Global Perspectives in Spatial Development

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Abstract As our planetary boundaries become tangible, spatial development sites are increasingly experienced as sites of spatial conflict - places where economic, ecological and social goals compete for legitimacy. At this juncture, two global sustainability narratives orient planning towards the resolution of spatial conflicts: ecological modernisation (focused on technological development) and political ecology (justice-focused, and critical of the socio-ecological consequences of technological development). While these narratives are not necessarily exclusive, their relative contribution to steering urban sustainability transformations is highly debated. To understand this planning debate and to help students position themselves within it, the course **Global Perspectives in Spatial Development** explores how planning mediates between societal actors, ecosystems, and technological development in concrete spatial conflict cases ranging from green urban infrastructure to mining peri-urbanisation to suburban eco-villages, to name a few.

The central inquiry asked in the course is: **Can spatial planning prevent the negative environmental and social impacts of development without causing unintended "collateral damage"**? To transform students from passive learners into investigative and critical researchers answering this question, the course uses an Inquiry-Based Learning approach. For this reason, students conduct a "spatial investigation" based on a development-related conflict of their choice. Each investigation is presented to the class in three sequential stages (Scene, Timeline, and Plot), thus allowing iterative peer review and instructor feedback. Students' work culminates in a 2,000-word piece of investigative journalism (plus annexes and references) that synthesises their spatial and critical discourse analysis of a spatial development conflict.

Learners The Advanced elective seminar (5 ECTS) attracts a highly international cohort of approximately 15–25 full-time Master's students in the M.Sc. Spatial Development and Natural Resource Management and M.Sc. Ecosystem Services programs at the Technical University of Dresden, Germany. Participants are generally in the second or third year of their degree programs. The profile of enrolled students is extremely diverse: students enter with backgrounds in life sciences, environmental engineering, social sciences, or economics. This diversity is a central feature of the classroom dynamic, as students validate their own local knowledge by selecting case studies from their home regions, located across the Global South and North.

Approach

Inquiry-Based Learning

We use the 5E Model (Engagement, Exploration, Explanation, Elaboration, Evaluation) that is part of inquiry-based learning. Following this approach, during the semester, students engage with a **spatial development conflict**, explore it through systematic investigation, explain it using theoretical concepts, elaborate their analysis by applying and extending these concepts, and finally evaluate the conflict and its broader implications:

Engagement Students are introduced to urban planning case studies framed as a spatial conflict. They are invited to approach their cases as spatial investigators, which sparks curiosity about the way power conflicts and environmental impacts play out in spatial development sites.

Exploration Students analyse urban planning case studies by conducting forensic spatial analysis and critical discourse analysis. This involves the investigative mapping of spatial evidence and the analysis of narratives linked to power dynamics between stakeholders.

Explanation Students are able to explain and exemplify fundamental concepts in ecological modernisation and political ecology, including urban metabolism, ecological urbanisation, and urban political ecology. They can articulate how these theoretical frameworks help interpret spatial conflicts and planning outcomes.

Elaboration Students apply these theoretical concepts to analyse spatial planning conflicts in greater depth. They connect empirical findings from their selected case study to broader theoretical debates, compare alternative interpretations, and explore how different frameworks highlight different dimensions of the conflict.

Evaluation Students are able to critically evaluate a spatial planning conflict from the viewpoints of diverse stakeholders, from corporate developers to local plaintiffs, identifying underlying assumptions, power relations, normative positions embedded in arguments, and potential confirmation biases. Additionally, they are able to reflect on the strengths and limitations of their analytical approach and theoretical lens.

Investigating Conflicts Spatially

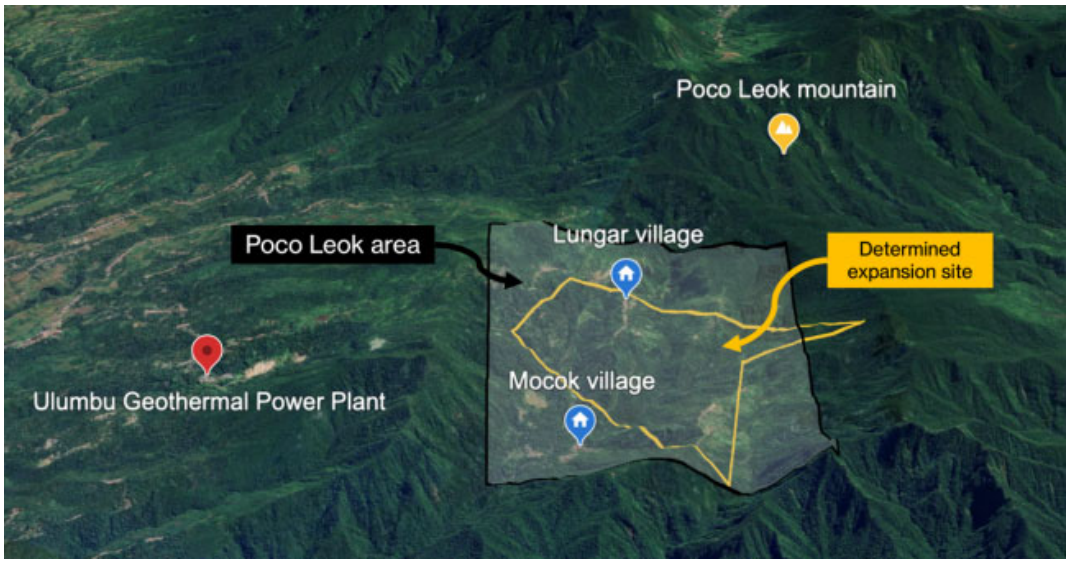
The module promotes learning by encouraging students to act as the primary researchers of a "spatial investigation" based on an area undergoing development where differing interpretations of its environmental and social impacts are in conflict. To do so during the semester, the student-investigators describe a spatial conflict, reconstruct its development, and critically assess the responsibility and alternative spatial planning measures that address the conflict. This approach sparks curiosity

about the way power conflicts and environmental impacts play out in spatial development sites.

At its core, the approach guides students through three consecutive stages of investigation: describing a conflict, reconstructing its development, and critically assessing responsibility and future implications.

1. Students examine the **scene** that establishes the empirical and discursive foundations of the conflict. They introduce the spatial development project, delineate its geographic and material boundaries, and present opposing perspectives by juxtaposing claims of environmental and social benefits with allegations of harm.

Figure 1. *Recreation of the scene of the conflict: proposed location of the expansion of the Ulumbu Geothermal Power Plant in Poco Leok, Flores Island, Indonesia and the surrounding social and ecological landscape. Drawn by course participant: Made Dayita Priya on Google Earth*



2. Students reconstruct the **timeline** of the conflict. They synthesise the historical emergence and evolution of the conflict, identifying key events, drivers, pressures, impacts, and responses. Particular attention is given to the roles of stakeholders and the multi-scalar dimensions of the conflict — from local to global — in order to clarify how social, ecological, and political processes intersect over time.

Figure 2. *Timeline of the developments surrounding the proposal to build wind turbines in the Ebersberger Forst, Bavaria, Germany- Drawn by course participant Anna Molema using Canva*

3. Students analyse the **plot** of the conflict. Building on the previous stages, they assess causes, assign responsibility for negative impacts (e.g., spatial planning failure, crime, collateral damage, or accident), and explore potential regulatory or normative solutions.

Critical Spatial Analysis

To carry out this investigation, the course uses mapping as a "counter-investigative practice" based on Forensic Architecture principles. Students learn to spatialize narratives of "extractive violence" and "slow violence"—harm that is often invisible to state-centric planning discourse. By combining satellite imagery with lived testimonies and stakeholder quotes, students create "palimpsestic" representations of territory that challenge the abstraction of traditional planning theory. This reconfiguration turns the planner into a spatial investigator capable of visualising systemic injustice.

Integration and Diversity

As different topics of the curriculum (i.e. planning discussions on green gentrification or the unequal distribution of urban infrastructure) embed equality and inclusion concerns, we consciously counter the well-documented tendency in spatial planning scholarship to privilege male and Global North–based authors, by intentionally including relevant contributions from historically marginalised scholars and perspectives in the reading list. Additionally, we aim to broaden the scope of classroom discussions by encouraging students - who have varied geographical backgrounds - to select case studies of their choice, including their home countries.

Scope

The course frames spatial planning as the medium by which territorial land control, understood as the integration of ecosystem, societal, and technological systems, takes shape in contemporary urbanisation. In this context, the instructors challenge the imaginaries of four contemporary "ecological scenes", where spatial conflicts between local impacts and global sustainability narratives are still being conceptualised:

a) ***Urban Green Spaces***: This scene challenges "green gentrification" and examines how green infrastructure can serve as a driver of segregation.

b) ***Circular Cities***: This scene challenges the dominance of urban ecomodernism by introducing concepts and practices associated with urban metabolism, degrowth, and frugal urban innovations.

c) ***Energy Transition Sites***: This scene problematizes the technocratic "low-carbon city" imaginary by foregrounding the material and social impacts of energy transitions through the lens of "convivial technologies".

d) ***Urban Hinterlands***: This scene challenges the subsidiary principle in planning by introducing environmental injustices connecting operational landscapes and urban areas across global supply chains.

Activities

The module is delivered through a mix of six instructor-led thematic lectures, followed by debates, three stages of student presentations, and two method workshops that support students during their investigation and help them achieve the learning objectives:

a) ***Instructor presentations*** introduce students to key concepts, theories and narratives of sustainability, spatial development and planning.

b) ***Student presentations*** allow students to gain constructive feedback from peers and instructors about their consecutive stages of investigation. The presentations are highly structured and timed to enable students to exercise their ability to synthesise and prioritise information, and to concentrate on persuasive argumentation.

c) ***Method workshops*** explain useful analytical lenses for spatial development conflicts.

d) ***Class debates*** deepen the understanding of the read articles.

e) ***Individual mentorship*** allows for the review of the students‘ work with the instructor.

Assessment

Students‘ performance is based on class participation, student presentations, and responses to weekly readings’ questions in the class digital platform. The culmination of these cumulative assignments is a 2,000-word investigative journalism piece (plus references and annexes) on a spatial conflict, where students need to persuasively argue whether spatial planning can prevent the negative environmental and social

impacts of a given spatial development project without causing negative unintended consequences.

AI-Integration

The assessment of students' pieces focuses on the quality of their arguments rather than on their ability to display content. Rather than banning AI to produce this argument, at the beginning of the semester, we shared with each student:

a) a prompt that can complete the assignment using Generative AI (see Annex), together with

b) a copy of the generated assignment produced by a deep research engine, based on the case study chosen by the student

We then encouraged the students to use this as a mere "AI-Prompted Baseline" useful for potential references and structuring, and challenged them to think deeper and present nuanced arguments for their cases instead of rephrasing the prompted assignment. To pass, a student's paper must prove "intellectual superiority" in four areas of argumentation: concision, consistency, complexity, and persuasion. A positively graded term paper should be significantly more concise, consistent, complex, and compelling. In doing so, we encouraged the use of AI as a source of creating the first draft; however discouraged students from outsourcing critical thinking to AI.

As we generated and shared an AI version of each student's assignment to serve as the performance baseline, to receive a passing grade, students must demonstrate a higher capacity in the following aspects:

Concision
The paper communicates ideas clearly and succinctly.
The writing demonstrates intentionality, avoiding fluff.

Consistency
There is a coherent argument throughout the paper.
The paper is logically organised: there is a clear progression of ideas with smooth transitions.

Complexity
Concepts are used correctly with proper scientific language and referencing.
To interpret the case study, the paper engages with advanced theoretical lenses.
Theories and concepts are applied with understanding.
Multiple perspectives are considered and evaluated.
Empirical information is analysed in depth.

Persuasion
The paper makes a compelling claim and presents a nuanced argument.
The case addresses the module's core themes and situates the findings in the larger context of spatial development.

Feedback

A formal Teaching Analysis Poll (TAP) was conducted in December 2025 by the TU Dresden Centre for Interdisciplinary Learning and Teaching. The results from the TAP indicated high levels of student engagement and satisfaction with teaching format, strong appreciation of interactive and case-based learning, as well as challenges related to reading workload and conceptual complexity. In response, for next course iterations, the instructors aim to simplify the reading workload by using guiding questions, and to improve the discussion formats by structuring students' investigations around a debate format.

Annex

Student „AI-Baseline" Prompt

You are a Master's student at the intersection of environmental and social science. In a course you are taking, instructors say that there are different sustainability narratives, like ecological modernisation, which will focus on the positive dimensions of technological development, or political ecology, which is more justice-focused and will be critical of the socio-ecological consequences of technological development. The instructors also say that these narratives may orient spatial planning towards different conflict resolution pathways.

You have to write an article based on a case study where there are conflicting interpretations of the environmental and social impacts of an area undergoing spatial development.

You have chosen the case study of [xxx].

Broadly speaking, your article should tell a compelling story about the sustainability narrative that prevails after having analysed your case study. To do so, the article must elucidate whether the negative environmental and social impacts of your case study are a necessary negative consequence of an otherwise fair and positive modernisation process, or whether they point to the need for a different development paradigm, like political ecology or degrowth.

You do not have a preferred source or data to include.

You would like to provide a balanced representation of stakeholders.

Output your article as an editable Word document that can be downloaded from [LLM]. Format the final output as if it's ready for submission. Include graphs and images of the area or the conflict, as needed.

Your article needs to follow the structure and style described below.

Article structure

Your article should have a maximum of 2000 words, plus as many notes, references, tables, graphic materials and appendices backing up and supporting the text as needed.

The article must refer to sources describing the conflict or the development and quote supporters and opponents of the project.

The article should follow the structure described in Table 1 below:

***Table 1**. Article structure*

1. *Introduction to the spatial development site, its spatial boundaries and its observable social, ecological and material attributes.*
2. *Description of the conflicting accounts of the development's observable environmental and social impacts*
3. *Brief description of the investigative methods for readers to evaluate the credibility of your investigation*
4. *Description of drivers and pressures that contribute to the spatial development conflict according to existing literature, and reconstruction of the historical emergence of the spatial development conflict:*
   - *Sequence of events (social, ecological, planning and development)*
   - *Spatial dimensions of development, planning and conflict (local, regional, national, and global)*
   - *Actors involved in the spatial development (those directly involved in it, those indirectly benefiting or suffering from it, those intentionally influencing it)*
5. *Assignment of responsibilities for the development's negative impacts or perceptions among stakeholders: are they a result of a planning malpractice or failure, a crime committed by stakeholders outside planning, collateral damage, or an accident?*
6. *Description of spatial planning norms or standards that may have reduced or prevented the conflict, and their potential unintended consequences*
7. *Support of the case study to global sustainability narratives: does the conflict support the case for ecological urbanisation or urban political ecology?*
8. *Footnotes with references*

Article style

Your article should take an investigative journalism style that is concise, consistent, complex, and compelling, as outlined in Table 2 below:

***Table** 2. Attributes of your writing style*

Concision	*The article communicates ideas clearly and succinctly.* *The writing demonstrates intentionality, avoiding fluff.*
Consistency	*There is a coherent argument throughout the article.* *The article is logically organised: there is a clear progression of ideas with smooth transitions.* *Concepts are used correctly with proper scientific language and referencing.*
Complexity	*Students engage with advanced theoretical lenses (i.e. political ecology vs. ecomodernism) to interpret their case.* *Theories and concepts are applied with understanding.* *Multiple perspectives are considered and evaluated.* *Empirical information is analysed in depth.*
Persuasion	*The student makes a compelling claim, yet the argument is nuanced.* *The case addresses at least one of the following core themes: ecological modernisation, urban political ecology, or urban metabolism.* *The article situates the findings in the larger context of spatial development.*