

Territory, Infrastructure and Architecture: an Integral Framework in the Tbilisi Train Rails.

The New Silk Road (officially named “Belt and Road Initiative”) is a project that was developed by the Chinese government since 2013. This initiative seeks integration between several Asian, African and European countries and its primordial ambition is to produce a cohesive economic area by building various types of infrastructures, increasing cultural exchanges, and broadening trade along territorial and maritime corridors. The New Silk Road could be interpreted in some ways as an intangible element. In other words, it could be said that it consists of a series of linear routes that are not completely defined by physical and concrete elements but rather by historical, social and economic factors. Nevertheless, it could also be interpreted as an extensive series of infrastructures that serve and answer to different realities that transform and change as it advances through territory. My personal interest for my graduation project is to comprehend these natural and inevitable transformations and to state that it is possible to integrate that physical territory (the ground as the space for events to occur), the myriad of infrastructures that work along it, and the public realm in the form of architectural objects to produce in the end an hybrid framework, breaking down the traditional oppositional system between nature and engineering. For this investigation I have structured this essay into three main parts. The first two will work as introductions for the subjects to be explored, focusing mostly on facts and ideas that already have been developed and thought of. This way, the first introduction will describe how territory, infrastructure and architecture are traditionally portrayed separately, while the second one will dive into the concepts and ideas I have obtained from numerous texts of how to integrate the mentioned factors into integral frameworks that mold them together. After having established this information I will relate the obtained knowledge with my personal interest, developing my own argument and position about how to act in my chosen site for the project and its particular realities: the segment of the “New Silk Road” that passes through the train rails of the city of Tbilisi in Georgia.

Commonly the natural reality (territory or ground) and the artificial reality (constructed elements) are conceived as oppositional systems in the built environment. The dialogue between ground, infrastructures and architectural objects is relatively new and its far from being developed. Back in the 1920s the idea of territory as something more than the mere surface for events to occur was clearly not explored nor developed. As a matter of fact, in many cases it was even encouraged. For example, the Swiss architect Le Corbusier in his “Five points for a new architecture” stated that “the liberation from the soil” was one of them. By building many of his projects on pilots, he denied the territory and the ground as a part of the built element and the relation between them was absent as they were two oppositional factors that worked independently. The same way of portraying architecture is still very common nowadays as most constructions still ignore the natural realities that surround them. Actually, this way of thinking not only affects the ways small buildings are portrayed but it ascends to greater scales such as large infrastructures. This is the case of some deltaworks built in the Netherlands. Usually we can find delta infrastructures that don’t consider ecology or natural existences to help find solutions and are conformed with working on the territory instead of with it. This subject is discussed in the article “*Damming deltas: A practice of the past?*” By Bregje K. van Wesenbeeck. In this text it is stated that a considerable number of deltaworks are composed of completely rigid structures and are unable to evolve and adapt to new circumstances or uses.¹ The consequences of this way of operating is the existence of infrastructures that tend to disrupt natural sediment fluxes causing negative effects like freshwater unavailability or farm harming, which affects local communities. The site I choose for my project (the Tbilisi train rails) is not extent from this problem of isolating natural realities from artificial realities. The rails extend over twenty kilometers along the city and the ground they cover never feels integrated or related with its surroundings except from the forced situations in which citizens have invaded it and tried to claim it as part of their public realm. It is clear that a new conception of things is needed in order to address these issues which in my opinion is the major problem that my site holds. However, I will refer to

¹ Bregje van Wesenbeeck, *Damming Deltas: A Practice of the Past? Towards Nature Based Flood Defenses* (Delft: Elsevier Ltd, 2014), 1. 4. 5.

my site later on, since it's important to first reflect on the existing ideas and concepts that explore these problems and propose systems to intervene in them.

The idea of creating an integral framework in architecture is as stated before, relatively new and only recently we have witnessed intents of applying these concepts into concrete and tangible projects. The following part of the essay will explore ideas I have obtained from different sources of information in order to clarify my concerns about the topic. Before talking about any real examples it's important to go back and rely on some theories that explored this concept and formulated its most essential notions. In her book *“Extratatecraft: The power of Infrastructure Space”*, Keller Easterling introduces the term “infrastructure space” and defines it as “the operating system of the world”, and although she opposes it in many ways she acknowledges its relevance and power. This way she goes well beyond the idea of infrastructure being the usual equipment a city holds such as underground pipes, wires, public constructions or any other physical element. Contrary to this traditional idea, Easterling refers to this “space” as a set of hidden agents that mold and shape our cities and urban zones. This way infrastructure is not exclusively tangible or palpable but is rather constituted by a set of complex networks that could include telecommunication systems, parking spaces and electronic devices among many others. What is relevant about these concepts in relation to my thesis investigation is the idea of contemplating an element from a wider perspective by understanding that a zone or territory is conformed by multiple factors that work together and interlace to serve multiple purposes and needs, producing in the end an hybrid framework that is composed by different realities and agents. However, although Easterling’s theory is compelling, I find it too broad and general which is why I also try to rely on more specific ideas and concepts. Such ideas can be found in the text by Hooimeijer, Lafleur and Trinh, *“Drawing the Subsurface: an integrative design approach”* where they are discussed and developed. The authors state that infrastructure should be an integral part of above ground planning and architectural design. The subsurface is divided into six categories, two of them play a crucial role in my personal investigation. The first one is labeled “constructed ground” which talks about a hybrid framework that operates between architectural design, landscape design and urban design, taking the ground (or territory) as the primordial agent to mold them together. By doing this the landscape becomes an organizing element in designing and comprehending realities, creating the possibility of understanding territory as infrastructure itself.² The second concept that relates to my interests is defined as “Thick infrastructure”, which portrays infrastructure as a built element that should create spaces for public activity.³ As the authors state in the text “Thick Infrastructure is a design research project investigating the intervention, expansion, and re-design of public infrastructure to include elements that enhance civic and public spaces, transforming single-purpose infrastructure landscapes into multi-functional systems. The project advances the vision of infrastructure as integrated into the fabric of the city, replacing the reality of single-purpose, engineered, and disconnected infrastructural landscapes”⁴. These concepts are pushed even further and analyzed in a more pragmatic way in the book *“The Landscape of Contemporary Infrastructures”* by Kelly Shannon and Marcel Smets, which is divided into four chapters, each one of them refers to a different and equally necessary component to constitute an integral project. The first one talks about how infrastructure is capable of shaping and molding the spatial organization of territory by becoming a footprint that can also enhance the local identity of the spaces where it acts. The second one focuses mostly on the physical presence that different infrastructures can impose on territories and how they should integrate with it not only by function but also from a citizen perception and point of view. The third chapter treats the subject of the multiple ways these infrastructures affect the way territory is perceived from a wider scale. The last chapter is in my opinion the most relevant with my project as it links the idea of the infrastructural object with the one of the architectural object giving importance to the public realm and the communal spaces it can and should create. It also focuses on the concept of the constructed object having more purposes than its original one, by composing a mutational element that is multifunctional and integral.⁵ After having

² Fransje Hooimeijer, Filippo Lafleur, T.T. Trinh, *Drawing the Subsurface: An Integrative Design Approach* (Delft: Elsevier Ltd, 2017), 63.

³ Fransje Hooimeijer, Filippo Lafleur, T.T. Trinh, *Drawing the Subsurface: An Integrative Design Approach* (Delft: Elsevier Ltd, 2017), 63, 64.

⁴ Fransje Hooimeijer, Filippo Lafleur, T.T. Trinh, *Drawing the Subsurface: An Integrative Design Approach* (Delft: Elsevier Ltd, 2017), 63.

⁵ Kelly Shannon, Marcel Smets, *The Landscape of Contemporary Architecture* (Rotterdam: NAI 010, 2017), 10, 12, 50, 120, 182.

stated these concepts it's important to finally talk about a real case study where these ideas have actually been applied. It could be said that one of the architects who understood this approach more appropriately was Rem Koolhaas with "OMA's Infrastructuralism" in the 1990s. "Koolhaas saw the infrastructure as a chance to emancipate architecture and urban planning from their separate categories and to link them operatively".⁶ This is applied in the "Kunsthal" project in Rotterdam, built in 1992. Koolhaas took three separate components and merged them together: the site or territory (a park), a museum or architectural object, and a highway or infrastructure. Together, they were able to conform a new integral element which can be interpreted as a continuation of the territory, a public building and a public infrastructure at the same time. This way, the building becomes an integral object, it's difficult to categorize it as a specific element since it is assembled by different realities and factors. All of these ideas and concepts have something in common: to understand the different realities and components of a project as more than specific and static ingredients but as dynamic elements that should come together and work in an integral form in order to be able to respond and solve different needs and problems.

These interesting concepts are very useful to comprehend the essence of how integral frameworks should be constituted by merging territory and built elements. However, they don't refer to one of the most essential factors about my potential project. It is evident that the authors from these texts are contemplating territory and infrastructures as great scale interventions in which they operate mostly as urban extent projects. This is of course important, but I feel that they never address the real social aspect of the problem. When I talk about social aspect, I don't refer to the communal and public character that an infrastructure can produce, but rather I think about a much more smaller scale in which the individual actor faces different needs and issues in a very specific and unique way. This way, the concepts in the texts end up talking about systems in which people are contemplated as a group of agents with common characteristics but there is never a zoom-in into their actual realities which are always depending on their particular environment. Nonetheless, this is understandable, since the concepts portrayed in the books intend to deliver general information about a wider idea. However, this is not the way I am approaching my project since my investigation is trying to respond to the specific reality of my site in the train rails of Tbilisi, where a myriad of precise and peculiar events are happening constantly, and such events need a much more specialized way of being identified and therefore, dealt with. The rails are located on the eastern edge of the city and are built on a corridor that reaches at its highest point around five meters above sea level producing as a result a natural limit for the city that could be interpreted as an elongated valley between two hills. The common perception is to think that beyond the eastern side of the train rails the city ends, which is not true. On the eastern side of this infrastructure around forty percent of Tbilisi's inhabitants live in a series of formal and informal settlements that in many ways seem to be forgotten and abandoned. It is common to find here many roads without pavement, houses in an advanced state of deterioration and an absolute lack of health, governmental and commercial services, among many others. In some ways it could be said that this is the backyard of the city, and it all starts from the separation that the rail tracks produce, like a river or a ravine that isolates two realities. The most interesting fact, however is that when I was there I could witness many social intents to break down this infrastructural barrier with informal actions that the citizens from both sides of the rails carried on constantly, although the rigid character of the rails produces an important resistance to completely mutate, evolve and transform. These so-called informal transformations along the rails are the reflection of specific needs and situations that the people who live at its edges are facing. These punctual events include for example a series of casual and improvised housing settlements which can be found on the edge of the tracks. In most of the cases these settlements have even created their own pedestrian crosses through the tracks giving them a public character that could be interpreted as a bizarre common space shared by the two sides. On other occasions other kinds of settlements can be found such as improvised markets right next to the tracks which have as its most common customers passengers from the nearby train stations and dwellers from the mentioned informal settlements. Apart from this, at some points the tracks are enclosed by the house's walls producing a narrow corridor between them. In some cases these houses have even built a door facing the railway in order to use it as a backyard or garden, clearly wanting to claim it as a public space. Nonetheless, there are points where the tracks are completely abandoned, enclosed by two soil

⁶ Andreas Ruby, Ilka Ruby, *Groundscapes: The Rediscovery of the Ground in Contemporary Architecture* (Barcelona: Gustavo Gili, 2005), 25, 26.

walls. In these areas people commonly meet to hide or use drugs, transforming the rails into an improvised space to carry out illicit activities. Other transformations are visible along the site such as multiple abandoned facilities like train stations where homeless people have taken over adapting them as informal shelters to live. All of these natural transformations and evolution processes occurring along the train tracks clearly show a need for immediate intervention. It is almost as if the tracks themselves are saying that they have become something more than just an infrastructural corridor which serves the only purpose of transportation. These punctual events where informal transformations have occurred are the main interest of my project. My aim is to be able to identify these specific and particular transformations, understand why they were produced (the personal and social problems behind them) and be able to respond to them with an integral solution that will include of course an architectural object, but will also be intimately related with the territory in which they are located and the public infrastructure that crosses through it (the train rails). To make an example, a situation to intervene would be the abandoned train station where homeless people are currently living. The solution would be to design a dignified shelter for poor people without a home, and at the same time address the train rails with an appropriate train station with the needed facilities while working with the ground and the territory as a tool to merge these events together when possible, creating an integral and multifunctional element. A possible strategy to do this is portrayed in the book "*Groundscapes: The Rediscovery of the Ground in Contemporary Architecture*" by Ilka and Andreas Ruby which explores the 'comeback' of the idea of the ground onto the scene of architectural design, especially the chapter they talk about what they call "Vectorial Ground"⁷. As the authors define it : "Translated to topography: the laws of movement provoke the birth of a vectorial soil, which is immune to the fluctuations of the topography for having its own corridors, as streets, bridges and tunnels..."⁸. This concept can be totally applied to the train rails, as it is a space in which its major characteristic is movement, transformation and evolution. The ground then, could become the same element with the infrastructure and the architectural objects and together they could become an integral object that is conformed by territory and built elements which advances in space responding to the various needs that the site holds.

My architectural posture regarding my graduation project after having explored these concepts and ideas is reinforced. My original question was about finding out whether is possible to integrate territory, infrastructure and architecture in order to produce an integral result. After this investigation I can say that I have learned that to do so, it is imperative to understand the different factors that constitute an architectural project and to interpret them not as isolated realities but rather as complementary ingredients of an integral framework that respond to a myriad of circumstances and is equally shaped and molded by them. However, as I have stated before, the social factor is imperative and the understanding of the different specific events that happen along the rails is the key element to develop the project. These transformations should be embraced, but in a controlled and planned way that works with all the factors that mold it: the territory and the built reality.

⁷ Andreas Ruby, Ilka Ruby, *Groundscapes: The Rediscovery of the Ground in Contemporary Architecture* (Barcelona: Gustavo Gili, 2005), 9.

⁸ Andreas Ruby, Ilka Ruby, *Groundscapes: The Rediscovery of the Ground in Contemporary Architecture* (Barcelona: Gustavo Gili, 2005), 52.

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