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Tensions of Infrastructure Space: Revealing disconnections in an Eastern European special economic zone

Valkanova, Ina

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Revealing disconnections in an Eastern European special economic zone

Ina Valkanova

This short paper presents the work-in-progress of research aimed at a meaningful transformation of a large-scale infrastructure space in Bulgaria. As part of an action research doctoral project, the paper explores the possibilities for the transformation of Trakia economic zone TEZ from an extractive operation into space with local value. Starting from the ideological position that change is always possible, the research test how we can counteract the dominant global narrative of contemporary production from a local perspective.

The paper describes the historical development of the industrial zone, highlights how the complex-mix of actors design use and transform the spatial reality of TEZ, and presents three tensions that occur in the actual reality of TEZ. Those tensions are not isolated processes but are instead part of an ecosystem of ambitions, perceptions, and activities. Therefore, we need to employ a systemic understanding of tensions to produce long-lasting change. The presented questions in the paper seek to raise a debate about the nature of tensions, their conceptual frameworks, and possible action strategies for activating tensions thoughtfully.

Keywords: capital-led development, infrastructure space, soft-system methodology, transformation, action research

Introduction

The short paper presents some questions, emerged from a research trajectory designed to improve the socio-spatial aspects of a large- scale, capital-led, infrastructure project. Focusing on the case of a Trakia Economic Zone in the region of Plovdiv, Bulgaria, the study aims to explore the potential of infrastructural transformation for the benefit of local dynamics and people.

Introduction to the case

TEZ can be characterized as a special economic zone (SEZ) - "geographically delimited areas within which governments facilitate industrial activity through fiscal and regulatory incentives and infrastructure support"[1] Historically, the typology of SEZ descended from the historic free ports that have initiated global trade.[2] However, as container shipping became the international standard, new inland centers of global trade could develop. Subsequently, modern free zones adjacent to seaports or airports or along border corridors appeared in the 1960s[3]. Endorsed by the United Nations Industrial Development Organization (UNIDO), zones began to multiply around the 1960s due to the increasing reliance of global manufacturers on offshore production. While emerging economies such as Asia or Africa are currently committed to attracting export production with an

[1] (United Nations Conference on Trade and Development, 2019, p. 128)
[2] (Easterling, 2016, p. 41)
[3] (United Nations Conference on Trade and Development, 2019, p. 128)

abundance of cheap labor, the former Eastern Bloc countries rely mostly on their proximity to European markets to draw foreign direct investment.[4]

The choice of TEZ as a case study derives from the inductive nature of the research. Although concerned with a transnational topic, my initial interest was not in understanding the global dynamics of production but in making sense of the specific environment of TEZ, which I first encountered in TEZ in 2016.[5] Trained as an architect, I struggled to make sense of the spatial reality of the zone. It seemed that the large factories in the form of big boxes, scattered around the periphery of Plovdiv, landed in the landscape almost accidentally. Observing the foreign trucks going in and out of the factories, I sensed that the project was a clear articulation of transnational exchange and distribution of products and people. While TEZ is locally disembedded, it is globally connected. This assumption became validated through my first inquiry of the zone management, which was surprisingly easy to initiate. Often such "back door" spaces are perceived as closed enclaves, hostile to outsiders. However, I was quickly able to get almost unlimited access to managers, workers, documents, maps, and processes that helped me reconstruct the creation timeline of TEZ.

The **fragmented way in which TEZ was conceived and developed** contributed to a certain chaotic aspect of the planning processes of the TEZ. This disintegration led to situations where production facilities were built on locations without sufficient infrastructure. Even today, global companies are forced to stop production occasionally due to electricity supply failure. Another critical aspect of the current state of the zone is the lack of available human labor. In the 2000s, the abundance of cheap labor force drove many international companies to move to Bulgaria and, until today, remains an essential factor in the decision of a global company to outsource production to Bulgaria.

Influenced by the European environmental agenda, the zone is in **an important moment of transformation.**[6] Since there is no straightforward recipe for how such adaptation should occur, the different parties are forced to learn and experiment. This course of change is indeed people-centered - the zone is influenced by individual ambitions of people in power and experiences and desires of the thousands of factory workers that each company is fighting hard to keep. This moment of tension between people's desires and politicians' ambitions, coupled with the overall EU urge to re-think the ecological and social aspects of industrial development, provides a productive opportunity for changing the individual perspectives towards more locally valuable and embedded conditions of the zone.

Playing with tensions through revelation and activation

My research hypothesis starts from the assumption that the disconnections between the various TEZ actors produce tensions that influence each actors' practice, decisions, and operation mode. The actors are, however, firstly often not aware of those tensions and secondly do not comprehend the systemic nature and relation of those tensions. The research focuses precisely on revealing those tensions, with the hope to activate them through a collaborative effort to produce meaningful change. For the purpose of the study, tension is framed as a situation in which there are different needs or interests that cause difficulties. The role of tensions as a trigger for transformation has been adopted in various fields of study and practice. Notably, activity theorists have positioned tensions, contradictions, and gaps as "dynamic resources and engines for change."[7] Steven J. Jackson uses the notion of breakdowns and repair towards developing a hopeful collective approach to technology, similar to the ambitions of my study. Although TEZ may not be at a moment of visible breakdown, the zone is a space of deep tensions between different aspirations and needs of both its creators and users. To paraphrase Jackson's quote, "It is precisely in the moments of tension that we learn to see and engage our infrastructure space in new and sometimes surprising ways."[8] Starting from this position, the research aims to grasp and reveal the tensions

[4] (Pop, 2018)
[5] As a director of the international festival One Architecture Week I planned an exhibition project on contemporary production, TEZ being of the cases.
[6] The new funding possibilities of EU Green deal are perceived as the key future resource for funding industrial parks. The management of TEZ and many municipalities in Bulgaria are currently working on a strategy that responds to the requirements of EU Green deal objectives.
[7] (Engeström & Sannino, 2010)
[8] (Jackson, 2014, p. 230)

of TEZ. The effort is focused not merely on an accurate description of the tensions but on building knowledge of how they can be used in a productive way to re-imagine large-scale infrastructure.

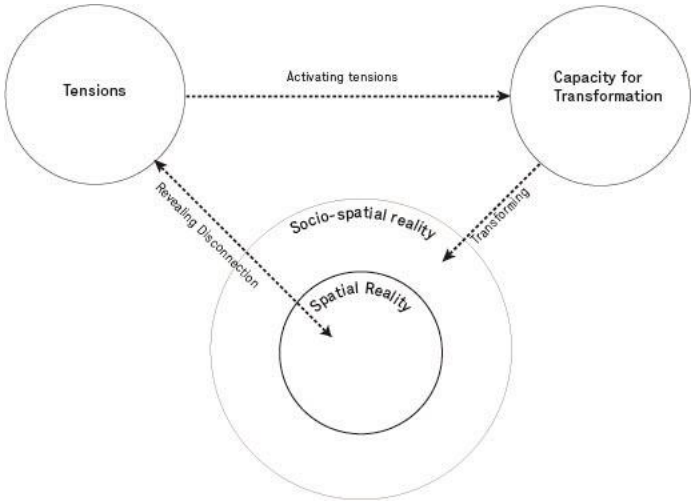

Figure 1. Research framework

To tackle the research problematic, to reveal disconnections and tensions, and possibilities for the transformation of TEZ, I adopt a "situated[9]" perspective through an action research approach.[10] This methodology's choice is motivated by the need to develop an ongoing engagement with the actor-network of TEZ. This means I situate myself within the practices of TEZ - municipality, private investors, workers, developers. In the study, I employ Soft-system methodology (SSM) - a particular research trajectory of the action research family. Soft system methodology is a process that aims to find ways of "understanding and coping with the perplexing difficulties of taking action, both individually and in groups, to improve the situations which day-to-day life continuously creates and continually changes[11]." Although SSM requires elaborate explanation in my academic field - urban studies - I will not provide a detailed research design in this paper. I believe that SSM is well known and recognized approach in the system thinking field, and the audience is knowledgeable about the methodology. I will, however, mention the tools and actions I have employed to engage the four selected groups in a long-term collaborative trajectory.

I have chosen to focus on Industrial Park Kuklen (one of the six parks of TEZ) and engage with the following practices in a shared goal-oriented research process.

- TEZ Management and Developers

- Municipality of Kuklen

- Companies of Kuklen Industrial Park

- Factory Workers in Kuklen

[9] (Haraway, 1988)
[10] (Kemmis, 2014)
[11] (Checkland, 2000)
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Figure 2. Stakeholder map based on the "penta-helix" model, Source: Cities of Making

The selection of actor groups includes the most relevant actors and users of TEZ and is based on the level of influence on the transformation of TEZ, on their distinct positions and (dis)connections. Except for TEZ management, which works closely with most actors, the other groups operate in their particular area and rarely interact. The worker's group, for example, even though crucial for the future of TEZ, is never included in decision-making processes and, therefore, highly disconnected from the spatial production of TEZ.

I **first** approached the case of TEZ through my own personal perspective - observation and semi-structured interviews. In the **second stage**, I spent two weeks working within each group on the related task. In the third stage, I am currently in; I conduct workshops with each group to collectively explore and define the problem situation and sketch purposeful activity models. The key here is not to start from a concrete problem but to make sense of a complex situation and reveal underlying issues, tension, and challenges. Through this stage, tensions between individuals' desires, ambitions, and goals naturally emerged. Currently, I am in the process of revealing the emerged tensions through diagrams and visual methods (photo and video), with the intent to position them as a starting point of debate with all actor groups in the **third stage of research**. **The final fourth stage** will be focused on a concrete intervention, which emerges as a direct response to the explorations of the tension in the previous steps.

I will briefly present three tensions that emerged out of this engaged research process.

The first tension is related to the nature of the development of TEZ. As already described in the introduction, the zone is conceived out of the private endeavor. Sienit has acquired a portfolio of lots to sell to foreign investors, and their main business logic lies in turning profit out of the real estate. Logically, there should be no doubt about the private nature of TEZ. However, both the company and the international production facilities positioned TEZ as a public project in the workshop we conducted together. The reason for defining their status as public is the high number of workspaces the zone produces.

Additionally, TEZ is expected to contribute to a long-term innovation landscape of the region through the education of skilled engineers. Therefore, they would aim to acquire public funds to develop the projects. How do we define shared public-private interests? How should we ensure a private commitment to a common good?

The second tension lies in the relationship between labor and automatization. While the companies expect governmental support for their private activities, in the collective workshop they sketched an activity model focused on automating the production processes. Automatization is an understandable desire since Bulgaria is

the fastest shrinking country globally, and the labor force is becoming immensely scarce. However, this raises the question, why would the government fund this process and support the complete automatization of the manufacturing activities? What type of infrastructure of care is needed for the transition of people in an automatized economy?

The third tension I would like to present is the disconnection between promise and reality in the education sector. Pressed by the shrinking demographic of Bulgaria and the persistent need for skilled labor of the factories, education is an integral part of the strategy of all actors of TEZ to attract and sustain investors. Raising the quality of technical education is often mentioned as one of the key reasons why the government should support the creation of industrial zones. In 2021 the first dual course opened up in TEZ in the technical school of Kuklen. However, there was no interest by the local students, which are predominantly from a minority background. This lack of willingness to study in the course was blamed on the general passive attitude of the school children.[12] However, after engaging with the students of the school of Kuklen, I realized most of those kids were not disinterested, but they were unaware that the industrial zone even exists. This process shows an extreme disconnection between intentions, perceptions, and reality in one of the most pressing issues of TEZ.

Except for these presented examples, there are many other tensions of the practice of TEZ. What is a common thread between all of them is that they are related to each other. None of those cases is a product of an isolated process, but they are all part of an **ecosystem of activities and attitudes towards contemporary global production development.**

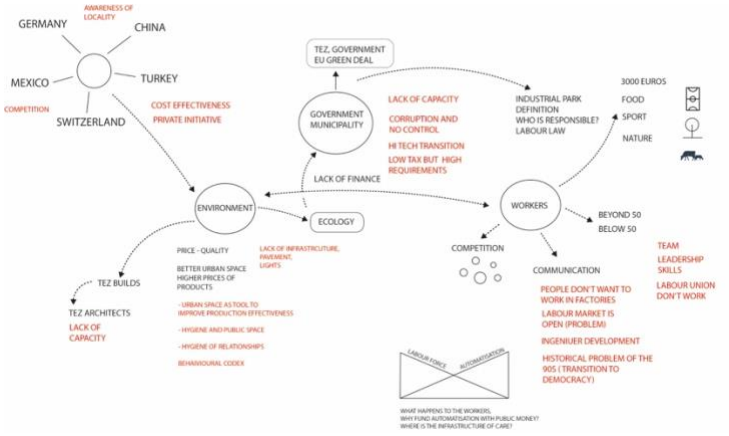

Figure 3. Rich picture of three international production companies

Therefore, I would like to raise the following questions for discussion and input:

1. How do we theoretically define tensions are triggers for change? What is the difference between contradictions, inconsistencies, and tensions, and they all result from the same system or somewhat interdependent of each other? What frameworks can we use to conceptualize the understanding of tensions are parts of systemic thinking?

2. How can we design action trajectories that create awareness and activate tensions to produce desired changes in a systemic environment, such as a global production network in local settings?

[12] The general sentiment in explanations of various parties, regarding the failure to engage students in the dual technical degree was that students are not interesting in studying these subjects. However, many of the teenagers were highly interested in automobiles. The question should be rather what type of engagement methods are employed in the school practice and why are those methods failing.

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