

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

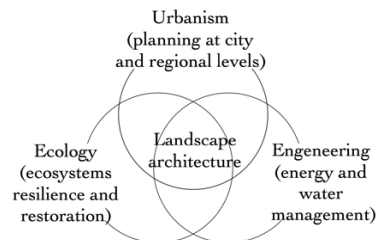
Personal information		
Name	Javier Sánchez Jiménez	
Student number	5519470	

Studio		
Name / Theme	Flowscapes/Circular Water Stories	
Main mentor	Inge Bobbink	Landscape Architecture
Second mentor	Ulf Hackauf	Urbanism, Enviromental Technology and Design
Argumentation of choice of the studio	<p>I chose the Circular Water Stories for three main reasons, all of them of the same-and great- importance to me.</p> <p>Firstly, it dealt with water, a fascinating topic on its own, but also with heritage, and deals extensively with its cultural importance and meaning, which is, to me, an enormously important component of landscape architecture: the relationship between the materials it is made of and the users. I do not think that there is any more universal material than water, for it is everywhere where there is life.</p> <p>Secondly, I already knew my mentor, Professor Inge Bobbink, from my first year in this master, and really enjoyed her teaching method and classes. After experiencing what I deem as the sharpest learning curve in my academical life during Q1 and Q2, I presumed she was the right choice for me. Moreover, I also chose her based on my belief that I would also suit her as a student, which is usually an angle that most students tend to overlook when choosing a mentor.</p>	

Graduation project	
Title of the graduation project	On the Rocks: a breakable heaven
Goal	
Location:	Sierra de Guadarrama, Madrid,

The posed problem,

The main problem in the Guadarrama mountain region is a growing unbalance which is revealed in three different themes: climate change, energy and urbanism, which will be elaborated later. All of them are deeply linked to water management and its related infrastructure, which has shaped the history and scenery of the area since the Roman times. These three themes are translated through the landscape, and have been chosen as not only fall into the scope of this graduation project, but the intervention on one has immediate consequences on the other. This means that neither a purely ecological (which would address majorly the consequences of climate change in the ecosystems), engineering (which would focus on energy and water storing) or urbanistic (which would deal with the planning only) approach can optimally solve the question; a landscape architect, which is in the intersection of this field, however, would. Additionally, this provides with an opportunity for a multi-layered design.



The aforementioned themes are further discussed below.

Climate change:

Although great precipitation fluctuations are a typical element of Mediterranean mountain ranges, this factor is enhanced in this location because of its geological features of the region. Since the bedrock is very shallow, and sometimes even superficial, it is hard for water to infiltrate in the soil-if there is any soil to infiltrate at all. Historically, dams have been built to secure water supply, especially from the 18th century onwards, when Madrid became the capital of the kingdom.

However, climate change has only worsened this unevenness, causing not only more evaporation and the ensuing water shortage during summer but also in more intense precipitations in winter. This, in turn, results in the dams having to release water in winter- a water they would much need six months later, when the dams reach the minimum levels for water supply, narrowly dodging the need for water restrictions in the city.

Energy:

	<p>This water scarcity has yet another effect: during summertime, the region must choose between releasing what little water is still in the dams to produce clean electricity and cope with the summer demand peaks-the highest in the year- or storing it for consumption.</p> <p>Urbanism:</p> <p>Being first the Spanish royalty's and afterwards, the aristocracy's darling, the area is dotted with a series of lavish monuments, summer houses and states. The heavy private and royal investments on the area had yet another effect on its landscape: it imported foreign architectural features and tree species that are seldomly seen elsewhere in Spain and are part of the area's identity today. This adds up to the rich late-medieval heritage, which encompasses a traditional water system based in the use of consecutive dams that feed several mills along a canal. Unfortunately, this holiday-house frenzy eventually caused a major overbuilding and made the region's economy largely dependent on the housing market. This morbid dependence is further aggravated by the dismantlement of the farming-sometimes precisely in favour of supposedly high-end housing developments- which results in the overbuilding on the areas closer to the city and the depopulation of the furthest ones.</p>
research questions and	<p><u>Research question:</u></p> <p>How can the Guadarrama mountain region's landscape heritage contribute to the mitigation of its water and urbanization unbalance?</p> <ul style="list-style-type: none"> - How can the effects of climate change in this region be mitigated, especially those related with precipitation? - How can the region overcome the ongoing energy crisis? - What can be done to subvert the ongoing depopulation in the north-overbuilding in the east dynamics? - What is this regions' (landscape) identity and how is it related to water management? - How did this region preserve its cultural/natural balance for nearly five centuries? Which of those practices, devices, etc. can we use today? - How could a large scale intervention in the area make it more resilient and balanced?
design assignment in which these result.	<p>The goal of this design assignment is to modify the water system in the region so to define a more balanced, resilient, and</p>

	<p>sustainable vision on the future of the region's landscape that also embraces and enhances its existing tradition and culture.</p> <p>In order to achieve it, inspiration and ideas can be drawn from the area's history combined with the already existing knowledge and technology.</p> <p>The result of the assignment can be described as the following:</p> <ul style="list-style-type: none"> - - The main instruments will be masterplan drawings in plan. These will be made during all the designing process and will be focused in resolving the three aspects of the unbalance. They will involve both large-scale and smaller scale drawings - An analysis of the Sierra de Guadarrama history and current state - Schemes and perspective to explore both the working dynamics and the landscape improvements
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[This should be formulated in such a way that the graduation project can answer these questions.

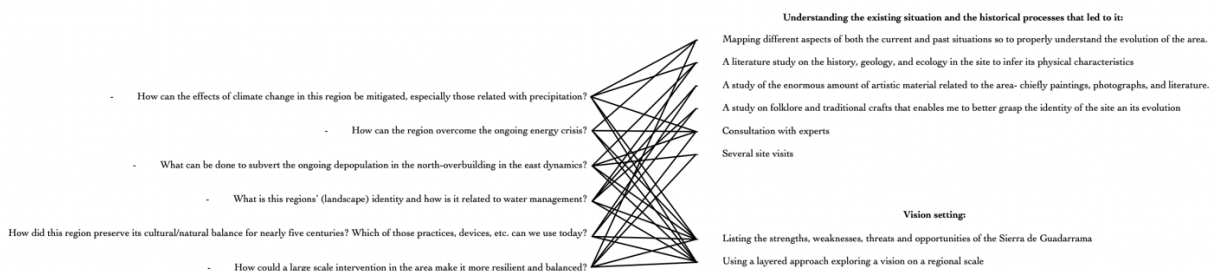
The definition of the problem has to be significant to a clearly defined area of research and design.]

Process

Method description

I intend to use the research by design method to answer my research question and subquestions. For this purpose:

- One or several specific sites in the area will be chosen to design how the landscape will look and function translating the principles from the regional scale to a site-specific scale.
- For communicating the findings of the graduation project, a report will be made which summarizes each research phase, where findings are communicated through conclusion maps, diagrams, graphs, drawings by hand and in the computer



Documents

Due to the large scale of this project, models are of a very limited utility, so I intend to express my design through drawings in different scales, especially plan drawings. I also believe that sections and perspectives-collages will be important as to render the qualities of the final design. I also deem that axonometrics will be featured in a lesser amount, as I believe that they are as good to express general qualities as perspectives are for a particular site. All of these will be linked by a written report.

Case study:

Ecological Conservation+Urban Development- Strategic Vision for Arnavutköy,
Istanbul by H+N+S Landscape Architects.

Literature and general practical reference

The following resources have been used for the analysis of the site, inspiration and as a general guide in the design :

Books:

- MacHarg, I. L. (1969). *Design with nature*.
- Braae, E. (2015). *Beauty Redeemed: Recycling post-industrial landscapes*.
- Fernandez Troyano, L. (2015) *Los pasos historicos de la Sierra de Guadarrama*
- Machado, A., & Appelbaum, S. (2012). *Fields of Castile =: Campos de Castilla*.

Papers and articles:

- National Institute for Agriculture and Food investigation and Technology, González, G. M., Leiva, C. L., Ruiz-Peinado, R., Senespleda, E. L., Onrubia, R., & Pasolodos, M., *Producción de Biomasa y fijación de carbono por los matorrales españoles y por el horizonte orgánico superficial de los suelos forestales* (n.d.).
- Bol. R. Soc. Esp. Hist. Nat. Sec. Geol., Mejias Moreno, del Pozo Tejado, J., Albacete Carreno, L. & Fermin Villaroya Gil. *Water in the Guadarrama Mountain Range*.

Maps and geographical and climatological data:

- National Geographic Institute of Spain
- AEMET (Spanish National Meteorology Bureau)

Paintings, photographs and other graphic material:

- Regional Photographic Archive (Madrid Region)
- National Museum of Art (Barcelona)
- National Museum of El Prado (Madrid)

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

My graduation project's topic revolves around water management, heritage waterworks and climatic resilience, all topics that are highly related to the Circular Water Stories lab. This lab, besides extensively dealing with the ongoing water-related issues present in the site, also includes a research on the traditional water systems-which is a major inspiration for my design proposal. It also focuses thoroughly on the relationship between water and people, a theme that I am very interested on.

The project's main intervention is on the landscape of the area, and its materials are landscape-related-water, rock, soil, vegetation- hence I believe that it strongly belongs into the Landscape Architecture track. In addition to this, it also involves some urbanism and architecture in the most detailed level, in which I hope to involve some of my background as an architect.

To conclude, I would like to reiterate that all these materials and hindsight are used to perform a spatial intervention, which I think it is the core of the MSc Architecture, Urbanism and Building Sciences.

2. What is the relevance of your graduation work in the larger social, professional, and scientific framework.

Regarding the professional and academic framework, I think that, left aside of all the useful information that my analysis and design may yield about this specific area where the intervention would take place, I think that another more global conclusions on resilience and climate change In the theoretical field, I think it may also have some interest as part of the discussion on scaling traditional local strategies to a regional scale-if local successes can be replicated in a bigger area without compromising its current values-and of scale itself, as it participates of the broader question of it large scale interventions still have a sense in these days.

Concerning the social aspect, I think this project may be relevant in two different strands. The first and most obvious is resolving the third issue exposed in the problem statement, which is a societal one. Nonetheless, there is a second, more subtle underlying theme concerning identity; by reinforcing and modifying the relationship between landscape and its human inhabitants, they may become more appreciative of its value, more conscious of its history and more aware of their own-now wilted and faded, blinded by the brilliant Madrid lights-cultural identity.