Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

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

Personal information	
Name	Gintare Norkunaite
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Studio	
Name / Theme	Design as Politics/ Let's work – industry architecture and the city
Teachers / tutors	Leo van den Burg, Claudiu Forgaci, Wouter Vanstiphout
Argumentation of choice of the studio	The decisions made in a political level influence our built environment. The interest in relationship between design and its underlying forces was the trigger point for choosing Design as Politics as graduation studio. The chosen project location is highly influenced by political forces, and represents an urban utopia, where urban design was a tool for political propaganda. Studio challenges to critically evaluate the impact of design interventions to broader society. The graduation project can contribute to the topic of Design as Politics studio Let's work – industry, architecture and the city by exploring specific type of industry – nuclear energy industry and its relation to built environment and job market. Decommissioning of nuclear power plant causes unemployment and spatial changes due to demolitions in nuclear power plant site and the city. In the course of transformation, there is an opportunity to reconsider the structure of the city which has been created according First Nuclear Age utopias and adapt it to upcoming tendencies of work styles and workplaces.

Graduation project	
Title of the graduation project	From Atomgrad to Atompark: Upcycling a nuclear energy landscape
Goal	
Location:	Visaginas, Lithuania
The posed problem,	The decommissioning dismantles not only nuclear power plant structures, it deletes populations, cultural values, memories, threatens built structures in the city and opens question of the role of buffer

	landscape.
research questions and	What a nuclear energy landscape should become after decommissioning of Ignalina nuclear power plant? How the region could develop after decommissioning of nuclear power plant the taking into account its natural, cultural values, social, spatial capital and infrastructure created by INPP?
design assignment in which these result.	To design a framework which provides guidance for developments in Visaginas region both in early and far future accompanied with design projects.

Process

Method description

METHODS and TOOLS

Exploratory scenarios for Visaginas development opportunities.

Theory essay as a tool research on transformability of nuclear facility towns, to identify attributes and resources that drives the positive transformation.

Mapping resources, places of opportunity for the synergy between technology, heritage and nature structures; culture patterns, elements of the Visaginas region, etc.

Literature review on legal strategic and spatial planning documents, decommissioning documents of nuclear power plant, radiation and ecology, case studies of other nuclear power plant cities, achievements in nuclear energy and alternative energy networks, industrial heritage, paintings and photographs of artists exploring Visaginas and nuclear power plants.

Interviews with locals as a tool to understand socio-economical situation, to test the urban design ideas; interviews with professionals that helps to understand their field of expertise integrated in the project.

Workshops with locals used for collective design tool for development scenarios of the city.

This methodology is supplemented by **Design as Politics methodology** which is based on series of lectures, workshops and excursion to Shenzhen for a broader understanding of the tendencies in a work market and relationship between industry, architecture and the city.

The method of scenarios is chosen because of uncertainty of future development of Visaginas due to controversy about nuclear energy and a lack of decision on the energy profile in Lithuania and Visaginas role in it.

Scenarios cannot be simply derived from inventories or analysis - they have to be designed (Rieniets, 2014). Scenarios reconsider decommissioning, transformations of INPP and its impact to the region. The principles for designing the scenarios are based tendencies, statistics, interviews, workshops, literature reading, site visits, impressions, decommissioning plans, tendencies in nuclear energy sector, spatial qualities of Visaginas region, social capital.

Scenarios define possible development paths which allow to draw the vision and identify resources: specific structures and situations which can be used or further developed in the future. Scenarios enable the description of the expected use of these resources by strategies and projects.

This is the combination of two scenario concepts: scenarios that produces a clear desirable future state and scenarios that creates the realm of opportunity, which goal is an open future (Rieniets, 2014). The latter aims for continual transformation of the city with no optimal end state which makes it difficult to provide verifiable arguments for evaluation. On the other hand, vision provide clean and transparent image of the end state, however, reducing the transformability. Combination of these two emerges in the shape of frameworks which contains the actual design issues and vision as a common objective.
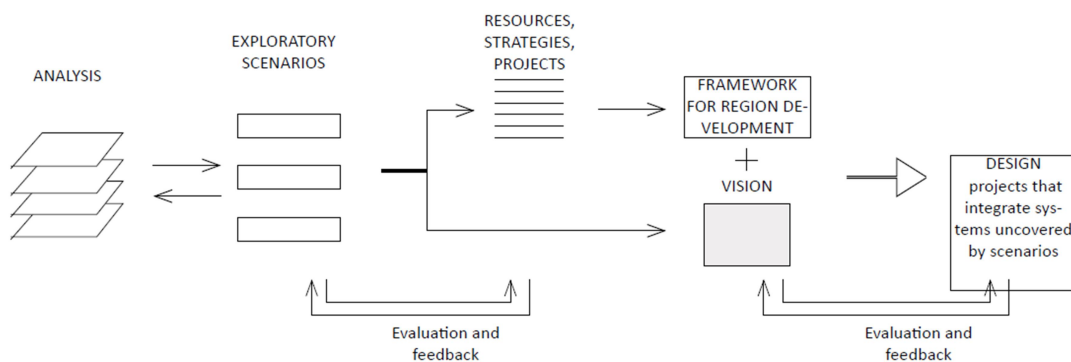
Literature and general practical preference

Theoretical framework is structured under three main topics:

1. **Utopia of Atomic Age** which started in 1945 with the first nuclear bomb. Nuclear technology was considered as a huge innovation with potential threat. To diminish a negative attitude, positive aspects of nuclear technology were praised. In 1953, U.S. President D. Eisenhower made a speech "Atoms for Peace", in which he announced the program to use nuclear energy to provide power in developing countries (Eisenhower, 1953). Following this, 1960s-1970s was the period for major constructions of nuclear facilities which created urban technological phenomenon - atomgrad (Wendland, n.d.). Atomgrads were exemplary cities with well developed cultural and sports facilities, green living environments, healthy and educated population, which, as a paradox, feared less the radioactivity impact to their health than decommissioning of nuclear facility. Such cities served as a tool for political propaganda supporting Atomic Age (Brown, 2013) until Chernobyl disaster. Paul Bracken (2012) claims that we have entered second Nuclear Age because of reemergence of nuclear technology. In terms of energy production, new generation nuclear reactors will be small scale, factory produced, safer or initially safe (nuclear fusion). It is a high time to raise a question how Second Atom for Peace utopia would affect our built environments, especially in atomgrads which are most likely to reorient themselves to new generation of nuclear energy.

2. **Transformability** theories and their relevance to nuclear power plant cities. Transformability being part of resilience thinking seeks for building the capacity for a city to shift to new development directions by defining and evaluating in time and in terms of opportunities resources of the city. The key aspects of transformability - novelty and diversity at a first glance contradicts to mono-functional, secluded new towns. However, further research shows their ability to develop the transformability attributes through time and pass the socio-economic transition, except for the cases of nuclear disasters. Nuclear facility cities share the set of several transformability features, such as strong communities of workers, highly educated people, diverse learning platforms, strong nature of the buffer landscape in safety protection zones. Transformability looks at thresholds, crisis as "windows of opportunity for novelty and innovation" (Folke et al., n.d.) by recombination of sources of capital, know-how and knowledge. The research and constant update of the knowledge about city's resources is the precondition that helps in urban planning to know if, when, and how to conduct a transformative change to avoid seriously undesirable situations.

3. **Ecological urbanism** theories are based on modern approach to ecology where human beings are considered as part of nature and cities their habitats. As part of the nature, urban environment should be designed accordingly taking into account natural processes of air, earth, water, life and ecosystems, addressing challenges that put humanity at risk and at the same time increasing human health, safety, welfare, seek for meaning and delight (Spirn, 2014).There are several concepts of ecological urbanism:

Cities are part of the natural World
Cities are habitats
Cities are ecosystems
Urban ecosystems are connected and dynamic
Every city has a deep structure of enduring context
Urban design is a powerful tool for adaptation

The second concept relates with the **biophilia** hypothesis which suggests that humans have an innate attraction to other living organisms and life's processes.

It also relates with the new approach to nature conservation that seeks to reestablish connections with nature which results in human beings regard for animals, plants and less appealing wild areas. (Wilson 1984)

Alberti, M., 1999. Urban Patterns and Environmental Performance: What Do We Know, Educ. Res. ed.
Berkes, F., Colding, J., Folke, C., 2003. Navigating social-ecological systems: building resilience for complexity and

change. Cambridge University Press, Cambridge.

Bracken, P., 2012. The Second Nuclear Age: Strategy, Danger, and the New Power Politics. Macmillan.

Brown, K., 2013. Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters. Oxford University Press.

Eisenhower, D., 1953. Atoms for Peace Speech [WWW Document]. At. Peace Speech Int. At. Energy Agency. URL https://www.iaea.org/about/history/atoms-for-peace-speech (accessed 1.3.16).

Folke, C., Carpenter, S.R., Walker, B., Scheffer, M., Chapin, T., Rockstrom, J., n.d. Resilience Thinking: Integrating Resilience, Adaptibility and Transformability. Ecol. Soc. 15.

Spirn, A.W., 2014. Ecological Urbanism: A Framework for the Design of Resilient Cities, in: The Ecological Design and Planning Reader.

Walker, B.H., Holling, C.S., Carpenter, S.R., 2004. Resilience, adaptability and transformability in social-ecological systems. Ecol. Soc. 9.

Wilson, E.O., 1984. Biophilia. Harvard University Press.

Reflection

Relevance

Societal relevance

The societal challenges in the project are related with unemployment of both highly educated people and workers with low education level, aging, population decline caused by decommissioning of nuclear power plant. INPP workers are forced to escape from the First Atomic age dream and face the uncertainty of their future which is even increased current tendencies of job market - raising precariat class. Controversial opinions about nuclear energy influenced by Chernobyl disaster and lack of decisions on political level keep the development of nuclear energy as an open question. INPP workers once was exemplary part of society, now are unwanted. Solutions showed in the project are relevant or will be relevant to other nuclear power plant cities in Eastern Europe and America.

In more general sense, nuclear power plant cities with decommissioned facilities show the end of utopia created by the First Nuclear Age and encourages us to think about the possible impacts of upcoming new utopia - the Second Nuclear age. Would it succeed to fulfill promises of Atoms of Peace and revolutionize our lifestyles, or become another failure to be solved for future generations? Thinking about the broader context, project becomes relevant to the global society as well.

Scientific relevance

Master thesis contributes to existing state of knowledge on new towns created to house nuclear power plant workers and nuclear energy (works of Kate Brown, Veronica Wendland, ect.), trying to answer questions, how to achieve sustainable economic transitions of cities that have lost their economical pillar, how to deal with the shrinkage and people emigration, safety and radioactive pollution.

In addition to this, project adds to the knowledge of transformability theories describing features that helps nuclear facility new towns, from a first glance contradicting transformable city image, to overcome successful transformation.

The presence of radioactivity in our environments are much more broad than just areas around the nuclear power plants. Landfills of waste leaks tritiated water, regions in Europe still suffers from higher radioactivity levels due to fallout caused by the accidents in Chernobyl power plant. The strategies for cleaning the landscape and strengthening ecological frameworks could be applied to those regions as well.

Time planning

	September				October				November				December				January				February				March				April				May				June		
36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

Milestones: P1, P2, P3, P4, P5

Tasks:
- Summer School Mapping Visaginas
- context analysis
- problem field analysis
- transformability research
- site visits
- scenario. Research by design
- writing theory paper
- concept development
- resources and vision
- site visits
- framework development
- design development
- design testing
- finalising design
- Compiling project