisation and control of aboriginal people, that have been accumulated from generation to generation, and has been getting worse with policies and practices from the government, that had been creating disadvantage to the Indigeneous people. In several instances, this has produced more poverty, lack of health, adictions and other disadvantages from generation to generation. (Beverly, R., Swan, P., Martinek, N., 1998)

Aboriginal people in Australia. Photo: Wendy Williams



SOCIAL INJUSTICE

The aboriginal people in Australia pass through the worst discrimination in the country, because they have negative and unfair stereotypes. for example, the people think that they are lazy, violent or/and alcoholic. Also, a lot of Australians think that the "real" aboriginal people live in the desert or forest, when in fact a large number of aborigines live in major cities.

The people should not just listen to what the media and society say, because it is more important to take consideration to what the Indigenous people want to say about their identity and what it means to them personally. For instance many aboriginal people think that their identity is about being connected to Country, community and culture, it has nothing to do with the stereotypes that the society give to them. (Beverly, R., Swan, P., Martinek, N.,1998)

CULTURE, IDENTITY AND BE-LONGING

The Indigenous people have to face many challenges nowadays, it is very important to comprehend the impact of colonisation on Indigeneous culture, because their identity is completely linked to land and family. When the western people took their land, the aboriginal people were dispossessed of a major part of their identity. One of the worst impact was when the aborigenes were separated from their families, this is one of the many challenges that Indigeneous people have faced. (Beverly, R., Swan, P., Martinek, N., 1998)



The Problem

After the colonisation, the Western and Aboriginal culture merged at a certain point, and this provoked an imbalance between human, nature and land. And this caused severe problems of loss of cultures and environmental degeneration.

And this is how Australia is today, various cultures living in the same land. It is important to acknowledge the disadvantage and dysfunction experiences of some Indigenous communities in the context of intergenerational trauma. As the times have passed, Australia has acknowledged the losses, and have been making reforms that give the remaining aboriginal people their rightful place in the continent as well, this can help to contribute to healing the wounds of the past for aboriginal people.

Nowadays, Australia is moving forward as a country with a more unified approach of development, there is a line of improvement that takes in consideration aspects of equality. Which include transferring the ownership of sacred lands back to the aboriginal communities again under a legal framework. The government have made plans to create opportunities based on equality in almost every field, also they have brought opportunities of education and employment. These initiatives, have helped the aboriginal people to have access to education and equal opportunities in the cities, to help them involve into the society.

Nevertheless, there is a big problem with these initiatives, because they are causing a break in the chain of knowledge and culture of the aboriginal people that is transfered from generation to generation. So this has caused a new awareness of approaching the Indigenous people and how they can contribute in the economy, while they preserve their culture and land. The government has many plans to help this issue, but one of the most important in recent years has been the Cultural Tourism.



Objective

1. To propose a **Cultural Centre** that helps visitors learn about the history of the first people in Australia: the aboriginal people, which not only sensitizes, but spreads appreciation about the changing relationship between nature, aboriginal people and country, throughout the time.

2. To take in consideration environmental, social and economic aspects that could define the Cultural Centre.

-Taking in consideration the following aspects:

1. To increase visits in a sustainable point of view to enrich the experiences of the visitors.

a. Visitor experience development: The visitors could take pleasure in a range of experiences and facilities.

b. Commercial tourism development: Visitors could enjoy a range of commercial activities.

c. Promotion and marketing: Promotion of the park to contribute the increasing visitation.

2. Maintenance of natural and cultural values.

a. Vegetation: Minimise the impact of the vegetation as less as possible.

b. Animals: Minimise the impact of life of the animals as less as possible.

c. Weather: Taking in consideration the weather for the design of the project.

d. Land use: Minimise the impact of the ground as less as possible.

3. Support the maintenance of the culture of local aboriginal people.

a. Local aboriginal people cultural knowledge and practices: Support their culture and knowledge to promote, maintain and teach the next generations.

b. Rock art: Support their art practices to promote and teach their knowledges.

4. Development of economy Tourism:

It is important that tourism development complements the support of direct and indirect employment to provide opportunities for aboriginal people and organisations.



Methodology and Method

METHODOLOGICAL APPROACH

The project is considered to be a complex system that relates the design aspects with the environmental, social and economic performances of a building.

To understand this, we need to know what is a complex system, which is defined as many elements that exchange impulses between them and with the environment around them (Ottimo, 2003). The system is complex when it does not follow linear logics and has different behavioural pattern (Taleb, 2012).

The buildings are different from other products, "... The buildings are unique complexes, voluminous, expensive, durable, tied up to their characteristics of the site and environmental, to the materials, to the people and the availability of technical competences".

The buildings are very complex because they not only involve physical matters, that include different actors and contexts, from the very first moment that they are drawn until the last brick that is set up. This is why it is very important to correlate all the variables of a building, including the actor that were involved, the innovative ideas, the morphological aspects and sustainable elements that are interwined in the buildings.

Buildings are constructed by various parts and products that involve a production chain. Each part and product, is a particular artefact that has it's own process of construction.

Knowing every piece of a building, it is possible to know how to deconstruct and study each aspect of the processes, relations and characteristics of an architectural project.

The interaction of the buildings with the social, economic and environmental context is important because they are containers of human activities. There are many variables that highlight the complexity of a building, such as: func-

¹ Ottimo, J.M. (2003), Complex Systems, AIChE Journal, 49(2), 292-299.

tionality of professionals, contractual relationships, provenance of the products. There are also a variety of type of processes, contract types and organizational types. (Nigra, 2018)

All the constructions of buildings have a particular manufacturing process that work with diverse procurement methods and everchanging building systems. They are all developed in different places and organized in a specific schedule, constrains and requirements. The supply chain of the buildings are considered as socio-technical fragmented, because each project has their own professional coalitions, which are variable and have different type of contractual relations and hierarchical organizations. (Nigra, 2018)

These variables depend on the type of project and many contextual characteristics, which are related to political contexts, codes and norms of the place, social needs, economical characteristics and environmental issues. (Nigra, 2018)

Additionally, the most important aspect that determined on the complexity of a building and it's supply chain, is the "design process", which is done by contribution of designers and it can determine several variables and changes thoughout the development process of the building. (Nigra, 2018)

There are five reasons and dimensions of complexity that develop the architecture and buildings. The first dimension of complexity is the ecological one, that involves the relationship between the environmental context and the building, which should be considered as an organism of nature. (Bachman 2008)

The second dimension is the organization flow, that refers to the flow of people, heat, air, products, gravity, sound, light, etc. (Bachman 2008)

The third dimension is the morphological aspect, that involves the approach of appropriation of biological orders into artificial forms.

The fourth dimension is the synergistic one, which refers the difference between the whole and the sum of its parts, in this way it is shown the importance of the former.

And the last dimension is the one related with Gestalt psychology, which highlight the importance of human perception and recognition of self-organization tendencies and interrelationship with the other parts. (Bachman 2008) All the constructions of buildings have a particular manufacturing process that work with diverse procurement methods and everchanging building systems. They are all developed in different places and organized in a specific schedule, constrains and requirements. The supply chain of the buildings are considered as socio-technical fragmented, because each project has their own professional coalitions, which are variable and have different type of contractual relations and hierarchical organizations.

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And the last dimension is the one related with Gestalt psychology, which highlight the importance of human perception and recognition of self-organization tendencies and interrelationship with the other parts. (Bachman 2008) All this five dimensions contribute to characterize the building project and their complex systems. The relationship between the elements of the systems can influence the behaviour of the system. The social, environmental and economic aspects establish help the system evolve by the time. (Nigra, 2018)

The social, environmental and economic outputs are linked with the sustainability, which is defined, according to the Report Brundtland as: "...Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"¹

The field of architecture has tried to involve sustainability in the design solutions, sometimes using new technologies or using new deliveries processes. The built environment is described by Allen (2008) as "... *multilayered historical patchwork of structures and links that express individual and contextual requirements at a given time, but which shape the evolution of the future in a typical path-dependent process of complex evolution*".²

Furthermore, the sustainable innovation processes of the building is considered as a complex system, because it shows systemic behaviour linked with technologies, organizations and knowledge. (Nightingale, 2000)

This is why, sustainability might introduce changes in the building projects - innovation - which is defined as: the use of a transformation or an improvement in a process, product or system that is unusual for the organization that developed this change (Freeman, 1989).

This could mean a system of disruption or an advancement opportunity. Innovation could contribute to technological advancement, markets opening, better designs or social improvements.

But sustainability can also act as a negative disruptor for complex systems, because it has the ability to produce changes and if they are not managed properly, they could generate unexpected environmental and social effects, or to emergence of possible economic mismanagement. (Ciza, Rendhir, Minu, 2016)

It is important to consider that innovative sustainable building projects and their delivery processes are different from each other, so it's relevant to reduce the risks of system disruption. (Nigra, 2018)

If the buildings are complex systems, it is necessary to have a control of their

¹ Brundtland, G.M. (1987). Report Brundtland. UN. ² Allen, P.M. (2008). The Importance of complexity for the research agenda in the built environment. Architectural Engineering and Design Management, 4:1, 5-14.

innovative patterns, responsibilities, results and impact on delivery process to know the relationship between innovative sustainable design solution and the environmental, social and economical effects. Additionally, it's important to read the connections of these aspects, to provide feedback to designers, policy makers and industrial participants. (Nigra, 2018)

It is necessary to know the importance of the complexity and the dynamics of sustainable building projects, because in this way, it can improve sustainable strategic development, enhance design solutions and reduce industrial risks. And it can contribute to the development of the built environment and in this way consider environmental, economical and social changes. (Nigra, 2018)

METHOD

USING COMPETITION

The thesis makes reference to a competition made by Terra, We Australia, it's premise is to create a tourist village that could sensitize the visitors, about the changing relationship between nature, natives and the country of Australia, taking in consideration the human evolution in the context of Australia, from the period of Pre-human, the humanization era (first people living in the land), the aboriginal people, colonization period, and the country of today: the Global Australia.

In the search of collective identities

"There has been ample evidence and awareness about this overriding of history of Australia with a different civilization taking over. The divide has brought out huge rifts that are tough to span between human, cultures and nature. But what if there are attempts from both ends to heal these gaps - that's when we are able to look beyond..."

The brief of this competition is:

"If we see Australia in perspective of last few centuries only, what meets the eye are a series of events that led to clashes between humans from different backgrounds. This perspective is just a small fragment of what actually shaped Australia as a continent - and the role of nature in it.

With the canvas here being this huge (around 500 indigenous countries and countless species), Australia attempting to find its real identity between its origins and present is a place of opportunity. A chance to speak for all the sprouting cultures that existed, species that walked this continent, landscapes that are constantly changing, the technology that has evolved and the global impression as a country. The thread that really brings all these entities in one

^{1, 2} Terra (2019). We Australia Competition. Available from: http://competitions.uni.xyz

single frame is the path evolution that has brought all of us here, today. Brief: To build a tourist village that helps visitors to learn about the history of human evolution which not only sensitizes, but spreads awareness about the changing relationship between nature, natives and the country of Australia."² But for the interest of this thesis, due to the resemblance of the brief of the competition, the thesis will use the same site, which is the Kakadu National Park. Also, it will take in consideration the objectives, design programme, site plans, some information and some questions, that will serve as a guidance for the study of this thesis.

OPERATIONAL PROCESS

In the operational process, the following procedures were performed:

- Historic analysis

It is important to make a study of the historic events of the site, where the project will be developed, to understand better what characteristics have and the aspects that the project should take consideration of.

For instance the aboriginal people are the first people living in the area and the people that do the management of the site. So it is very important to respect their culture and believes and to consider them, in the design of the project.

- Site analysis

The analysis of the site is crucial to know how the building will relate with the social, environmental and economical local context. The thesis takes consideration on the flora, fauna, culture, transportation system, weather, equipments, camping sites, touristic places and others, to know how the building will relate, affect or act in the context of the site.

- Definition of the programme

It is important to define the design programme taking in consideration the historical and site analysis, also it has to be consistent in a social, economical

and environmental points of view.

-Case studies:

The case studies that were chosen had similarities with the project, they were studied to take in consideration their concept ideas, tipology, dimension, and history, in order to help in the approach of the project.

- Verification of the analysis

Once the analysis are finished, it is possible to verificate the parameters mentioned in the previous points, through a possible project, taking into account the components to study the project in an environmental, economical and social point of view.

-Components of the categories:

The project analysis is based in a series of categories, related with the study of the project characteristics, which are:

- a. Context characteristics
- b. Concept design
- c. Architectural characteristics
- d. Shape
- e. Construction systems
- f. Acoustic comfort
- g. Visual comfort
- h. Constructubility
- i. Sustainability
- j. Structural characteristics
- k. Program
- I. Component production
- m. Building innovation analysis
- n. Enviromental, social and economical analysis

-Innovation analysis:

The innovation typologies, were defined as:

a. Incremental: This innovation has a limited modification, based in the knowledge and experience.

b. Modular: This one has a bigger change in the design concept of a particular component without having repercussion on the other components.

c. Architectural: This type of innovation is characterised by having changes on the other components or links between them.

d. System: This innovation has multiple changes in the work in order to increase the performance of the system of the building.

e. Radical: This type is characterised by having big repercussions on the industry, science or technology and can modify the nature of the industry.
(Slaughter, 1998)

This analyses the type of innovation that the building project has, and this could determine the impacts of the different project characteristics that can have on the project of the building. At the same time, understand the implications of the innovations and where this could affect in the buildings.

For each building characteristics, it will be answer whether they adhere to one of the definition previously explained, and depending on each answer, it will show the graphic of the innovation type of the building project.

-Environmental, social and economical analysis

There are various components that impact the environmental, economical and social aspects, which are:

*Environmental:

a. Environmental problems: Bad environmental impacts.

b. No change in the environmental impact: No change in the natural environment during the project development.

c. Knowledge acquisition: Knowledge acquisition about the environmental performance of the project.

d. Sustainability results achievement: Achievement of the sustainable goals on the phase of project's definition.

e. Technological performances advancement: Creation of technological innovative systems. **f. Resource generation:** Production of resources from renewables technology or recycling resources, produced in the building.

*Social:

- Social problems generation: Bad social impacts generated with the project.

- No social changes: No alterations in the local social development during and after the project.

- Social problem solution: Resolution of social problems presented in the contextual area of the project.

- Social purpose definition: Obtaining knowledge about social impacts of the project.

- Social objective achievement: Accomplishment of objectives made in the project development.

- Extra benefit generation: Positive social impact generated through the project development, that could influence the social community of the place.

*Economic:

- Economic loss: Bad revenue balance.

- No economic change: No alteration in the local economy during and after the construction.

- Saving achieved: Reduced costs per m2 of the building use, contruction and maintenance in comparison with other comparable buildings.

New jobs created: New jobs generated in the community to support services or products throughout the use of the building or internally in the project.
Increased revenue: Growth in the revenue through the enhancement of the performance of the building functions, compared to similar buildings.

- Market expansion: New products offered to an ample section of a new or existing market.

- Highlight the the environmental, social and economic relations to have a guideline of the impacts.

When the analysis is done, it is known which aspect had more impact on the project development or which choices had more relevance, through the use

of graphics. In this way, the project will be compared and will be understood better the single impacts of each environmental, social or economical aspects.

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Example of the economic graphic used in this research. Excel graphic.



Example of the environmental graphic used in this research. Excel graphic.

Example of the social graphic used in this research. Excel graphic.



Historic Analysis

SITE



Falls thunder down the Arnhem Land escarpment in the wet season in Kakadu National Park. Photo: Hancock David.

The "Project" will take place in "Kakadu National Park"

The park is located in the Northern Territory, it is an archaelogical and ethnological reserve full of history in every corner, it has been inhabited since long time ago, approximately more than 40000 years. The park is rich of art and archaeological sites, such as rock carvings and cave paintings, where the first people that inhabited the place and the aboriginal people nowadays, recorded their way of life, culture and skills.

Kakadu National Park is a World Heritage place, it has a very unique and complex ecosystem, rich in history, ancient cultural heritage, spectacular landscapes, unique vegetation and very particular wildlife, therefore people from all around the world go to visit the place. The aboriginal people in the park are Bininj/Mungguy, they are working with the government to have a joint management of the park, they are on charge of the maintanance of the park, they have a collaborative work with land owners, land managers, government and operator to ensure that the aboriginal culture and knowledges are respected, and in this way showcase the uniqueness of the Park.

The government today has many proposals of investments to develop the tourist activities in Kakadu National Park and better road connections. (Press, T., Lea, D., Webb, Ann., Graham, A., 1995)

Kakadu National Park has a very rich history because of it's natural and cultural heritage, their values have been recognised to be one of the World Heritage Convention.

The park preserves very important cultural values:

1. There is a very big collection of rock art sites, that range in age from more than 20000 years to the present, they are located in the stone country. And they are the prove of one of the longest historical records of living humans in the world.

2. The first humans occupying the land was the Bininj/Munguy and they are still living in this park ever since, preserving their culture thorugh time. They have continuously occupated the land over 50000 years, so they are one of the oldest culture in the world.

"Bininj culture really strong ... very strong for us Bininj. When I was a girl my grandmother, I learn. Same thing I do with younger generation. You have to look after country, for your grandfather country, like mother country, take care."¹

Yvonne Margarula, Mirarr/Gundjeihmi clan

3. There are several sacred, archaeological and ceremonial sites of the Bininj/ Mungguy culture, the Park has the obligation to preserve them.

4. There are also various historic sites, that represents the story of the park that include, the aboriginal way of life and their use of land, that have been preserved but they no longer practice.

(Australian Government, 2016)

¹ Australian Government (2016). Kakadu National Park management plan 2016-2026. Director of National Parks.


Kakadu National Park. Photo: Hancock David.

TRADITIONAL OWNERS



Manbiyarra at Jacobs Hand. Photo: Kakadu Cultural Tours

The Park has various aboriginal people, the indigenous people that lives in the north of the park is called Bininj, while in the south is called Mungguy.

"Bininj is a Kunwinjku and Gundjeihmi word, pronounced 'bin-ing'. This word is similar to the English word 'man' and can mean man, male, person or Aboriginal people, depending on the context. The word for woman in these languages is Daluk. Other languages in Kakadu National Park have other words with these meanings – for example the Jawoyn word for man is Mungguy and for woman is Alumka, and the Limilngan word

for man is Murlugan and for woman is Ugin-j."¹

The aboriginal people have always been connected with their land, therefore, caring for the land and it's life, is extremely important for their culture.

There are cultural aspects that have been passed from one generation to another such as the language, ceremonies, art, language and caring for country.

"We Aboriginal people have obligations to care for our country, to look after djang, to communicate with our ancestors when on country and to teach all of this to the next

^{1,2} Australian Government (2016). Kakadu National Park management plan 2016-2026. Director of National Parks.

generations.^{*2} Combined statement from the Aboriginal members of the Kakadu National Park Board of Management.

For Bininj/Mungguy people the concepts of culture and country, are different from the western people, because for the aboriginal people, the word country has a deeper meaning, it refers not only the landscapes, but also means the connections between the people and land, they are one.

According to the Professor of Anthropology, Deborah Bird Rose, this concept means: *"Indigenous people talk about country in the same way they talk about a person; they speak to country, sing to country, visit country, worry about country, teel sorry for country, and long for country. People say that country knows, hears, smells, takes notice, takes care, is* sorry or happy country is a living entity with a yesterday, today and tomorrow, with a consciousness and a will toward life."¹ (Rose 1996) Bininj/Munguy people has many tra-

ditional behaviours that are important to consider, these are:

-The aboriginal people are not used to greet each other every time they meet.

-They are not used to personal names, they are often called by kinship terms.

-It is very important for them to keep privacy.

-They are not used to constant eye contact.

-It is relevant to listen carefully before giving a response.

-It is good manner to say goodbye when someone is leaving.

(Press, T., Lea, D., Webb, Ann., Graham, A., 1995)



Natasha Nadji, one of Kakadu's traditional owners. Photo: Peter Eve and Tourism NT

¹ Australian Government (2016). Kakadu National Park management plan 2016-2026. Director of National Parks.

DREAMTIME

The Aboriginal people has a philosophy known as Dreamtime or Dreaming, which consist in stories about Acestral Spirits that created the land and life, also the physical and geographic landscapes formations.

Dreamtime also explains about the universe origins and how the nature and humanity should live in it. Also, they are stories that define how the family life should be and how to connect spiritually with the land, as they are linked.

THE RAINBOW SERPENT

Bininj/Mungguy people has their own believe of a creation story. The Indigenous people believe that the world has always existed and that they have been living in the land from the time of the first ancestors. There is one story of the aboriginal people that is called The Rainbow Serpent, which is a form of one of the Creation Ancestors.

The aboriginal people have several stories with Rainbow Serpent that

are connected with the water and the places she passed in the land to create the landscapes. According to the story, The Rainbow Serpent came in the land and created passages in the rocks to produce waterholes. This story has many names depending on the aboriginal Clan. Some

people in the north may call the story as Aldmudj, while others in the south call it as Bolung.

Kakadu National Park has chosen The Rainbow Serpent as the representation logo of the place, because it symbolises the local aboriginal people, culture and community. (Breeden, S., Wright, B., 1991)



Dreamtime Kullilla-Art. Painting author: Michael J Connolly, Munda-gutta Kulliwari.



Rock art at Ubirr depicting the Rainbow Serpent. Photo: Parks Australia.

ROCK ART

Kakadu National Park has a very large collection of Rock Art that symbolises the historical record of the human existing in the world. These paintings are very important because it proves that the Aboriginal people have lived in the park for thousands of years, because it has very old paintings that has lasted for approximately 20 000 years. Which is the longest prove of any record in the world.

There are approximately 5000 rock art sites recorded in the Park by now, some of them contain many paintings, most of the art can be found on the Arnhem Land Plateau.

To produce the paintings the aboriginal people made the pigments by grinding up iron-stained clays and other natural minerals, that are mixed with water. The colors most used were yellow and orange, white and black. To use the pigments and paint they had many techniques. Sometimes they used chewed twigs, feathers or hair as brushes. Also, they occasionally use the mouth to spray the pigments onto the rock face.

The aboriginal people, used art as an expression of cultural identity and to connect with country. For Bininj/ Mungguy people, the act of painting is more important than the painting itself, because it was a way to tell a story, but they are not interested in preserving the drawings in the time.

For aboriginal people, the believed that the first artists that painted in the rocks were spirit people, because to paint is a way to be linked with the landscape and thanks to them, they can show about Bininj/Mungguy cultures, the animals, activities, objects or stories.

More recent rock art represents traditional knowledge, such as: the important animals, totemic kin, ancestral heroes and other Dreamtime beings. The rock art is still a very important part of their cultural life.

(Press, T., Lea, D., Webb, Ann., Graham, A. 1995)



First contact rock art, Nanguluwurr, Burrungkuy (Nourlangie). Photo: Parks Australia.



Aboriginal rock art at Nourlangie, Kakadu. Photo: Michelle Freson



Rock art at Ubirr in Kakadu NP. (Photo: Luke Durkin/Wikimedia)



Site Analysis

8 HABITATS

Kakadu National Park is divided into 8 habitats of landscapes. The largest habitat is the Woodland, occupying almost the 75% of the Park, while monsoon forests are the most fragile.

They are divided as follows:

-Savanna Woodlands: The vegetation is consisted mostly in Eucalyptus and tall grasses. These landscape has the largest number of wildlife and variety of plants in the park.

-Monsoon Forests: These occupy a small fraction of the park. Here the birds are linked with the plants because they disperse the pollen.

-Stone Country: This is very important and very rich in culture landscape, the most important site is the Arnhem Land Plateau, This landscape covers from 30 m to 300 m of historical and cultural paintings of Ubirr and Nourlangie.

-Tidal Flats and Coast: This area consist in a very large mangrove lined forests, that serves as nursury for the fish. This include billabongs, rivers, floodplains, coastal areas and estuarine. Also, these areas are very important for the migratory birds.

-Floodplains and Billabongs: These areas tend to have very dramatic seasonal changes, because the sea may flow over the plains for very large kilometers in patches during the wet season rainfalls. But when they dry out, the waterbirds and crocodiles come out from their refuge. One of the most important billabongs is The Yellow Waters, it is located near the Cooinda Lodge, it is home of several wildlife such as crocodiles, horses, water birds and others. Some of the birds species are: jacana, egrets, jabiru, sea eagles, magpie geese and many other native species.

-Southern Hills and Ridges: They are located in the South of the Park, consisted in hills sand that are a result of millions of years of erosion. In these areas, there are a very large diversity of living beings, that include animals and plants. (Morris, I. 1996)

SEASONS

According to Aboriginal people, the annual cycle is divided into 6 seasons. They are not based in specific dates, instead, they are determined by their regular changes of weather, of plant and animal life.

•Gudjewg - Monsoon Season: starts from January to March, it is characterised by being the wet season with heavy rains.

• Banggerreng - Knock 'em down storm Season: occurs in April, it is when the strong winds of the south flatten the tall grass, during this season the rain clouds disperse and clear skies prevail.

• Yegge - Cooler but still humid Season: starts from May to mid-June, it is the beginning of the dry weather, is relatively cool with low humidity. And starts the first firing of grasses.

• Wurrgeng - Cold Weather Season: starts from mid-June to mid-August, it is the cold weather time, it is characterised by the low humidity, daytime temperatures are around 30°C and night-time temperatures are around 17°C. Also, large areas are cleared by fire.

• Gurrung - Hot Dry Weather: starts from mid-August to mid-October, the weather is warm in the late dry.

•Gunumeleng Pre-Monsoon Storm Season: starts from mid-October to late December, it can last from a few weeks to several months. The humidity starts to rise and there are electrical storms.

(Press, T., Lea, D., Webb, Ann., Graham, A. 1995)

FAUNA

In each habitat of Kakadu National Park, there are unique species of animals. Over 50 different fish can be found in the Park, more than 120 reptiles and amphipians, over onethird of Australia's bird, more than tens of thousands of invertebrates and more than 60 species of mammals. Kakadu is home of some species that can't be found anywhere else in the world.

The reptiles have diverse species that live in the sandstone country, while the mammals and birds are more likely to be in the lowland woodlands that are distributed along the landscape.

Birds

Kakadu National Park has about onethird of Australia's bird, more specifically has 289 bird species. Many of them are rare locally or threatened. In the wetlands habitat of the Park, several migratory birds arrive depending on the seaon, they come from other regions of Australia and overseas. During the wet season of the Park, the rivers and floodplains start to inundate, the rise of water is a signal for the water birds to spread along the vast expenses of water.

In the dry season, the birds concentrate in the shrinking billabongs and deep waterholes. And some of the water birds, during the late drier season, remain in the billabongs like Yellow Water.

Yellow Water

It is a billabong, known as Ngurrungurrudjba for the aboriginal people, located near Cooinda and the site of the project. There are many crocodiles, wild horses, buffalo and others species living. Moreover, over 60 species of water birds can be found. Some of the birds species are: jacana, egrets, jabiru, sea eagles, magpie geese, brolgas, whistling ducks and many other native species.

(Press, T., Lea, D., Webb, Ann., Graham, A. 1995)



A Kingfisher in Kakadu National Park. Photo: David Hancock



Crocodile at Yellow Waters. Photo: David Hancock



A darter spreads its wings in Kakadu National Park. Photo: David Hancock

FLORA

Kakadu is bursting with botanical life. The park is home to more than 2000 plant species. Many of the plants are used by Bininj/Mungguy people for food, medicine and craft materials. Some plants also act as seasonal indicators, telling Bininj/Mungguy when to harvest certain foods or start patch burning the country.

The tree most prominent in the Northern Territory of Australia and in the site of the project is the Eucalyptus tectifica-E. latifolia woodland. The trees have up to 12 m tall. The color of their trunks and branches are light grey to grey-brown. Their trunks are thin and the trees are not very abundant of leaves.



Eucalyptus tectifica. Photo: Tourism NT



(Press, T., Lea, D., Webb, Ann., Gra- Lotus Flower – Kakadu National Park. Photo: Tourism NT ham, A. 1995)



Water lilies. Photo: Tourism Australia





LOCATION OF KAKADU NATIONAL PARK





MAP OF LANDSCAPES

O Location of the center



Floodplain Lowland woodland and forest

Stone country

Rainforest

Threatened Sandstone Shrubland Complex



0 5 10 20 LILL Kilometres



MAP OF ABORIGINAL LAND

Gunlom Aboriginal Land Trust

Alligator Rivers Area 3 Land Claim

Kakadu Aboriginal Land Trust



Ngombur Land Claim

Jabiluka Aboriginal Land Trust



O Location of the center



0 5 10 20 Kilometres



MAP OF TOURISTIC PLACES

Touristic place
Drainage
Escarpment
Main road
Secondary road





0 5 10 20 Kilometres



MAP OF CAMPING SITES



Δ

A Bush campground

🕂 Day use areas

d O Location of the center



0 5 10 20 Kilometres

Commercial campground



Workplace

The site is located in one of the unsettled spaces of the Kakadu National Park, it is surrounded with many beautiful spots destinations, such as: Jim Creek, Animal Safari and the Yellow waters. This UNESCO World Heritage site has been one of the most visited places in Australia for many years.

Nearby, there is a camping site with accomodations, called Cooinda Lodge. The surroundings are almost inhabited with few built forms, on one side there is a Cultural Center of Warranjan tribe and on the other side, there is the Animal Safari. There is also an airport as one way of transportation to reach the place. The Aboriginal Cultural Centre is a place that looks for stimulation for the tourists to connect better with the park, before the exploration in the whole National Park.

AREA	12774 m ²
HEIGHT LIMIT	9 m (exclude birdwatch- ing tower)
SITE COORDINATES	12°54'01.1"S 132°31'18.3"E
GROUND COVERAGE	25%
TREE MAXIMUM HEIGHT	8-10 m
TREE DIAMETERS	4-6 m

Terra (2019)



Site view from the top. Google maps.



Site plan with measures



Site views. Keys

DESIGN PROGRAMME







JIM JIM CREEK

SITE ANALYSIS

WARRADJAN CULTURAL CENTRE





Case studies

CONTEMPORARY INDIGENOUS ARCHITECTURE IN AUSTRALIA

"The way I see it, Indigenous architecture is not a style but a culturally appropiate process based on communication, trust, and community development... From the moment a building idea is conceived to the moment it is realised, communication, in whatever form, and community involvement will determine the Aboriginality of the architecture. Within the process, there are many considerations which may not necessarily exist in a non-Aboriginal project. Designer are asked to consider culture, place and identity as well as employment and training opportunities, social justice, and health issues. The failures in the past were not only due to misconceptions about culture, but to the coupling of this omission with a lack of community consultation."¹ Alison Page

"For a local Aboriginal culture, there will exist a number of signs which draw on visual references to the cultural lanscape in the immediate environment of the building site and are thus applicable to two- or three-dimensional representation or reference. Each of these signs may be linked to multiple associations. In devising a semiotic approach to a building design, there is arguably a need to investigate Aboriginal environmental knowledge systems beyond published sources"²

It was considered 5 case studies:

-The Marika-Alderton House, by Glenn Murcutt.

-Uluru-Kata Tjuta National Park Cultural Centre, by Gregory Burgess.

-Casa Levene, by NO.MAD.

-Arvo Part Centre / Invited international competition, by Jensen & Skodvin.

-Bowali Visitors Information Centre, by Glenn Murcutt.

These case studies were consulted for the analysis of the possible approach of the design project because they took in consideration some values about culture, place and identity for the architecture design, concerning about their concept ideas, weather considerations and locations.

^{1,2}Memmott, P (2008). Gunyah, Goondie & Wurley: The Aboriginal Architecture of Australia. University of Queensland Press.

THE MARIKA-ALDERTON HOUSE GLENN MURCUTT

Location: Yirrkala Community, Eastern Arnheim Land, Northern Territory, Australia.

Built in: 1994

Description: Glenn Murcutt was commissioned to build a house, for an aboriginal artist, Banduk Marika and her partner. The challenge of the project was the weather (monsoonal weather) where the temperature never drops below 25 C° and can reach 40 C°. Furthermore, the design had to keep the reptiles and poisonous animals out and also the structure had to be strong enough to withstand hurricanes wind. The architect made a research for 3 years about the aboriginal culture and history, to create a proper house for them. (Jaime Benyei, 2012).



Weather considerations. Source: wikiarquitectura



External view. Source: wikiarquitectura



Internal views. Source: wikiarquitectura



Internal views. Source: wikiarquitectura

ULURU-KATA TJUTA NATIONAL PARK/GREGORY BURGESS

Location: Uluru Road, Uluru Central Australia, Australia. Built in: 1995.

Description: The architect worked together with the community Anangu, to produce the texts and the concept of the building. It was inspired by a story-telling of the community, a story about how Uluru and the land was created. It was based on the fight of two serpents: Tjukurpa ancestors Kuniya (the woma python - southern building) and Liru (the poisonous snake - northern building). The designer used local natural material to connect with the land: the desert earth floor, the mudbrick walls, and the structural tree trunks, are an internal continuation of the desert landscape.



Top view. Source: gbarch



Section view. Source: gbarch



Internal views. Source: gbarch



Internal views. Source: gbarch



Internal views. Source: gbarch

CASA LEVENE NO.MAD

Location: San Lorenzo del Escorial, Madrid, Spain. Built in: 2002-2006

Description: Eduardo Arroyo was the architect on charge of the project, the concept that he used for the house was to consider the nature as the main idea, the architect adapted the volumetric line of the building to the existing forest. As the starting point for the process, he identified the trees that worked together in the forest while the other land was the place were the construccion could be done, so in this way, is not necessary to remove any trees. The architect also considered the geometry as the way to define and discover the experiences of the space in relationship with the outside land-scape. (Casa Levene en El Escorial / NO.MAD, 2013)





Concept ideas. Source: Archdaily



External view. Source: Archdaily



External view. Source: Archdaily



Internal view. Source: Archdaily

ARVO PART CENTRE INVITED INTERNATIONAL COMPETITION/ JENSEN & SKODVIN

Location: Forest with tall pine trees on a bed of blueberry bushes, lingonberry heath, moss and lichen. Estland.

Built in: 2014.

Description: The concept of the project was to bring the qualities of the nature to the building, they used the trees and plantation to organize the program, to create the feeling of a wander in the woods linger. The site is covered with trees and offers a space of intimacy that suits the program with rooms for studies and creative work. The building is elevated off the ground with rooms stretching out like branches. As you go through the center of the building, it makes a sensation as you walk through the forest. (Jensen, Skodvin, 2013).





Concept idea. Source: JSA



View from the top. Source: JSA



External view. Source: JSA



Internal view. Source: JSA

BOWALI VISITORS INFORMA-TION CENTRE/GLENN MURCUTT

Location: Kakadu National Park, Northern Territory, Australia. Built in: 1993-1999

Description: Bowali is a landscape interpretation of the park. Murcutt used the interweaving of stories, place and culture as the concept of the building. He considered the weather (monsoonal tropic weather, with distinct wet and dry seasons) for the design. Murcutt during his work, had many discussions with the traditional aboriginal people of the land and visit the site to experience and understand the connection of the owners with their land. The building is a series of separated overlapping spaces, developed along a verandah pathway. (Jaime Benyei, 2012)



Concept idea. Source: El Croquis



Concept idea. Source: El Croquis


Internal view. Source: El Croquis



Internal view. Source: El Croquis



Roof view: El Croquis

CHAPTER 10

Project

CONCEPT: A JOURNEY INTO THE WOODS

The australian people has a culture of doing outdoor activities, it is very common for them to take a weekend to go to the country and to connect with the land.

The Aboriginal Cultural Centre is located in Kakadu National Park, near the Cooinda Camping site and the Yellow Waters (where many birds gather together and it's very rich in flora and fauna species). For the aboriginal people in Australia and more specifically for the community that reside in Kakadu National Park, the land is extremely important and the connection with it. This is why the aim of the concept idea of the project is to pull the qualities of the land and using them to organize the functional programme of the project.

The terrain has various tall trees (Eucalyptus tectifica, E. Latifolia woodland) (to 15m tall). The project is thought to maintain the utmost respect for the natural environment and having the minimum impact on it. So the idea is to adapt the form of the building with the geometry of the existing trees.

To reach to the site, the people would come by car mostly from Darwin. But there is also an airport, which would be for the wealthy people. This is why the journey from a human scale is important, but it is also pertinent to make a view from the top, for the people that arrive from the sky would recognize the place at a glance. The narrative of the journey into the woods starts as a analogy of the Rainbow Serpent, as the visitors starts walking in the pathway with organic form to resemble this dreamtime story, and organic view that could be seen from the sky.

The site has a great view to the Yellow Waters. The birdwatching tower is planned to have a view towards this river, where at least 60 species of birds can be found in the wetlands. It would be a place to catch the spectacular dancing of birds.

The building is elevated slightly of the ground, so there is no need for deep

excavation, because of the weather and to protect the dry soil and to safeguard the natural vegetation of the place, without touching it. This elevation also protects the home from storm, flood, animals and safeguard the natural vegetation of the area.

The main structure of the building is supported by steel columns and steel square beams.

The curved roof prevents dry leaves from settling on top and also to create openings to receive natural sun-light.

The rooms are opened, with adjustable louvres, and movable screens, the ventilation assure that cooling breezes circulate through open rooms.

GEOMETRY



Grid geometry

Following the geometry of the trees: Letting the trees create the experiences in the plan.

PATHWAY



Pathway from the beginning of the Journey into the woods.

-Organic form resembling the "Rainbow Serpent", the figure that represents the park.

VIEWS OF BIRDWATCHING



Birdwatching Tower

- -Relationship with the water
- -Connection with the Yellow waters view (there are diverse species of birds)
- -Connection with Jim Jim Creek view

VEGETATION



Vegetation

-Integrate nature into the project

- -Respect the land
- -Touch as less as possible the land

PROGRAMME



Functional Programme

- -Experiences with aboriginal culture
- -Interrelation of local and tourist people

PATHWAYS POSSIBILITIES



Pathways

-There are different pathways that can the user can wander, the idea is to wander in different spaces experiences, discovering new aboriginal practices.

CONCEPT

The experience of a journey into the woods, starts from the car parking area, the approach to the Cultural Centre is an organic ground path that connects with the local woodland setting and also represents the storytelling of the rainbow serpent, as you walk through the organic form, you can see the creation of the land as it is.

The bulding is a series of separate spaces, developed around the center. Walking through the trees, going to each room to experience various aboriginal activities, arranged by them, to immerse into their culture and to connect with the land by wandering into the trees, as the building materiality would be with the local wood combining with a metallic structure. It is a combination of traditional and contemporary architecture.

The Cultural Centre will be managed by the aboriginal people.

A JOURNEY THROUGH THE WOODS...





PLANS





ROOF PLAN ESC 1:500











LEFT ELEVATION ESC 1:250



RIGHT ELEVATION ESC 1:250







BACK ELEVATION ESC 1:250



FRONT ELEVATION ESC 1:250





LONGITUDINAL PERSPECTIVE SECTION









TRANSVERSAL PERSPECTIVE SECTION



TRANSVERSAL PERSPECTIVE SECTION





AXONOMETRIC WITH ROOF





CHAPTER 11

Environmental, social and economic analysis

BUILDING CHARACTERISTICS

- CONTEXT CHARACTERISTICS

Kakadu National Park has an area of 19810 km2, within the Alligator Rivers Region of the Northern Territory of Australia, it is delimited in the north with the coast, in the south with the hills and basins, to the the east with the sandstone plateau and to the western boundary with the wooded lowlands.

The Park is very rich in culture, with evidence of cultural practices from thousands of years ago and is preserved in the local aboriginal people "Bininj / Mungguy". Kakadu is home of various Aboriginal clan groups, each of them has their own languages and traditions, they have different responsibility for looking after the country, depending on the area that they are settled. This has been passes from generation to another generation through the years passed, and they have preserved and protected the land and shape the landscape as how it is today.

The involvement and participation of the Aboriginal community in the management of Kakadu National Park is assured through legislation, conditions of lease, the plan of management and other management arrangements.

The natural environment is very beautiful and very rich in biodiversity. The ancient stone country is home of numerous native species, and is a hotspot of particular plants and animals. There are many diverse habitats and a great concentration of waterbirds and other aquatic species in the floodplains. The largest area of savanna is represented by the woodlands and open forest. And the rainforest helps some species to give them a cool and shady refuge. (Australian Government, 2016)

- CONCEPT

What is the design concept? Trees preservation, climatic considerations that determined the building's form and materials, also underline some symbolic aboriginal culture represented in the spaces.

- ACCESS

Road Access

Most visitors to Kakadu arrive and travel within the park by road. Visitors and residents are able to travel through the park on an extensive range of sealed and unsealed roads and tracks and marked walking tracks. The main roads into the park are the Arnhem Highway from Darwin and the Kakadu Highway from Pine Creek. The park can also be accessed via the Old Jim Jim and Oenpelli Roads. The Oenpelli Road provides dry-season access to Arnhem Land. This road becomes impassable at times during the wet season at the East Alligator River and Magela Creek crossings. Roads and tracks within the park will be maintained for as long as practicable into the wet season, and opened as soon as practicable after the wet season to provide residents and visitors access to the park.

To arrive to the Aboriginal Cultural Centre, the visitor can access with the main highways (Kakadu highway or Arnhem highway) to go to Cooinda Road and then turn to yellow waters road. The entrance of the site has a parking lot, where the visitors can park their cars and then access to the building through the pedestrian pathway.

(Australian Government, 2016).

Air access

Bininj/Mungguy use aircraft for wet-season access to isolated communities and outstations and to remote areas for ceremonies. Visitors, commercial interests and service providers also use aircraft to access the park and to undertake a range of activities such as scenic flights, image capture and research. Aircraft, both fixed wing and helicopters, are used by park staff as necessary for management purposes and responding to emergencies.

There is a small airport near the site, it is called Cooinda airport, where the visitor can arrive through an aircraft and then walk few minutes to get to the site. (Australian Government, 2016)







AERIAL VIEW

- ARCHITECTURAL CHARACTERISTICS

Aesthetic approach

-Relationship with nature and land

-Minimum impact to the environment

-Form following the geometry of the trees

-Views toward the river

- Consideration to weather conditions

-To be able to observe changes in weather patterns, the movements of native animals and sea life and the movement of the people.

-To be able to relate visually to the kinship totems of ancestors and living relatives such as water, trees and animals.

-To have shaded cool interior

-Good ventilation

-Narrative pathways: Representation of an important storytelling about the creation of the land (The Rainbow Serpent)

-Functional programme related with the aboriginal culture

-Corten steel structure, similar to the color of the earth color of the landscape

-View from above and from the street

-Use of louvres to control the ventilation and also to control contact with visitors

-For the building to respond to traditional and contemporary architecture -The curved roof prevents dry leaves from settling on top and also to create openings to receive natural sun-light.

- SHAPE

Typology: Central meeting point that connects with the functional spaces Geometry: Irregular Volume Shape: Prism Symmetry: East-West axis Floor Number: The cultural centre has one floor, like the traditional architecture of the area.

- CONSTRUCTION SYSTEMS

Envelope: The basic structure of the aboriginal cultural centre is based in columns of corten steel, to blend with the landscape of the park and the surrounding trees.

Roof: corrugated metal sheeting. The sheets are laid over a space frame made of reinforcing steel bars tied to the steel beams that are set in parallel to the width of the building.

Foundation system: The foundations are of stone and poured concrete. **Internal partitions and non-structural elements:** There are no internal partitions as the organization of the buildings is so that each room becomes a unit on itself.

Door and windows: All the frames are made of wood, because of the abundance of trees in the surroundings. There are eucalyptus wood blinds, running along the full length of the wall that provide ample natural lighting and ventilation control.

Thermal comfort

Service system type: Passive solar design.

Energetic resource type: No electric system.

Solar resource: Natural lighting and ventilation.

<u>Acoustic comfort</u>: There is no acoustic system, because the openings for the cross-ventilation system and the natural lighting is incompatible with acoustic insulation.

Visual comfort:

System type: Passive solar design

Origin: 100% natural lighting

Shading system: Horizontal eucalyptus wood blinds.

Orientation: In all orientations, depending on the building.

- CONSTRUCTABILITY

<u>Construction method:</u> The structure will be prefabricated to be assembled very fast, to reduce time, costs and energy required to lift a building. <u>Construction materials</u>: The materials that will be used in the construction of the center are simple, eucalyptus wood, timber for the walls, corten steel to blend with the colors of the landscape for the structure and metal corrugated for the roof.

- SUSTAINABILITY

<u>Transparent/opaque relation</u>: Glass and louvres used to protect the building from the rains, to allow sunlight inside and to have visibility to the outside as the aboriginal people like to have visibility with the landscape, the nature and the living beings.

<u>Ventilation system</u>: Natural cross-ventilation with the use of louvres and opening windows.

Energy production type: None

Percentage of local material: 90%

<u>Water management</u>: The sloped roof makes rain water to run to a channelled system through a gutter into a tank that is used to water the cultural centre.

<u>Preservation of the culture</u>: The management of the cultural centre will be hold by the local aboriginal people, they are specialized to show the tourist their way of caring the land and how they have lived from years to years and how they have protected the country from generation to generation, always in relationship with the nature and everything that is in the environment.

- STRUCTURAL CHARACTERISTICS

<u>Structure type performance:</u> Steel structure <u>Material characteristics:</u> Eucalyptus wood, corten steel, timber walls. <u>Basic structural:</u> Steel columns and steel square beams.






CONSTRUCTION MATERIALS. USE OF TRANSPARENT RELATION AND LOUVRES. VENTILATION.



NATURAL LIGHTNING THROUGH GLASS AND LOUVRES TO CONTROL THE SUNLIGHT.

URBAN SETTING

The Aboriginal traditional owners of Kakadu National Park are active participants in the management of the Park. Permanent Aboriginal living areas are established at ten or more locations throughout the Park and these are serviced and maintained by the Aboriginal-owned Gagudju Association. The Gagudju Association also operates a variety of commercial enterprises throughout the Park, including the Gagudju Crocodile Hotel in Jabiru, the Gagudju Lodge Cooinda Hotel-Motel and the Yellow Water boat tours. A second Aboriginal association, the Djabulukgu Association, owns and operates the Marrawuddi Gallery at the Bowali Visitor Centre and the East Alligator River Cruise. The Gagudju Association runs the commercial operations of the Warradjan Cultural Centre, constructed by ANCA and opened in 1995.

And there are five commercially operated camping areas in and adja-



ABORIGINAL CULTURAL CENTRE

PROGRAM OF THE BUILDING



MANAGED BY THE LOCAL PEOPLE

cent to Kakadu. (Press, T., Lea, D., Webb, Ann., Graham, A. 1995)

BUILDING TYPE SCOPE

The building is an Aboriginal Cultural Centre, managed by the local aboriginal people called Bininj/Mingguy, the aim is to recognize and to give value of the culture of the first people that has lived in Australia since the beginning of human kind and how they can cohabit with the western people and the tourists. Furthermore, the cultural centre will attract visitors to experience, enjoy and learn about the park while they can contribute to the local and regional economy.

ARCHITECTURAL CHARACTERISTICS

The program consists of a cultural centre for the tourists that wants to connect with the aboriginal culture and with country. Is based in a series of separated spaces, developed around a center that is the meeting point, in which connects with the exhibition halls, multipurpose space ceremonies, birdwatching tower, rock art exhibitions and workshops, restaurant with local food bush, the forest where the aboriginal can perform their rituals, the commercial store with inventory made by the aboriginal people and the services.

The program is totally linked with the natural vegetation of the landscape, where you can immerse in a forest of trees, with a space for camping for the tourist people.

As you walk through the program, you can experience the natural environment, through an organic pathway resembling the dreamtime Rainbow serpent (which is a figure that represents the park).





VIEW FROM THE ENTRANCE OF THE CENTRE





VIEW FROM THE MEETING POINT







VIEW FROM THE MULTIPURPOSE SPACE



VIIEW FROM THE MULTIPURPOSE SPACE



VIEW FROM THE ROCK ART EXHIBIT



OM THE EXHIBITION HALL



IONS AND WORKSHOPS





VIEW FROM THE EXHIBITION HALL WITH THE VIEW OF THE ENTRANCE







VIEW FROM THE BIRDWATCHING TOWER, WITH THE VIEW OF THE YELLOW WATERS



VIEW FROM THE BIRDWATCHING TOWER, WITH THE VIEW OF THE YELLOW WATERS















VIEW FROM OUTSIDE THE RESTAURANT





VIEW FROM OUTSIDE THE CAMPING SITE





VIEW FROM THE FOREST SPACE WITH ABORIGINAL RITUAL

PROJECT SUSTAINABILITY

In summary, the project used several sustainability strategies for it's design. The consideration of local materials to be used in the design of the project: this will low the costs of raw materials, transportation and also low the emissions that they cause.

-Recognition of aboriginal culture: the park is land of the aboriginal people, they are on charge of the management and legislation of the park, and this is why it is very important to maintain and respect their culture, also, they know how to live and experience the country, since long time ago.

-Preservation of trees: the nature, vegetation and land, are part of the country, and country is extremely important for the aboriginal people, so it is key to preserve the trees to respect the land and the people. The building is shaped with the geometry of the vegetation of the landscape.

-Touch as less as possible the ground: the building is raised 60 cm from the ground, because of the climatization, protection of the ground and vegetation, and also to safeguard the building from the animals and flood.

-Prefabrication of the structure: to save time, to be able to assemble the structure very fast and efficiently. In this way, it can reduce time, costs and energy.

-Consideration of the weather: the building design took consideration of weather conditions because it is raised from the ground, to avoid the floods that might occur because of the moonsonal torpical climate of the place.

-Cross ventilation: the building is ventilated naturally with the wind because of the openings on the sides and they can be controlled with the use of louvres. -Natural sunlight: the project design considered the natural sunlight with the

use of transparency and in this way, avoid the artificial energy use.

The program will benefit the economy of the local people.

It is concluded that the project seeks to be sustainable from the environmental, economic and social points of view.

COMPONENT PRODUCTION

- INFRASTRUCTURE AND WORKS

According to the Management Plan of Kakadu National Park of 2016-2026, the infrastructure within the park is established and maintained by other Government agencies, Aboriginal associations, and commercial operations.

Excavation of sand, gravel and other earth materials from within the park will be allowable for infrastructure development purposes, ensuring minimal impact to park values and the rehabilitation of these areas following extraction.

A person may carry on an excavation, erect a building or other structure, or carry out works in the park to develop and maintain capital works and infrastructure in connection with Bininj/Mungguy living areas.

And timber, including preservative treated pine, may be brought into the park and used for authorised capital works and infrastructure projects.

For the corten steel there is a company called Archclad in the Northern Territory of Australia that provides the material, it is located in Bath street, Alice Springs, NT.

(Australian Government, 2016)

ENVIRONMENTAL, SOCIAL AND ECONOMIC TABLE

1_Building		INNOVATION									SUSTAINABILITY					ECONOMIC								
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	Rural																							_
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4 Architectural Characteristics	Aesthetic Approach																							_
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	Horizontal (ceilings/floors)																				\downarrow	\downarrow	\downarrow	
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BUILDING INNOVATION



This graph illustrates where the innovation is more expressive, concerning the building characteristics divided in the main topics presented.

It reflects the concept of the building as the most innovative, because the concept helps in an environmental, social and economical way. It was thought to be adapted to the site, climate and local people, and was considered to reduce costs.

BUILDING SUSTAINABILITY



ENVIRONMENTAL

Natural crossed ventilation was used to adapt the building to the local climate. Preservation of the vegetation of the landscape to integrate it in the concept of the building.

SOCIAL

The design of the project took consideration of the local aboriginal people culture.

The building is a cultural centre to integrate both cultures, the local aboriginal people that has lived in the park since 60 thousands years ago and the western people.

ECONOMIC

The use of local resources could reduce the costs for the execution of the project.

Prefabrication of the structure could ease the assemble of the construction and benefit the time of the execution.

SOCIAL, ENVIRONMENTAL AND ECONOMIC GRAPHICS









Discussion

The "Concept" is the most important aspect in the innovation graphic, because, the project concept was thought to be hollistic in an environmental, social and economic points of view. One aspect is connected with another. According to the graphic of sustainability, the environmental aspect has higher impact in the project because it was considered as a premise of design concept, as the land is the most important part of the culture of the aboriginal people, because it is considered to be the identity of being an aboriginal person. The form of the project is shaped with the geometry of the existing trees, and the main idea is to respect the natural environment and to have the minimum impact on it.

Also the building tries to be connected with the place, having the views towards the Yellow Waters, where the water birds dance and pass in the migratory seasons.

The building takes in consideration weather conditions, to have shaded cool interior, good ventilation, with the use of louvres.

The roof has its form because it can produce openings to receive natural sunlight.

The social aspect has the second higher impact on the project. The building takes in consideration the local aboriginal people culture when it considers the nature as the premise of design. Also, the openings can be controlled with the use of louvres to manage the control contacts with visitors, and can control the views from outside, since the aboriginal people care about privacy from the visitors and views with the nature.

The functional programme is related with the aboriginal culture, it is a Cultural Centre.

The narrative of the entrance, when the visitor enters to the Cultural Centre, they walk in a journey into the woods, as the Rainbow Serpent did in the Creation Time, when he created the forms of the landcscape. The pathway has an organic form to resemble this dreamtime story.

And the economic aspect is in the third place of the graphic. The construction of the structure of the project, is thought to be pre-fabricated in Steel, I beams, because in this way it can reduce costs of time of construction, in this way, it may reduce costs and energy. Since the management of the park is in the hands of the Bininj/Mungguy people, a Cultural Centre could help producing employments for the local people, and also give them opportunities.

CHAPTER 13

Conclusions

The Australian Aboriginal people have lived in the country since approximately 60,000 years ago, they were organized in semi-nomadic small tribes and divided depending on their language. During the colonisation, the aboriginal people were forced to leave their lands and many were killed or died from diseases.

After the Colonisation, the Indigenous people have experienced intergenerational trauma, had social injustice and loss of culture and identity. However, Australia today has another perspective of developing the country, they are looking forward an equility improvement, where the Western and Aboriginal culture could have the same opportunities.

Nevertheless, the aboriginal people are suffering a loss of culture and this is why Australia is producing new plans to encourage their culture and way of living. So they are promoting Cultural Tourism to develop this issue in the country.

So the objectives of the thesis are to build a cultural centre, where the visitor can sensitize and appreciate about the aboriginal culture and also connecting with the land, nature and the people. For this, it is important to take in consideration the management of the project with environmental, social and economical aspects for the design approach.

The method used to approach the project is by using a competition as a guidance and considering Kakadu National Park as the site of the project.

The design and concept characteristics of the project considered the study of a historical analysis of the site, the local aboriginal people (Bininj/Mungguy) and their cultural aspects. Also a site analysis to have knowledge of its flora, fauna, seasons and habitats. Because it is important to make the building belong to the place and country. Furthermore, five case studies were studied to help approach to the project design.

The concept of the project is A Journey into the Woods, because the premise of the project was to have the minimum impact to the environment, and since the site is surrounded by trees, they remained untouched and instead they were used as part of the design project. Also, the main idea of the concept was to use the social, economic and environmental aspects, and work with them in a hollistic way. So using the aboriginal culture and identity is equivalent to respect environmental issues because for them, their identity is the country. Moreover, producing a cultural centre could be an opportunity of employment for the local aboriginal people. So in this way, the social, environmental and economic points of view are working all together. And this is why the innovation aspect of the project tends to the Concept idea.

The project is considered to be sustainable friendly, due to the characteristics of the design project. They tend to be more environmental in the first place, because of natural resources considerations to let natural lightning and ventilation get inside of the building. Secondly social, because of the design programme that was generated according to the aboriginal culture, and also because of the consideration of their way of living for the development of the design characteristics. And in third position the economic aspect, because the structure was considered to be pre-fabricated and in this way save time, costs and energy.



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