REFLECTION

Complex Projects

PROJECT: “Jose Marti-Castro International Airport: The Future of Sustainable Cuban Aviation”

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Introduction

As we know, design development is a circular process. There is no strong delimited domain. The beginning and the end should follow and improve one another. Therefore, the following document represents the mediatory design tool present at the transition between the two ends of the process. Hence, it is meant to evaluate the initial chosen methodology, presented within the graduation plan. Was the chosen methodology effective? Did it deliver the expected results? Within the following paragraphs, three methodical aspects will be discussed, underlining the effectiveness of the chosen design methods, the relation between the theme of the graduation lab and the chosen study case, and the relationship between the project and the wider social context.
Aspect 1

Relationship between research and design

My choice for the graduation studio of Complex Projects was easily made. I wanted to graduate within a studio that offered me the space to design on multiple operation scales, from global to local. Therefore, from the beginning I knew that no matter what my preliminary design would be (presented at P2), it would be a project that would not be confined within the given location. The studio even gave the opportunity of visiting the location, nevertheless, because of personal reasons I was unable to accompany my colleagues on their visit to the site. Fortunately, I was able to conduct my research without any limitations.

The context of the design was Cuba. Seeing how Cuba is a country that is represented by so many social, economic and political facets, it was of uttermost importance that an extensive study should be done on the entire context. As this would be a mammoth task for one person to do, we have divided it within the entire group and for the first few months, we created a research book that contained all the basis information needed to launch our projects.

During this research period, I was introduced to their economic system severely influenced by the local communist political machine. Coming from an ex-communist country myself and experiencing the evolution of the country towards a democratic constitution, I became fascinated with the way Cuba is trying to transition towards a more global economy. This is when I started my individual research. The first thought that I looked into were precedents of the aforementioned transition. The most notable ones were the privatization of Havana water utility within public grounds and the creation of the economic zone inside the port of Mariel. This led me to recognize a gap that still has to be filled, namely the air traffic. Within my research, I also discovered that over the years the interest in foreign investment on the island has doubled and that big international players such as UAE, Russia, Canada, France and Brazil are more and more interested in the international goods and personal traffic to and from the island. This is when I decided to focus on the Air infrastructure of Cuba. The following steps were to analyse the climatic conditions, the state of the current airports and the air traffic. Unfortunately, we spent an intense amount of time on creating the group research book that I had a small amount of time before the P2 to organize this research and transform it into a coherent design platform. This translated to a very impersonal and architecturally out of its place small intervention within the current international airport of Cuba. As a result, I came to realise very fast that it was not at all the direction within which I wanted to continue with my project.

Fortunately, during the summer holyday I had enough time to improve it. Within this timeframe, the research and design methodology split within two branches, namely: Architectural Identity and Programmatic Functionality. Over the summer, I read a multitude of Airport planning books and introduced myself to the IATA international rules and regulations on airport planning, security and design. I studied multiple airports of similar magnitude as the ones in Cuba and airports that have a high capacity. Nevertheless, more importantly, I looked upon airports that originated from countries that have had a major political transition. This helped me to further concretise my design and the idea of using the design as a political-economic tool. This translated into the idea of not having a small intervention as I presented in the P2, but have
a major intervention in the way of organizing an entire new airport. Therefore, my graduation trajectory changed towards the creation of a masterplan starting from the global economic integration of Cuba through an air traffic intervention (in the form of an airport) and ending on its manifestation within a new international terminal that represented the new Cuban identity the world. Seeing how the project had a global connotation, I knew that I had to ground it locally with the help of architectural design. Therefore, a big part of my research translated into the search for the Cuban architectural identity. For this, I used common architectural tools such as model making, sketching, and precedents analysis (Figures 1-3).

This method helped me to eventually translate the outdated and impersonal current architecture towards my vision of the future of Cuban architecture. For example, by manipulating physical models. I was able to evaluate new architectural forms (Figures 4-6)

During my architectural research, I came across the main architectural concept of the Cuban architecture, namely climate design. Almost all design decisions found within the architectural “ruins” of the city are based upon the interior wellbeing. As a consequence, I added a third main research branch: Sustainability. Until this point, sustainability was a side branch of architecture, but it eventually became a big focus part of my research and exactly as the other two branches, I tackled it with the same main concept, specifically, going from global to local. This resulted in the creation of a sustainability master plan based on multiple airport sustainability theses. The master plan includes global air traffic and its future transformation towards a more planet friendly operations, local sustainable fuel generation in the form of electricity, less fuel usage on the ground and the removal
of the airport from the city grid, not only electrically but also from all the facets. I achieved the master plan through research into fuel generation, more specifically, the sugar (one of the most important resources of Cuba) to electricity power plants, research within improvement of airport ground operations (seeing how they sum up to 80% of airport consumption), research of the population, water, food, materials, energy and their respective waste flows (as described in Better Airport Regions by Andy van den Dobbelsteen & Geert-Jan Verkade et al) and a local climatic research done with climate consultant. Eventually, all the branches formed the main conceptual trinity, bound together by the idea of zooming in from global to local.
Aspect 2

The relation between the theme of the graduation lab and the chosen study case

The Complex Projects graduation studio of 2016-2017 focused on the island of Cuba with the subtopic of water. Within Cuba, water is of high scarcity. It is a utility that has an outdated infrastructure and it is a sort of privilege that is reserved to resorts or a small majority of the island. It is also the only utility that in two places on the island (Havana and Varadero) has a sort of private ownership. Nevertheless, it is a common private contract, meaning that the government holds the majority of the company, the employees are locals but a foreign company provides the expertise. My final graduation project does not focus directly on the water problem, nevertheless, in researching over this delicate water situation, I came upon this special privatisation contract that further guided my projects towards the research of Cuban globalization. At the same time, my projects aims to remove itself from the city utilities grid. This includes the water grid. Therefore, within my project solutions such as water collection, redistribution and purification are incorporated on a large scale.

At the level of the entire studio the besides being placed in Cuba, the project proved problematically when facing the idea of anchoring it within the island. As we all know, an airport is a global entity. Therefore, a big part of the research was focused on how to give the airport the correct identity and place my project within the theme of the graduation lab. As explained above, I did this through architectural research (mostly with models) and tried to imagine the next step within the new architectural identity of the country.
Aspect 3
The relationship between the project and the wider social context

Cuba faces a possible rapid globalization process. It is imperative that the country tackles its entrance on the market with a conservative notion. I have experienced first-hand how big of an impact fast globalization can have on a former communist country. As mentioned above a lot of international entities are interested in the Cuban entry on the market. Since 2016 through the state owned company of Airports of Paris, France has acquired the rights of management and expansion of Cuba’s international airport, and therefore, international air traffic. Their future plan includes the expansion of the international airport of Jose Marti not locally, but by redirecting the traffic to a nearby military airport. Through my research, I concluded that this would immediately redirect a big sum on funds towards the refurbishment of local infrastructure towards the military airport and the refurbishment of its landings operations. Funds that could easily be used for improving the architectural and urban image of the current international airport and therefore, work on refining the country’s identity. This is why in my project I refused the notion of a dual airport and redirected all the research towards Jose Marti. Through my project I want to induce the idea of placing the country first and divide the load within all the aspects. It is imperative that within this process, Cuba does not lose its social identity within the prospect of economic growth.

Furthermore, due to the delicate utilities situation of the country, my project also introduces the notion of a future sustainable airport. An airport which does not leach from the city, but is an independent identity, an airport, which could easily adapt to future technological changes; therefore, limiting the need for major expansions and an airport considering both its local and global impact.
Conclusion

The circular design process developed exactly as I was expecting. Within each research and design iteration, the design became more and more clear. Apart from the small delay and design problem imposed by the group research during P2, the rest of the analysis proved to be very beneficial and in correlation with my design interest. I acknowledge the fact that through my own choice of multiple faceted exploration, I was faced with multiple delays. Nevertheless, the research was the only factor that kept my strong interest in the project. It has also given me a new view upon the world of architecture. Airport design and management are not a simple task; there are thousands of rules, regulations and factors to be taken into account and exactly the part of mediating between all of them has proven to be the most exciting thing that I have done during my entire study.