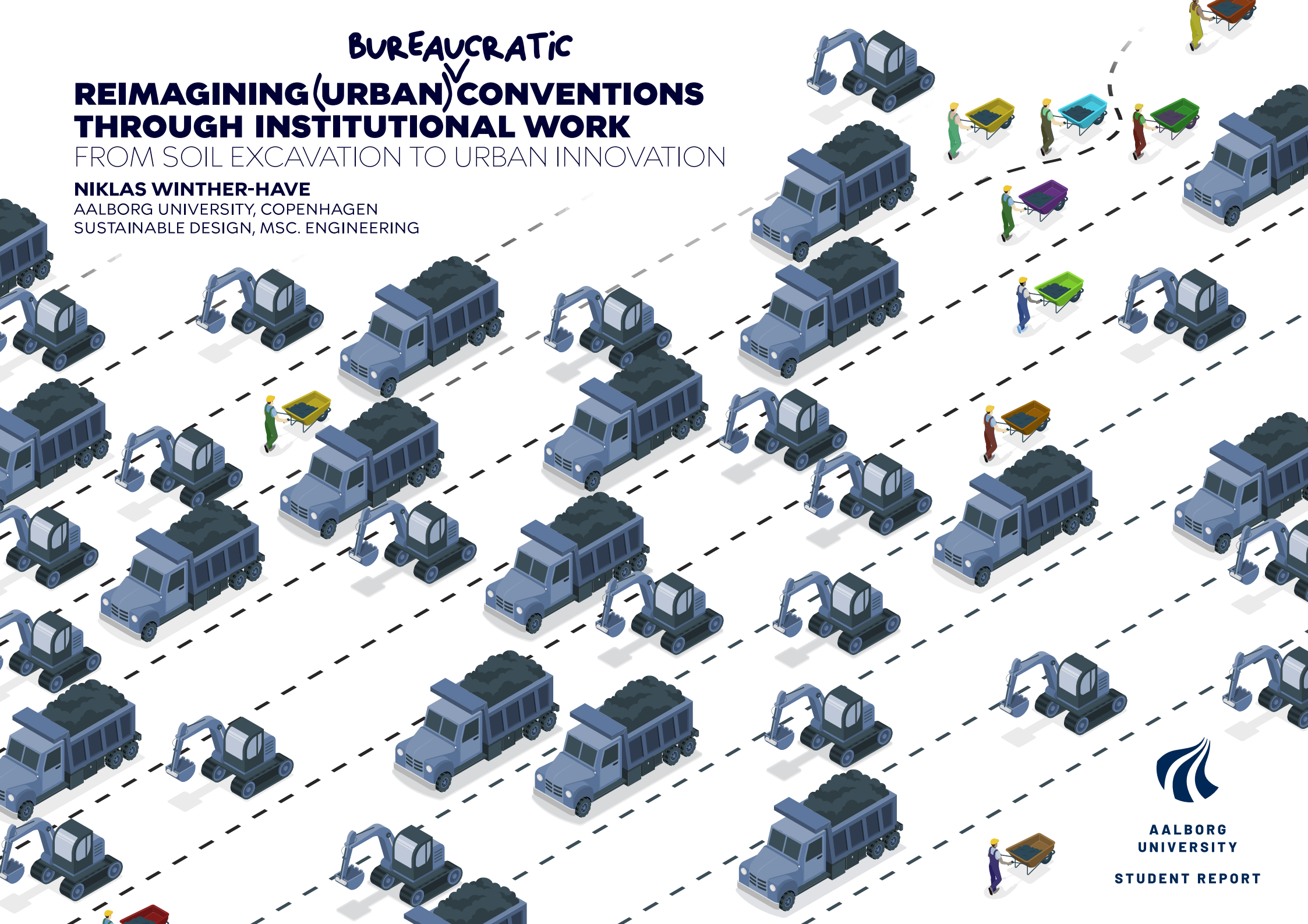
REIMAGINING (URBAN) CONVENTIONS THROUGH INSTITUTIONAL WORK

BUREAUCRATIC

FROM SOIL EXCAVATION TO URBAN INNOVATION

NIKLAS WINTHER-HAVE
AALBORG UNIVERSITY, COPENHAGEN
SUSTAINABLE DESIGN, MSC. ENGINEERING



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ABSTRACT

Using an action net perspective and engaging in institutional work, this study aims to shed light on the dynamics and process of identifying and mobilising contradictions in institutional change processes, providing recommendations for individuals within urban bureaucracies who seek to intentionally impact and facilitate sustainable transition processes within established institutions.

Working in urban bureaucracies often reveals contradictions in established and taken-for-granted structures, such as planning objects which simplify complex phenomena to ensure efficient planning and governance. However, if these contradictions are not acknowledged and addressed, they can become embedded and give rise to institutional conflict. While some choose to remain either complacent or demand immediate resolution in such situations, this study, by drawing on a case study of bureaucratic urban soil management in Copenhagen, explores an alternative path and the potential for curiosity and contradictions to reimagine everyday planning objects.

The results emphasise the importance of comprehending and situating change processes within the historical context of institutional structures. Aligned with a dialectical perspective, it highlights how important understanding the contradictions and underlying mechanisms that led to their development is to ongoing change processes.

Finally, these results demonstrate the value of adopting a less confrontational approach, such as an action net perspective, for identifying, assessing, and mobilising contradictions to facilitate change processes. They emphasise the potential of collective action in addressing complex urban planning challenges while recognising the role of internal actors who can engage and circulate to build institutional capacity for sustainable change through a transdisciplinary and collaborative approach.

By shedding light on institutional contradictions, these findings enhance their understanding and highlight the advantages of an exploratory and cooperative approach. Moreover, the results emphasise that institutional contradictions are not inherently problematic but rather that they, through the process of identification and mobilisation, can serve as catalysts or agents of sustainable transitions, benefiting both institutions and their actors.

PREFACE

This thesis is a testament to the countless hours and four months of intensive work poured into its creation. Throughout this period, I have immersed myself in myriad activities, ranging from engaging in thought-provoking conversations about soil to meticulously collecting and analysing data on urban projects and calculating emissions from soil remediation. In addition, I have delved deep into the bewildering realm of threshold values for soil criteria and immersed myself in a sea of theoretical articles, seeking to grasp the complexities of the subject.
Although my practical efforts have been primarily focused on unravelling the intricacies of urban soil management in Copenhagen, the content presented in this thesis sometimes diverges from the realm of soil. Instead, it delves into the realm of catalysing change within bureaucratic structures. As such, it is important to note that much of the labour and practical work undertaken during these four months will not directly find its place within these pages but rather serve as the underlying fabric which has gone into understanding such change processes.

I do, however, hope that as a reader of this thesis, you will become more knowledgeable about urban soil management and more curious to learn even more. Navigating this terrain has been an extraordinary experience, one that I consider a privilege.

I have had the distinct honour of collaborating with fascinating individuals and engaging with captivating projects that have broadened my perspective on the subject matter. In addition, the depth of knowledge and passion displayed by the people I have encountered throughout this journey has left an indelible mark on my understanding.

As such, I would like to take a moment to acknowledge and express my heartfelt gratitude to the remarkable individuals who have contributed to my journey and supported me throughout the completion of this thesis.

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First and foremost, I extend my deepest appreciation to my supervisor, Jens Iuel-Stissing, whose guidance and mentorship have been invaluable. You have skillfully guided me through the labyrinth of theories and methodologies, providing me with perspectives that were, at times, challenging to comprehend but ultimately rewarding. Your unwavering support and enlightening supervision have left me feeling both happy and enlightened after every interaction.

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A special mention goes out to the rest of my coworkers at Copenhagen Municipality for engaging in extensive conversations about soil. Your insights and willingness to share your knowledge and engage in the process of reflection have been instrumental in shaping my research. I am grateful for the time and effort you invested in our discussions.
Henriette Hall-Andersen and Anders Melamies, I am immensely thankful for allowing me to dedicate five months to this project. Your understanding and support have been invaluable, and I hope I can repay this honour by providing useful information about sustainable urban soil management in Copenhagen.

To my family, I extend my deepest gratitude. Your unwavering support, both emotionally and practically, has been a cornerstone of my success. Thank you for always believing in me, at times feeding me, and providing a place to write and focus on my studies.

To my friends, who have hopefully survived my temporary absence, I am grateful for your understanding and continued presence in my life. Your friendship has been a constant source of encouragement, and I look forward to reconnecting once this chapter comes to a close.

I also must not forget to thank Eske, my loyal Dachshund, who has been my faithful companion throughout this journey. Your insistence on outdoor adventures and daily walks has provided much-needed breaks and clarity of mind. Thank you for being my furry motivator.

Last but certainly not least, I would like to express my deepest appreciation to my wonderful wife, Caroline. You are my human support system and my biggest cheerleader. Your unwavering belief in me and your boundless love has been the driving force behind my achievements. I wholeheartedly acknowledge that I could not have accomplished this without you by my side.

To all those mentioned and the countless others who have supported me in ways big and small, I extend my sincerest thanks. Your contributions have made this thesis a reality, and for that, I am forever grateful.

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INTRODUCTION

In the realm of urban life, bureaucratic institutions serve as vital organs responsible for efficiently managing, governing, and planning our cities. These possess many functions and responsibilities that are crucial for the everyday operation of our cities and the citizens' well-being. And with more than half of the world's population living in urban areas, an increasing number of people are now involved in and affected by how these are governed (UN, 2019). Moreover, as our world constantly evolves, cities increasingly need to fulfil new objectives and address various concerns. This becomes especially essential in light of the recent surge in knowledge, awareness, and emphasis on sustainability.

But translating urban life's chaotic and complex nature into tangible actions and urban initiatives that can be used to fulfil such objectives is undoubtedly a challenging endeavour. Urban bureaucracies, therefore, require devices that assist in deciphering the chaotic and ambiguous states, transforming them into tangible knowledge and actions.
These tools play a vital role in simplifying intricate situations and processes, allowing urban planners to effectively address the complexities of urban realities in an organised, predictable, and governable manner. As a result, urban bureaucracies can navigate and make informed decisions to tackle their challenges by converting complex information into simplified representations. These enable planners and bureaucratic workers in their everyday work by enabling them to determine and prioritise between objectives and concerns. With the assistance of these tools, planners can make informed decisions and allocate resources that align with the identified priorities and goals. This allows for a more efficient and effective urban planning and governance approach.

These objects have been referred to as *planning objects* or governable objects, and they condense complex phenomena and transform them into manageable entities through organised epistemic practices (Jensen et al., 2017, p. 461). As such, they facilitate making complex phenomena governable by imposing and employing systematic institutional methods to everyday work involving planning and governance.
In an urban setting, these objects encompass various urban phenomena such as transportation, trees, courtyards, and soil, which have all been rendered governable and are subject to systematic planning and management practices. Through knowledge-producing activities, these phenomena are condensed into legislation and policies which define the objectives of governing departments, establishing rules and procedures.

Consequently, these shape planning practices and affect the use of tools, ultimately influencing the everyday work of urban planners and bureaucratic workers, easily becoming taken for granted and unquestioned. Therefore, the stability of these objects is not only facilitated by explicit institutional support, such as governing departments and standards but also by the continual reproduction of the practices and everyday work they initiate.

Having worked for five years in Copenhagen Municipality, I have been intimately involved with urban planning objects in my everyday work. However, throughout this period, I have also experienced *moments of confoundment*, where the condensed version of urban reality painted a contradictory picture of nuances of real-life experiences.
While condensing and generalising the reality of urban life is necessary for effective urban governance and bureaucratic planning, it is equally crucial that the derived planning objects still align with and evolve with the complex and ever-changing dynamics of the real world.
This becomes even more imperative in a world where concerns for and knowledge of sustainability constantly emerge and require adapting planning practices.

There are notable examples within urban bureaucracies where planning objects have evolved to encompass broader perspectives and considerations.
Traditionally, urban water management focused on water as waste and getting rid of it as quickly as possible. However, recent shifts in focus on water as a valuable resource has meant that many urban bureaucracies now emphasise sustainable water management practices, such as rainwater harvesting and recreative use (State of Green, 2020).
In the past, urban bureaucracies viewed bicycles as a way to reduce infrastructure costs. However, they are now promoting bicycles as an urban experience and a means of reducing commuter times (even long-distance) and health costs (Jensen et al., 2017).
Urban nature has traditionally been linked to leisure, and bureaucratic efforts have been centred around increasing liveability to keep resourceful residents in cities (Christensen, 2022). However, lately, actions have been directed at increasing biodiversity and promoting health. Moreover, urban bureaucracies are gradually implementing urban nature-based solutions seeing urban nature from a more holistic and functionalistic perspective (Sandin et al., 2022).

Indeed, large exogenous and unpredictable shocks, such as the cloudburst in Copenhagen in 2011, can become catalysts for change within urban bureaucracies (Københavns Kommune, 2012). These events can expose vulnerabilities and inadequacies in existing planning objects, leading to a reassessment of priorities and a push for innovation and adaptation. However, there are other instances where planning objects, over time, are taken

for granted and fade into obscurity. This way, they can fail to keep pace with the evolving needs and dynamics of the surrounding world and may become out of sync with the current context and challenges. Urban bureaucracies that do not adapt, coupled with other internal institutional developments that are out of sync with the stagnated planning objects, can give rise to contradictions. Subsequently, institutional actors may observe and experience these contradictions first-hand in their everyday work. While institutional contradictions are not inherently problematic, they can cause conflicts within the institutions that hinder initiatives directed at transitioning towards more sustainable practices.

Undeniably, the endogenously initiated change of planning objects often stems from the interplay of controversies, where different professional and political interests seek to assert their authority (Jørgensen, 2018, p. 54).

Rather than relying on authoritative strategic roundtable negotiations, this thesis takes a different approach by examining how everyday work and the cultivation of institutional capacity for reflection can contribute to the sustainability and continuous development of planning objects, not despite but through the presence of institutional contradictions.

To illustrate this, this thesis delves into the case of urban soil management in Copenhagen, examining how it has been condensed into a planning object. It explores the process through which the complex phenomenon of urban soil management has been transformed into a manageable and tangible concept within the realm of urban governance. This aims to shed light on emerged institutional contradictions and explore how these can be recognised and utilised as opportunities to mobilise change agents. Hopefully, initiating a reflective process for reimaging soil as an urban planning object and ensure its continued development and relevance.

HYPOTHESIS

This thesis begins with acknowledging that I have consistently witnessed and experienced ambitious goals and aspirations towards sustainability, steadily becoming an intrinsic component of urban bureaucratic contexts such as Copenhagen Municipality. However, despite the overall high level of ambition, this thesis posits that fragmented knowledge, intrainstitutional incompatibilities, divergent objectives within institutions, and the inherent nature of planning objects create institutional contradictions embedded in these objects, thus impeding more sustainable planning. This thesis further theorises that identifying such embedded contradictions and exposing what is at stake can stimulate and facilitate a reimagining of urban planning objects.

Therefore, this thesis hypothesises that the process of identifying and mobilising institutional contradictions within planning objects can initiate a reflective process.

This process enables curious examination and reimagining of the planning object, leading to enhanced reflective capacity and its continuous development and improvement.
Furthermore, this thesis posits that this capacity can be created by spanning and bridging existing boundaries and fostering the exchange of crucial knowledge. The hypothesis is that this consequently would lead to a more comprehensive range of interests and concerns being included in the change process, resulting in more just policies, practices and planning objects.

RESEARCH OBJECTIVE

The main objectives of this thesis are first to investigate and explore the dynamics and implications of condensing complex urban phenomena into planning objects within the context of urban soil management in Copenhagen.
Secondly, building on the insights gained from analysing institutional contradictions, the thesis aims to provide an understanding of how these, situated from the inside, can be leveraged to mobilise change agents and reimagine the examined planning object, enabling more sustainable urban planning and governance in Copenhagen.

This thesis explores the role of institutional work in identifying and navigating urban concerns. Drawing on institutional theory and concepts, it will analyse how boundary and practice work can shape urban bureaucratic outcomes. Specifically, the thesis will investigate how boundary work can help to:

- Critically examine and understand the context in which bureaucratic planning objects have been developed.
- Analyse contradictions and tensions arising as institutional actors and objectives challenge or defend bureaucratic planning objects.
- Explore the potential for such contradictions to serve as catalysts for change.

Ultimately, this thesis seeks to provide insights and recommendations for urban practitioners on effectively engaging in boundary work to advance urban concerns.

EMPIRICAL FOCUS

In any research study, the empirical focus serves as the backbone of the investigation, providing concrete examples and evidence to support the theoretical and analytical arguments. Through this empirical focus, the upcoming problem formulation and research question can be answered. For this thesis, the empirical focus has been particularly crucial, as it has enabled the researcher to investigate a real-world urban phenomenon and planning object and its institutional context to understand the challenges and opportunities in promoting sustainable urban planning.

For this thesis, the empirical focus and case study is the soil remediation practices in Denmark.
The case of soil remediation practices in Denmark provides an important context to study the ways in which different forms of boundary work can shape urban sustainability outcomes, particularly in terms of understanding how institutional practices are developed, challenged, and transformed over time.

The choice of empirical focus is based on several factors. First, previous experiences and resulting confoundments suggest that there are embedded institutional contradictions in soil planning and management practices in Copenhagen, hindering sustainable urban planning. It further suggests that these are the result of planning objects becoming taken for granted and out of sync with their surroundings. This case can therefore serve as an example and exploration of the work that goes into unlocking and reimagining such planning objects, keeping them alive and growing.
Secondly, Denmark and Copenhagen, with their rich history of soil management, have been influenced by various historical and contextual factors that have shaped their actions and approaches. Not only does it provide a rich and complex case for investigating the institutional work leading to its development and current state of urban soil management, but it also shows that soil as an urban planning object has not always been stagnant or taken for granted.

Finally, my current position within the municipality makes this case both relevant and comprehensible. This unique position grants me privileged access to a wealth of information and resources, both human and non-human, simultaneously making it a compelling case to understand how processes of change can be set in motion from within.

The study of soil remediation practices in Denmark offers a rich empirical focus for this thesis as a prime example of a complex and multi-faceted urban challenge. It aims to better understand the potential and limitations of boundary work in identifying and navigating urban bureaucratic concerns.
In light of the empirical focus and research objective, the overarching problem formulation emerges, delving into the exploration of an endogenously initiated change process within urban bureaucracies.

PROBLEM FORMULATION

"How can everyday and taken-for-granted planning objects inside urban bureaucracies be reimagined from within to enable more sustainable planning?"

RESEARCH QUESTIONS

In order to address the overarching research question, the study has been organised around two distinct questions that simultaneously serve as the structure of the thesis and the ensuing analyses and design work:

1. How has institutional work embedded contradictions within Copenhagen Municipality's planning object "soil"?

This question focuses on the historical and contextual factors as well as the intentional work that has gone into the creation of soil as an urban planning object. It seeks to understand how institutional actors, over time, have influenced the condensation and stabilisation of soil within the urban bureaucratic planning framework in Copenhagen Municipality. Finally, it employs a conflict perspective to uncover and highlight how these and other factors have embedded institutional contradictions and tensions into the planning object.

2. How can institutional insiders identify and use contradictions to mobilise change agents and reimagine soil as an urban planning object to enable more sustainable planning in Copenhagen Municipality?

This question shifts the focus towards the role of institutional insiders in not only identifying but also leveraging contradictions for mobilising change agents. It explores the work that goes into recognising and utilising tensions within the system to drive the reimagining of soil as a planning object. Additionally, it highlights the objective of enabling more sustainable planning practices in Copenhagen Municipality.
Together, these questions serve as the structure of the thesis and provide a comprehensive approach to understanding the role and dynamics of change processes and contradictions within soil as an urban planning object in Copenhagen Municipality.

RESEARCH APPROACH

The study will draw on a range of sources of information, both primary, secondary and tertiary. These include policy documents, hearings, scientific reports, interviews and interactions with numerous stakeholders. They will serve as the basis for, and outcome of, the subsequent analyses and design work.

However, recognising and acknowledging that my ontological and epistemological stances shape the way I perceive and engage with these sources of empirical reality, which also guides my methodology, is essential.
Embracing a constructivist perspective, I perceive and describe reality as socially constructed, emerging through the interactions, meanings, and interpretations that individuals assign to their experiences. I thereby comprehend the urban landscape that I investigate not as an objective and fixed entity but rather as a product of agency, practices, and cultural contexts, where actors within the examined reality

contribute to the ongoing transformation of institutional structures such as planning practices and objects.
Through this, I understand knowledge as something actively constructed through the interpretation and understanding of social phenomena. Lending myself to an interpretivist perspective, I become aware that my understanding of the bureaucratic institution and its dynamics is not a purely objective truth but rather a subjective interpretation influenced by my experiences, values, and interactions.

Therefore, as I navigate the tangible reality that encompasses Copenhagen Municipality, I find myself intricately intertwined with the very subjects I map, describe, analyse, and interpret. These dynamics compel me to be acutely aware of my presence and actions in different situations. Existing within and interacting with the various facets of Copenhagen Municipality, I actively shape the very landscape that I study. Having spent considerable time immersing myself in the realm of urban planning both through my academic pursuits and my employment within the City of Copenhagen's Technical & Environmental Administration (TMF), I possess a distinctive understanding of the processes and practices at play. I have established connections with key actors, creating expectations and biases both ways. This further demands increased awareness and introspection regarding my own position. While I approach the situation as a researcher, analysing it with a critical lens, I also inhabit the role of an active participant, influencing and being influenced by the very environment under examination. Rather than objectifying myself when venturing into the field, I become an engaged, influential, and inevitable part of it.
This inherent duality necessitates a delicate balance. On the one hand, I observe and analyse the subject matter. Yet, on the other hand, I am a dynamic actor and instrument within my own study. I am an active participant, not a detached observer. This awareness shapes my approach as I navigate the field, blurring the lines between research, analysis, and design work.

THEORETICAL FRAMEWORK

This chapter explores the dynamics of institutional contradictions and the role of institutional work in driving institutional change, specifically in the context of urban planning objects and everyday work.

Drawing upon the principles of institutional theory, this chapter explores how seemingly unquestioned and taken-for-granted planning objects can contain inherent controversies and contradictions. This will help me better grasp and identify the experienced confoundments, and a dialectical perspective will serve as the impetus for reinterpreting and modifying institutional structures, such as planning objects, to enable alternative planning practices to emerge.

Rooted in institutional theory, the chapter emphasises the significance of intentional actions taken in relation to planning objects. By examining the interplay between institutional work and cycles of institutional stability and change, this chapter sheds light on the mechanisms underlying the creation, stabilisation, and potential reinterpretation of these objects.

It underscores the role of institutional work as a deliberate process of influencing and transforming institutions endogenously through thoughtful action, both as visible and strategic endeavours to invisible everyday activities.

Furthermore, the chapter highlights the importance of human praxis and recognising and mobilising multiple alternative frames to challenge prevailing institutional arrangements and drive institutional change.

The chapter concludes by demonstrating how the theoretical framework informed the practical applications and forthcoming analysis and design work.

INSTITUTIONAL THEORY

Institutional theory is rooted in the recognition that institutions play a central role in shaping social behaviour and outcomes. As such, institutions and their actors and embedded values and objectives are fundamental for the construction of local institutional fields, such as urban bureaucratic planning objects, that bureaucratic engage with on a regular basis.

Accordingly, institutional theory examines how these institutions and their derived structures evolve, persist, and change over time, influencing the behaviour and outcomes of actors within a given field or system.

W. Richard Scott (2001) has explained institutions, their role and their mechanisms:

> "social structures that have attained a high degree of resilience. [They] are composed of cultural-cognitive, normative, and regulative elements that, together with associated activities and resources, provide stability and meaning to social life. Institutions are transmitted by various types of carriers, including symbolic systems, relational systems, routines, and artefacts. Institutions operate at different levels of jurisdiction, from the world system to localized interpersonal relationships. Institutions by definition connote stability but are subject to change processes, both incremental and discontinuous." (Scott, 2001, p. 48).

Institutional theory thus provides a comprehensive framework for understanding the intricate relationship between institutions and human behaviour.

Institutions, rooted in conventions such as "taken-for-granted scripts, rules, and classifications" (Powell & DiMaggio, 1991, p. 15), shape the institutional environment and exert pressure on organisations in such a way that they are "apt to automatically conform to them" (Seo & Creed, 2002, p. 222).

INSTITUTIONALISATION

This environment creates the *diffusion* of practices and ideas across organisations, contributing to *isomorphism* as organisations adopt similar structures and behaviours to conform to institutional expectations, leading to organisational homogeneity and conformity within an institutional field (DiMaggio & Powell, 1983).

Part of this conformity comes from *legitimacy* as organisations strive to align their actions with institutional norms to gain acceptance. Meanwhile, the *infusion of institutional values* and the existence of *rational myths* further shape the beliefs and behaviours within organisations. Institutions infuse certain values that shape the goals, priorities, and behaviours of individuals and organisations by promoting specific values and guiding principles. These form collective beliefs or narratives that exist within an organisation and serve to justify or rationalise certain institutional arrangements or practices. These myths may not be grounded in empirical evidence or rationality but are widely accepted and serve to legitimise and maintain the existing institutional order (Meyer & Rowan, 1977). Finally, the concept of *loose coupling* suggests that organisations can exhibit a level of flexibility or autonomy in certain areas, even while operating within the broader institutional context. This allows organisations to adapt to and navigate institutional pressures while maintaining some degree of independence.

These intertwined concepts help to explain the process of institutionalisation and the mechanisms through which urban organisations and planning objects reproduce institutional conventions and become stabilised.

However, while institutions and, thus, the derived planning objects are enduring in nature, they still go through recurring cycles of stability and change.

THE DYNAMICS OF INSTITUTIONAL CHANGE AND STABILITY

Seo & Creed poses a very relevant question:

> "If institutions are, by definition, firmly rooted in taken-for-granted rules, norms, and routines, and if those institutions are so powerful that organizations and individuals are apt to automatically conform to them, then how are new institutions created or existing ones changed over time (DiMaggio & Powell, 1991)?" (2002, p. 222)

Institutional change is generally understood as the result of institutional pressure. Institutional change has traditionally been coupled with exogenous shocks, which force the creation of a shift in the values and legitimacy that is infused into the organisations. This means that institutions are not always passive but instead can respond to pressures and exposes the possibility of institutional change as a purposeful action.

Since the introduction of new institutional theory, the literature has become more interested in how organisations can actively influence their institutional environment despite dealing with the dilemma of embedded agency, as outlined by Seo & Creed in the previous quote.
Seo & Creed (2002) address this paradox by drawing upon a dialectical framework for explaining the dynamic cycle of stability and change, specifically by focusing on the relationship between institutional contradictions and human praxis, as elaborated subsequently.

The dialectical framework is built upon Benson's (1977) four basic principles or processes that drive the overall cycle of institutional stability and change: *social construction, totality, contradiction* and *praxis*.
Social construction is the process of producing and reproducing relations, through which institutional arrangements are established, and the state of institutionalisation occurs.
Following the state of institutionalisation is totality, the process through which multiple institutional arrangements are linked and create a "larger whole" that operates on multiple levels and across sectors.
Both social construction and totality rely heavily on the process of institutionalisation outlined in the previous section.

Thus, while totality might seem like a coherent progression that would stabilise the institutions further, it also enables "multilevel, mutually incompatible institutional processes".

These incompatibilities and inconsistencies, in turn, may create institutional contradictions that, if substantial, can create tension both within and across organisations. Such tensions can, depending on the circumstances, influence perceptions and lead to praxis, which is a process which will be elucidated in an upcoming section. In this process, change agents may try to mediate between contradictions and change and construct new social interactions that implement the changes into the institutions.
As such, the dynamic of institutional stability and change and its circular nature means that the process of institutional change often leads to both the implementation and enforcement of new institutional arrangements while also reinstating institutional stability.

INSTITUTIONAL CONTRADICTIONS

As mentioned, the complex multilevel nature of institutions and organisations can create institutional contradictions, which provide the "seeds of institutional change" (Seo & Creed, 2002, p. 226).

Seo & Creed (2002, p. 226) propose four sources of contradictions as "by-products" of the institutionalisation process:

1. "Legitimacy that undermines functional inefficiency"

This source explores the tension between organisations conforming to institutional norms for legitimacy and the pursuit of technical efficiency. While adherence to institutional arrangements may bring benefits, it can lead to suboptimal practices and structures that compromise efficiency.

2. "Adaptation that undermines adaptability"

When organisations engage in adaptive moves to conform to institutional norms and increase legitimacy, these very adaptations hinder their ability to adapt in the long run. Once institutionalised, structures and activities become embedded in networks, resisting change due to interrelated network elements. Shared expectations, perceived legitimacy and economic interdependencies further contribute to resistance against alternative practices and structures.

3. "Intrainstitutional conformity that creates interinstitutional incompatibilities"

These contradictions arise when organisations conform to institutional arrangements within their own sector while facing inconsistencies with arrangements in different sectors or levels of society.

4. "Isomorphism that conflicts with divergent interests"

The process of creating homogeneity and conformity within an institutional field is shaped by political struggles among participants with differing interests and power dynamics. It often fails to satisfy the diverse needs and goals of all actors involved. Actors whose needs are not met by the current arrangements may become agents of change, identifying institutional deficiencies and taking action to transform the existing order.

AGENCY

While these contradictions generally exist in most urban planning practices and objects, it is not until they become perceptible that they can be acted upon. As such, in perceiving contradictions, institutional actors can gain agency and become subjects, both active or dormant, in the process of stability or change.

After all, perceiving or noticing such contradictions does not necessarily necessitate neither action or change. Rather institutional actors can also be either reluctant or even incapacitated to engage in such a process.
On the other hand, a dialectical perspective suggests that contradictions *are* often the catalyst for creating active agency and engaging actors in the process of institutional change. This often plays out in a strategic and authoritative approach, such as transition management, where contradictions arise, visions are created, and formal negotiations and conflict resolutions are had (Roorda et al., 2014). Contrary to this approach, and more in line with the objective of this thesis, is institutional work. This and other related concepts, such as human praxis, rather emphasise the role of individual actors and their agency in performing change processes from within.

As such, agency and actors as subjects in change processes can be divided into two types of reactions.
These two types of passive or reactive agency and their impact on institutional change will be explored more in the following section.

TRAINED INCAPACITY

Over time, institutional contradictions may become hard to acknowledge within institutions as the process of institutionalisation leaves actors with blind spots. Specialised training can sometimes lead to a phenomenon called "trained incapacity," where one's knowledge becomes narrower as one becomes more specialised in a particular field (Aylett, 2010). This can result in an increase in ignorance in other areas outside of their expertise.

While this is particularly true in specialised fields, it can also be argued that trained incapacity is an inherent part of institutionalisation. Trained incapacity allows organisations to operate consistently and effectively, ensuring that those who work within the organisations adopt appropriate values and practices (Aylett, 2010). Urban

planning objects are part of such a process of ensuring consistency, where they serve as the target of control with certain rules, practices and values embedded while leaving out others.

Institutionalisation thus creates blind spots by isolating fields and their actors from their surroundings, as Zietsma & Lawrence (2010) explain:

> "Strong boundaries around fields lead them to become "isolated from or unresponsive to changes in their external environments," creating contradictions between the norms and practices accepted in fields and those legitimate in the broader society (Seo and Creed, 2002: 226)." (p. 190)

Thus, while a dialectical perspective acknowledges institutional contradictions as the fundamental catalysts for driving institutional change, it doesn't assume that these contradictions always result in institutional change in a predictable way. Rather, it recognises the significant role played by intentional work and human agency in mediating the transformative dynamics between institutional contradictions and change.

INSTITUTIONAL WORK AND THE INTERPLAY OF BOUNDARY WORK AND PRACTICE WORK

Zietsma & Lawrence (2010) use the concept of "institutional work", first introduced by Lawrence & Suddaby (2006), to describe a deliberate process of influencing and transforming institutions through thoughtful action. This concept underscores the significance of intentional actions taken in relation to establishments, which can vary from visible, strategic, and impactful endeavours to concealed and everyday activities. These can include the everyday adaptations, adjustments, and compromises made by individuals to sustain institutional frameworks (T. B. Lawrence et al., 2009, p. 1).

In their article, Zietsma and Lawrence (2010) propose that fields, which encompass social systems or domains of activity, can be seen as co-evolutionary systems. Within these systems, boundaries establishing the scope and membership of the field, and practices, meaning the activities and behaviours within the field, interact and mutually influence one another. This interplay forms an ongoing and interactive process.
Furthermore, this relationship is significantly impacted by the diverse actions and efforts of interested actors engaged in boundary work and practice work (Zietsma & Lawrence, 2010, p. 190).
Boundary work refers to actions taken by individuals or groups to define, negotiate, or challenge the field's boundaries. Practice work pertains to actions and efforts of individuals or groups aimed at shaping or modifying the practices and activities within the field.

These two types of institutional work form the basis for cycles of institutional stability and change. They are related to the transitions between these cycles that are triggered by a combination of three conditions:

1. the state of the boundaries,
2. the state of practices,
3. the existence of actors with the capacity to undertake the boundary and practice work of a different institutional process.
   (Zietsma & Lawrence, 2010, p. 189)

The first two conditions are dependent on the dynamic of institutionalisation and institutional contradictions, and as previously noted, these processes are continuous and thus, the state of boundaries and practices is constantly evolving.

The last condition is particularly closely linked to the components of praxis, which, besides the ability to reflect on prevailing social patterns and critically evaluate institutional contradictions (within institutional boundaries and practices), involves actively challenging and transforming the boundaries and practices within a given field. As such, Zietsma & Lawrence (2010) point to praxis as more than an inevitable outcome of contradictions but rather as a human capacity to be developed. Assuming that to be true, the competencies of praxis can be encouraged from an institutional perspective. Such abilities would be beneficial from an institutional and organisational perspective, enabling actors to engage in less confrontational day-to-day institutional work. This under-the-radar approach reduces conflicts and allows for open discussions, incremental institutional negotiation, and innovation, thus making them less vulnerable to destabilising pressures (Zietsma & Lawrence, 2010). However, resource mobilisation theory highlights the significance of resources and power held by actors as crucial determinants for the success of change efforts (McAdam et al., 1988), indicating that change agents should either hold a particular position of power or enrol and mobilise such actors in the change processes early on to be successful.

PRAXIS

While human behaviour generally can be understood as contributing to the automatic reproduction of institutional ideals and stability, Jepperson (1991) argues that human *action* can be seen as a certain type of behaviour which purposely departs from institutionalised social patterns. The concept of *human praxis* follows this idea. Seo & Creed (2002) define praxis as "a particular type of *collective* [emphasis added] human action, situated in a given sociohistorical context but driven by [...] contradiction" (p. 230).

To elaborate on the concept of praxis, Seo & Creed add three components which must be present:

1. A critical understanding of prevailing circumstances that do not correspond with the actor's vested requirements and interests.
2. A call to action driven by a new shared understanding.
3. A collective (and potentially multilateral) endeavour to both reshape institutions and transform the actors.

Praxis inherently encompasses two essential components: a *reflective phase* that entails evaluating prevailing social patterns and exploring alternative approaches, and an *active phase* that entails mobilisation and engaging in collective action.

Praxis bears certain similarities to the concept of constructive deviance, as introduced by Galperin (2002). Constructive deviance generally refers to intentional behaviour that breaches organisational rules but is carried out with honourable intentions to advance the organisation's interests or serve the greater good. Constructive deviance is generally connected to individual behaviour and thus does not indicate collective action. Furthermore, it is not necessarily driven by institutional contradiction but can rather be motivated by intrinsic motivation, felt obligations or psychological empowerment (Vadera et al., 2013). A reflective phase is, nevertheless, implied in the concept as the initiating factor for action, regardless of the different points of motivation.

These differences emphasise that constructive deviance might not initiate institutional change but instead become single points of intervention.

The reflective phase of praxis, motivated by institutional contradictions that become prominent, initiates the active phase.

This means that praxis requires actors to shift from being autonomous, unreflective, and socially embedded to becoming conscious and so critical of the institutional arrangements that they mobilise collective action for change. From a dialectical perspective, such a shift becomes more likely as contradictions develop and permeate actors' experiences (Benson, 1977). This is especially true if tensions are collectively experienced, fostering a more intuitive inclination towards joint mobilisation and action. This also implies that for the active phase to be initiated and successful, change agents need to translate tensions and mobilise other actors through this translation. As such, for actors to become change agents, firstly, they need to be able to imagine alternative institutional configurations and evaluate the viability of these imagined alternatives (Emirbayer & Mische, 1998).

MOBILISING ALTERNATIVE FRAMES

Emirbayer & Mische (1998, p. 973) suggest actors may undergo such a transformation in cases where they face challenging situations that require them to take a "reflective distance" from conventions. Stepping back and

reflecting momentarily frees them from institutional constraints and allows them to tap into their imagination and create new and alternative institutional "frames" or visions for reality. This aligns well with a point made by Zietsma & Lawrence (2010) that new or peripheral members of a field play a crucial role in introducing and establishing alternative practices.

Finally, change agents must strategically articulate these alternative institutional logics to effectively rally other actors and resources, enabling the facilitation of collective action and driving institutional change. This capability is already inherently embedded in the process of institutionalisation, where actors infuse and diffuse value and create rational myths to create legitimacy. But constructing and mobilising alternative that contradicts present and dominating institutional arrangements present more of a challenge.

According to Seo & Creed (2002), the "mobilising potential" of an alternative logic is dependent on the following:

1. The level of legitimacy the alternative logic has within the same social boundary and,
2. the extent of tensions created by institutional contradictions and contestations regarding the legitimacy of current institutional arrangements.

As the potential is contingent upon the level of legitimacy that a particular logic attains within the social boundary in question, the creation of multiple alternative frames becomes advantageous, as it amplifies the likelihood of garnering recognition and acceptance of alternative frames. Similarly, different logics might be more recognisable by certain groups, meaning that multiple logics might help to mobilise a wider variety of resources and actors.

CONCEPTUAL CONSIDERATIONS AND PRACTICAL APPLICATIONS

The chapter explores the utility of institutional theory in comprehending the process of institutionalisation and governance of objects. It emphasises the significance of a dialectical perspective, highlighting how seemingly unquestioned and taken-for-granted planning objects can contain inherent controversies. A dialectical perspective will help to guide how these objects can be kept alive and innovative rather than stagnated and embedded with outdated rules and values. The notion of institutional work not only accentuates the deliberate process of transforming institutional arrangements but also highlights my role in the design work of endogenously creating alternative logics and testing their mobilisation potential through less confrontational day-to-day institutional work.

This thesis's forthcoming analysis and design work are firmly grounded in the notion of praxis, where the concept and components serve as the foundation for investigation.
The initial phase involves a reflective examination to explore existing contradictions and identify potential intervention points.
Subsequently, the active phase will unfold, involving the generation of multiple alternative logics arising from the identified contradictions. These alternative logics construct a new collective narrative for urban soil remediation. Lastly, the mobilisation potential of these alternative logics will be tested.

More specifically, within this conceptual framework, the four processes inherent in the dialectical approach will inform the first analysis of the historical institutionalisation process that has propelled soil remediation into its status as an urban planning object. Furthermore, these processes will be instrumental in comprehending the existing institutional landscape surrounding soil remediation, thereby guiding the active phase of this thesis.

Moreover, the second analysis involves identifying various contradictions, encompassing challenging perspectives on soil remediation and uncovering institutional incompatibilities and inconsistencies. These contradictions may serve as tensions and potential leverage points for further the last stage.

Finally, the active phase and third part of the design work will examine the mobilisation potential of different alternative logics and pursue potential change agents and mobilisers. This phase tests the identified points of contradiction and evaluates the legitimacy of various frames, encompassing both boundary and practice work.

ANALYSIS

The overall goal of this chapter is to comprehensively analyse the institutional work and contextual factors that have shaped soil as a planning object within the urban bureaucratic landscape of Copenhagen Municipality and how this has resulted in embedded contradictions.

The initial analysis will focus on exploring the intricate relationship between institutional work and contextual factors that have played a significant role in propelling, shaping, and condensing soil, which inherently represents a complex urban phenomenon, into a manageable and governable object within the urban bureaucratic landscape of Copenhagen Municipality. By delving into the underlying mechanisms, processes, and influences, this analysis aims to uncover the multifaceted dynamics that have contributed to the transformation of soil into an object of urban governance.

Moreover, the second analysis involves identifying the underlying institutional work that has embedded various contradictions into the planning object. This will dive deeper into the condensed nature of soil as a planning object and encompass exploring innovative perspectives in the institutional field of soil remediation, as well as uncovering institutional incompatibilities and inconsistencies.

These contradictions will serve as potential leverage mechanisms for further design work.

Furthermore, the second analysis focuses on discerning the underlying institutional work that has embedded contradictions within the planning object of soil. This examination delves into the inherent condensation of the planning object and encompasses an exploration of innovative perspectives within the institutional field of soil remediation. Additionally, it aims to uncover and understand institutional incompatibilities and inconsistencies that have emerged.

The identification of the institutional work and the implanted contradictions will serve as potential leverage points for future design work.

METHODS

In order to address the research question effectively, it was crucial to have a thorough grasp of the historical context, and the institutional work carried out during the specified period. To achieve this, extensive desk research has been undertaken as a continuous effort to acquire the necessary information and insights. While certain aspects of the historical background, such as the timeline of significant events and legislative changes, are widely known and readily available, delving deeper into

the knowledge of historical institutional work has demanded more extensive investigation and exploration.

In-depth examinations of various source materials, including documents from political hearings and committee meetings, bills, and statutes, have provided detailed insights into the diverse perspectives and negotiations that have influenced the institutional work surrounding the establishment of soil as an urban planning object. These documents have played a crucial role in gaining a comprehensive understanding of the intricate processes and dynamics involved in shaping the institutional landscape related to soil development.

Valuable knowledge and insights regarding more recent institutional work have been acquired through interviews and interactions with a diverse range of stakeholders. Engaging with these actors has provided first-hand knowledge of their perspectives, experiences, and contributions to the changing institutional landscape. The utilisation of such diverse first-hand sources has not only provided insights into opposing and concurring positions on institutional work, resulting in a more nuanced comprehension, but it has also served as a catalyst for discovering new perspectives and avenues for seeking additional information.
By using a snowball sampling technique, wherein actors pointed me in new directions or connected me with other actors, thus subsequently gaining access to new perspectives, I gained valuable insights, which otherwise, likely, would have been less accessible or invisible to me. This has specifically given me insight into the complexities and nuances of the institutional work at hand and has contributed to a more comprehensive understanding of how contradictions have come to be embedded in soil as an urban bureaucratic planning object.

Finally, a comprehensive literary investigation of relevant scientific literature regarding (urban) soil management and remediation has helped me understand exogenous boundary work and practice work. This has been crucial, not just in understanding the overall transpired institutional work but also in grasping the relation between local and exogenous institutional work in creating embedded contradictions.

The brief introduction provided in this chapter serves as an initial overview of the methods employed to address the research question. In the design work and discussion, I will delve deeper into the significance and role of these methods in the overall research endeavour.

INSTITUTIONAL WORK AND CONTEXTUAL FACTORS IN SHAPING SOIL AS AN URBAN PLANNING OBJECT

This analysis aims to present an in-depth review and analysis of the historical developments of the institutional structures surrounding urban soil remediation and management, as well as the values, practices, and rules that, in the process of condensing soil into a governable object, have been embedded.

The motivation for this exploration comes from a desire to understand the rationales behind the confounding and puzzling experiences that I have encountered throughout my daily work and not least during the initial phase of this thesis. This approach is rooted in an institutional perspective of understanding these behaviours and outcomes through the process of institutional change and stability. Thus, understanding how the behaviours have been developed and established will help me understand their embedded values, meanings, and rationales.

This analysis will reflect upon the components of institutionalisation and institutional work as outlined in the theoretical framework, giving the necessary background knowledge and contextual understanding of soil as an institutional field and planning object.
The historical development of soil as an urban planning object will be divided into three distinct cycles:

1. *1983 to 1999*: Early institutionalisation of soil practices in Denmark
2. *2000 to 2005*: Policy reforms and the emergence of soil as a planning object
3. *2006 to now:* Initiating a new era of control and beyond

Finally, this review will provide a place for reflective distance from which the embedded contradictions can be discovered and examined.

1983 TO 1999 - EARLY INSTITUTIONALISATION OF SOIL PRACTICES IN DENMARK

Denmark's pioneering role in the field of contaminated land management is noteworthy, as it implemented its first legislation regarding contaminated land with the introduction of "Kemikalieaffaldsdepotloven" in 1983, making it one of the earliest nations in the world to develop such a policy (*Miljø- Og Planlægningsudvalgets Høring Om Jordforurening*, 2005; Swartjes et al., 2012). Severe soil contamination from early operations of Cheminova, a Danish producer of agrochemicals, with an estimated cost of remediation of a quarter billion DKK, was one of the main instigators of this new environmental act. This significant step in environmental protection highlights Denmark's commitment to addressing the issue of contaminated land early on, which has since led to

the development of a comprehensive framework for managing contaminated sites across the country, which later enabled it to be condensed into a planning object.

Initially, the legislation focused on addressing severe cases of soil contamination, such as chemical spills, and was limited to 500 expected sites nationally. However, by 1989, the City of Copenhagen conducted its first screening of lead in topsoil, and the legislation was subsequently expanded to include its first Soil Quality Criteria (SQC) for lead, PAH, and oil the following year. The focus on the severity of soil contamination continued to grow, and over the next ten years, the number of SQCs increased to over 30.

In these years, the field of contaminated soil went through a process of both institutionalisation and change. In the beginning, the established boundaries and practices adhered to the remediation of severe "point source contamination", but over a period of 17 years, these boundaries and practices changed significantly.

Despite addressing the most severe contamination from the start, the overall concern for soil contamination grew throughout these years. Increasing awareness of soil contamination's impacts on groundwater pollution and public health and subsequent increased cost (Brusgaard, 1992), led to interinstitutional incompatibilities and tension. This both challenged institutional boundaries and meant that soil remediation practices needed to change and focus on both active remediation and preventative measures.

Through this process of stability and change, the institutional frameworks for soil management became infused with values relating to increased severity, largely due to the intense nature of these early contaminated sites. As a result, rational myths pertaining to the remediation and replacement of contaminated soil were created, and subsequently, legitimacy was increased. Through the processes of boundary work and practice work, what started as a social construction, specialising in point contamination, developed into extensive institutional arrangements operating on multiple levels and sectors while addressing an increasing number of concerns.

2000 TO 2005 - POLICY REFORMS AND THE EMERGENCE OF SOIL AS A PLANNING OBJECT

Denmark's first actual soil contamination act, "Jordforureningsloven", from 2000, was a significant legislative development that addressed soil contamination by introducing a policy framework for both historical and contemporary cases. However, over 80,000 sites were classified as contaminated as part of the implementation. This, in turn, triggered numerous disputes between buyers and sellers of contaminated land due to the "Polluter Pays Principle" embedded in the legislation and uncertainty of factual contamination levels (Pagh, 2020). As a

result, soil surveys became a more common practice in property transactions, with private individuals now bearing the responsibility of proof regarding soil contamination rather than the public sector. Bureaucratic employees governing contaminated soil also experienced increasing pressure as both the number of cases and workload grew, leading to longer turnaround times (*Miljø- Og Planlægningsudvalgets Høring Om Jordforurening*, 2005). Meanwhile, this uncertainty led to the loss of property value for owners, making it difficult to lend money from banks (*Høringssvar 2*, 2006). Houseowner were able to mobilise the media and put increasing external pressure on institutional practices and boundaries, while internal pressure was increasing as well due to the administrative burden following the implementation of the legislation (*Høringssvar 1*, 2006). Subsequently, the Danish government enacted a series of policy changes to address the challenges that arose from the implementation of the "jordforureningsloven".
The reasoning behind these policy changes can be extracted from a hearing conducted by The Environmental and Planning Committee in December 2005 (*Miljø- Og Planlægningsudvalgets Høring Om Jordforurening*, 2005) as well as from the proposal for legislation changes (Hansen, 2006).

Firstly, to simplify the rules and alleviate the administrative burden, which would help property owners, §50 a was introduced, which classified all urban sites as "slightly contaminated". This designation implied that all urban areas were now effectively comparable to *brownfield sites*[1], regardless of their previous land use and measurable contamination levels. The public sector became responsible for distributing guidelines on living in slightly contaminated areas. Secondly, with the change from contamination mapping to area classification of soil contamination, a need for a mechanism to minimise soil pollution in these areas arose. Consequently, §72 b was introduced, which mandated the replacement of the top 50 centimetres of soil for new development or a change in area usage to housing, playgrounds, children's facilities, allotments, or holiday houses. This legal passage instructed that all soil which was not "clean" needed to be replaced and thus did not distinguish between different classes of soil contamination (these will be elaborated on later). Due to area classification, this meant that all urban soil, de facto, fell outside of this category and needed to be replaced in cases of change in area usage.

The main goal of these policy changes was to streamline regulations while maintaining the same level of protection against soil contamination, all while providing the public with a sense of security and preventing

[1] Brownfield sites are previously developed, often derelict or contaminated sites, many of which are linked to previous industrial activities (Lin et al., 2019).

contaminated soil from infiltrating uncontaminated areas or natural habitats. However, the simplified classification of areas also resulted in reduced oversight of soil contamination levels, necessitating the implementation of more rigorous measures to minimise the spread of soil pollution.

This cycle, while relatively short, was quite impactful for the boundaries and practices of urban soil management. The institutional structures surrounding these became the source of considerable tensions. Outsiders consisting mainly of property owners and representative organisations engaged in boundary work. They mobilised the media and other resources to impose political pressure and make a collective call to action. At the same time, inside pressures from actors associated with the administration of the new practices engaged in both boundary and practice work. These new forms of legitimacy and adherence to institutional norms were leading to inefficiencies and creating contradictions. Consequently, the derived conflicts and tensions demanded a push for institutional innovation and change.
The suggestions for new policies, indicating simplified boundaries and practices, quickly became the common ground for addressing the conflicts. As an imagined alternative, this new institutional logic turned out to be very promising at mobilising actors and resources, both internally and externally. A limited number of actors expressed resistance, primarily motivated by apprehensions regarding the transition from direct surveying to area classification (Hansen, 2006). Their primary concern was that these policy changes and the shift from an investigative approach to an assumed approach might result in a reduction in safeguarding against soil contamination. Boundary work likewise consisted of emphasising the safeguarding of children from contaminated soil, as evidence showed that these were more exposed to the risks. As a result, several measures were implemented to address these concerns and simultaneously uphold the previously infused values that pertained to a high level of protection. To protect children, public playgrounds and children's facilities were deemed sensitive areas and cities were required to ensure that the sites were uncontaminated. This rule was modified to encompass housing, allotments, and holiday houses as a result of boundary work conducted by the parliament's environmental and planning committee. This revision was prompted by concerns raised about the protection of children in private playgrounds and areas (Miljø- og Planlægningsudvalget, 2006), arguably as a precautionary principle despite lacking the same legitimacy.

As such, institutional work ensured that the change towards a simplified approach to assessing and managing urban contamination led to the introduction of other simplified measures to maintain the same or greater level of protection. Boundaries were negotiated and

changed, and likewise, the practices were modified to fit, with vast consequences for urban planning.

This change process made the complexity and multifaceted nature of soil contamination amendable to control and planning by condensing it into a governable planning object consisting of simplified regulations and practices. In the hearing documents, Copenhagen Municipality specifically emphasised their satisfaction with the implementation of the simplified rules regarding minimising contamination in sensitive areas (§72 b) (*Høringssvar 2*, 2006, pp. 13–15, Miljøkontrollen KK). They highlight that the rule makes the administration significantly simpler than the previous practices of issuing permits based on site-specific terms of each case.

This shows the mobilisation power of this simplified alternative logic, as it both eased the present contradictions and tensions while also resolving potential impending controversies. It also shows the influence of planning objects, as actors, in the search for planning tools, are willing to depart from the complexity and intricacy of the real world to conform to a simpler, less nuanced, but easily governable domain.

2006 TO NOW - INITIATING A NEW ERA OF CONTROL AND BEYOND

This process of simplifying and restabilising the institutional field surrounding soil made Copenhagen Municipality able to condense soil into an urban planning object, ensuring highly stabilised and consistent institutional practices. These planning objects generally carry a range of procedures, rules, practices, and tools that affect and streamline the daily work of numerous actors. Through these and their constant reproduction, they become institutionally diffused and taken for granted, creating rational myths and a convincing path which can become difficult to stray from.

Such myths regarding soil remediation were created soon after the implementation of §50 a and §72 b. Copenhagen Municipality introduced their own set of environmental demands for construction projects, titled "Miljø i Byggeri og Anlæg 2006" (MBA 2006), as a way of controlling and solidifying soil (and many other urban phenomena) as a planning object even further. Presented in this guideline for "environmentally conscious urban construction practices" were several minimum requirements concerning contaminated soil. Among these was an extension of the newly introduced §72 b, now applying it not only in sensitive areas as specified by the law but also in any public space projects owned by Copenhagen Municipality (Teknik- og Miljøforvaltningen, 2006). As such, the then Centre for Environment (CMI), now the Department of Soil and Groundwater, began to replace the soil on public playgrounds, and all new projects had to follow the MBA, thus instigating the replacement of soil. The reasoning behind these control measures was that Copenhagen Municipality wanted to set "the good example" (interview with a current

environmental worker). Creating additional demands were deemed a natural step in the right direction for safeguarding public health.
Through these actions and the new requirement, the notion and rational myth that they could "clean the city" through soil remediation and replacement was introduced (interview with a former environmental case worker). A former environmental case worker has described how they believed that they, by replacing the soil on every urban site, in the end, could ensure a city without soil contamination.
This gave them a sense of legitimacy and was the beginning of a new paradigm within Copenhagen Municipality and CMI. What followed was a long period of high institutional stability (regarding soil), seemingly without tensions.

The MBA guidelines are renewed every fourth year and were designed to be used by project managers to guide them towards more sustainable planning and construction practices (interview Chief MBA Consultant). This included suggestions for requirements that project managers could apply to projects to ensure a high level of stability. As such, the requirements were never meant to be implemented as a norm or rule. Many project managers in Copenhagen Municipality have never heard about, let alone used, the MBA, which is a discussion for another time.
However, due to their role as the local governing body for urban soil, CMI conformed quite differently to these guidelines. Given their adherence to legal procedures and rigid regulations, coupled with their eagerness to implement §72 b, they swiftly modified their practices to align with the requirements outlined by the MBA. This interpretation and implementation meant that any public space project de facto had to fulfil the guidelines for soil remediation and replacement.
The MBA has since been updated repeatedly and to this day still contains this "requirement" (Teknik- og Miljøforvaltningen, 2017, 2023). However, institutional contradictions have recently made actors question this, which we will dive deeper into in the next analysis.

RESULTS & REFLECTIONS

Seeing and understanding the institutional work that has gone into creating the practices that today are taken for granted gives a much better understanding of why the perceived irregularities exist. Both intentional institutional work, as well as shifting contextual factors, have contributed to the construction of soil as a planning object. The act of simplifying and condensing a complex urban phenomenon, such as soil, into a manageable and governable planning object has been a process of multiple institutional cycles and processes, finally ending in the process of totality. But as dialectical institutional theory implies, this naturally leads to multilevel, mutually incompatible institutional processes and contradictions, potentially destabilising the institutional structures.

The institutional structures concerning soil management in Denmark were established to address the extraordinary chemical spills where the sources of contamination and polluters were easy to pinpoint and hold responsible. As the extent of soil contamination grew, so did the institutional boundaries, necessitating changes to the practices. Publically funded remediations were initiated in cases where the polluter could not be identified or held responsible. Still, the extent of the types of funded projects, and thus the required resources, quickly grew. Meanwhile, as a result of the increasing realisation of the impacts of soil contamination and the severe outset for the institutional field, the general concern for soil contamination grew. Remediation was seen as a necessity but could not be enforced due to incoherent institutional structures. This was largely the process of years of fragmented institutional work and totality, trying to combine disjointed and incompatible processes, creating institutional contradictions. As a result, a coherent framework and legislation that had the needed authority to enforce this were put in place.
But efforts were short lasting, and the new legislation and its boundaries and practices were a considerable source of tensions, leading to both internal and external pressures for change. Simplification became the intermediary to relieve conflicts, but the act of condensing complex and site-specific approaches down into a universal but comprehensive framework, while still maintaining a high level of protection led to the implementation of additional measures.
With the implementation of the new framework and the embedded values, soil transformed into an easily governable object, enabling Copenhagen Municipality to maintain a consistent and efficient operation. This ensured that individuals working within the organisation embraced suitable values and practices consistently. The rational myth of being able to "clean the city" further stabilised this planning object and increased legitimacy, giving way to additional promises. These were implemented with the intention of instigating an example of honourable practices, "the good example", shaping and leading the way towards more sustainable urban futures.
This further legitimised the local institutional field, stabilising these practices until the point of taken-for-grantedness.

These results give context and enhance our comprehension of the embedded concerns. Exploring and questioning these, nevertheless, remains a legitimate endeavour. Perceptible irregularities show that there are indeed contradictions embedded within the planning object and that these tensions could challenge soil as a planning object.

INSTITUTIONAL WORK AND CONTRADICTIONS

The taken-for-grantedness applies to most actors involved in urban planning and, by extension, soil management, especially those who administrate and govern soil contamination. However, a few individual actors have noticed institutional irregularities and have begun to ask questions about these boundaries and practices.

In the upcoming analysis, I will delve into these irregularities and examine how institutional work has contributed to the formation of such embedded contradictions.

In the following sections, I will present my investigation into several sources of contradictions, structured into three categories:

1. Slightly contaminated soil and soil as a condensed governable planning object
2. Sustainable and integrated soil remediation perspectives
3. Intrainstitutional divergent objectives

SLIGHTLY CONTAMINATED SOIL AND SOIL AS A CONDENSED GOVERNABLE PLANNING OBJECT

SOIL CLASSIFICATION

Firstly, to understand the risk of slightly contaminated soil as well as how it relates to the legislation and, thus, the planning object and practices, one must understand how soil is classified in Denmark. Despite urban soil being generally classified as slightly contaminated, soil classification is, from a factual point, dependent on the concentration levels of a range of substances.
The Danish system of soil classification is divided into three categories:

- Uncontaminated soil
- Slightly contaminated soil
- Contaminated soil

These categories are dependent on two criteria and whether the concentration of a range of substances in the tested soil is below, between or above the criteria. The two criteria and elaboration of their purpose are provided below (Miljøstyrelsen, 2002a):

- Soil quality criteria

"Criteria are always based on the assumption that it should be possible to use the site for *very sensitive purposes* [emphasis added] (e.g. private gardens or day-care centres)" (p. 69)

- Soil cut-off criteria

"The cut-off criteria state the level of soil contamination at which it is necessary to completely cut off all contact with the soil, for example by remediation or excavation, *if the area is to used for very sensitive purposes* [emphasis added]." (p. 71)

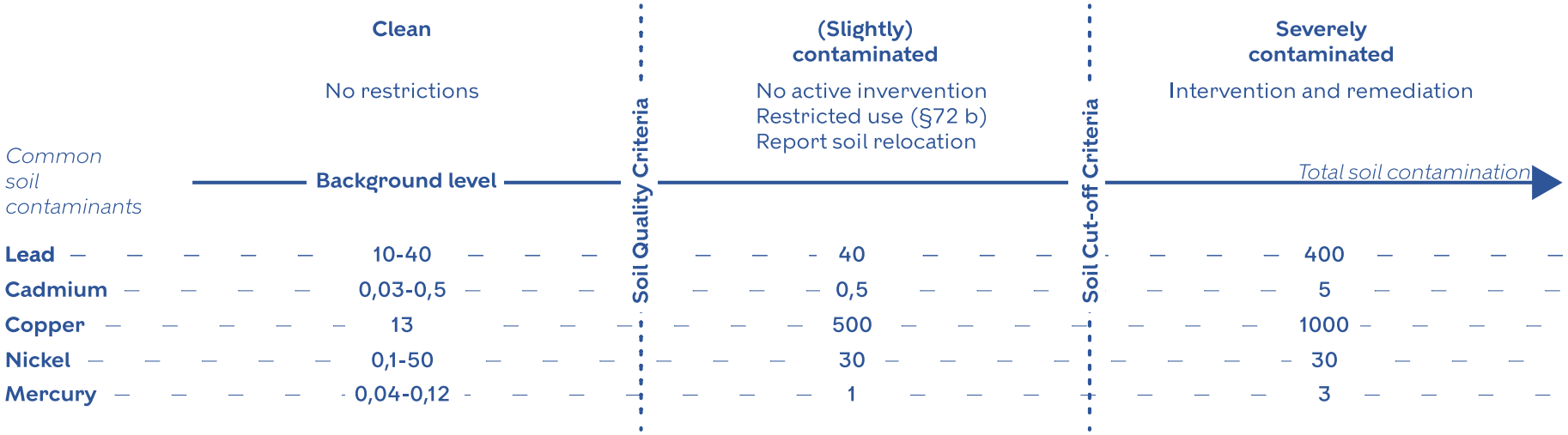

Figure 1 - The contaminated site management framework in Denmark - based on data and information from The Danish Environmental Protection Agency and the Ministry of Environment (Miljøstyrelsen, 2002a; Miljø- og Fødevareministeriet, 2021)

As seen in figure 1, these two criteria and their embedded values for substance concentrations determine which category the implied soil falls into. If a single substance exceeds the level specified in a criterion, the soil is classified correspondingly. This framework is put in place to assess risks in relation to soil and determine whether active intervention and remediation are required (Miljøstyrelsen, 2002a). That means that slightly contaminated soil does not require active intervention or remediation, as this only applies to severely contaminated soil. This does, however, change in certain situations, as §72 b states, which could indicate a discrepancy in how slightly contaminated soil is seen and handled.

CONTRADICTION 1

§72 b requires the replacement of all soil, in the case of any change in site usage for sensitive purposes, *if the soil is not categorised as clean or uncontaminated*, meaning that it is above *the soil quality criteria*. The guidelines provided by the very same authority responsible for administrating the governing legislation, however, indicate that administrative and publicly funded remediation is only prioritised if concentration levels are above *the cut-off criteria*. This signifies that there is a contradiction in how the criteria are applied and prioritised in authoritative public efforts and how they are imposed in non-public (meaning remediation not initiated and funded by the region) efforts.

As §72 b states, remediation of contaminated soil only needs to ensue in the case of "changes in the use of the site", meaning (at least according to environmental case workers) any construction or site work. Most likely, this contradiction comes down to a question of resources and prioritising more critical efforts, meaning that the legitimacy of these practices only becomes sufficient when other activities are underway.

CRITERIA DETERMINATION

Through my exploratory work, I have examined the soil quality criteria and multiple contamination sources and levels that these consist of. Some of these have determined *non-toxic levels* (mg/kg) by multiplying the safe concentrations found through experiments on rodents by more than 12 times (Miljøstyrelsen, 2002b, 2019). In one instance, surpassing the quality criteria would require a child weighing 10 kilos to eat 0,2 grams of soil per day, every day for extended periods (Miljøstyrelsen, n.d.). In the case of cadmium, the daily average intake through food consumption would be equivalent to consuming 34 kilos of soil in a day (Miljøstyrelsen, n.d., 2002a). Nonetheless, I lack the expertise to determine whether these precautions are overly cautious. Irrespective of other factors, certain contamination sources can certainly pose significant risks, and as our understanding of their impact continues to evolve, a cautious approach might be commendable.

However, another potential contradiction is that the naturally occurring background level concentrations and the concentrations in the SQCs are exceptionally similar and sometimes even overlapping (Miljø- og Fødevareministeriet, 2021; Miljøstyrelsen, 2002a). Examples of such substances are cadmium, lead, and nickel, see figure 1.

CONTRADICTION 2

Similar and overlapping levels of concentration between background levels and the quality criteria levels mean that certain substances found in the soil are likely to classify it as "slightly contaminated" despite not indicating a higher concentration than what naturally occurs in soil. This signifies that limits, which are a deciding factor for whether soil should be replaced, could be deceptive, and remediation would have little to no effect, as concentration levels in the newly substituted soil could easily surpass the SQC limits due to naturally appearing substances.

SURFACE COVERINGS

Moreover, as already indicated above, the risk from physical contact with slightly contaminated soil is easily preventable with even simple precautions. Material provided by the Danish Environmental Protection Agency suggests that these risks could be avoided through planning by covering up exposed soil. While this precaution is also presented in §72 b, the legal requirements contradict the guidelines from the same authoritative source.

CONTRADICTION 3

§72 b states that established or the act of establishing "permanent rigid surface coverings" eliminates the obligation to replace non-clean soil. Copenhagen Municipality and several other urban bureaucracies specify that this entails floor tiles or asphalt (Fredericia Kommune, n.d.; Københavns Kommune, n.d.-a; Svendborg Kommune, 2010). Contrastingly, the material provided by the Danish Environmental Protection Agency specifies that coverings such as grass, sand, gravel and mulch provide an equally adequate amount of protection against slightly contaminated soil (Miljøstyrelsen, n.d., p. 12). The guidelines and legal framework provided by the same institution thus produce contradictions.

AREA CLASSIFICATION

Finally, the aspiration and act of simplifying soil into an easily controllable entity lead to another paradox. Despite actions taken to replace urban soil, the inherent modus operandi of §50 a, "area classification", suggests that the newly remediated site will once again receive a classification of slightly contaminated. In reality, as reported by environmental case workers, an individual assessment based on multiple factors would be necessary to determine whether §72 b would be applicable and thus, new remediation would be required (interview with a current environmental worker). However, there are no standards that signify when such a shift in classification would occur, and as such, an almost continuous cycle of remediation could occur.

CONTRADICTION 4

Complying with §72 b and thus replacing urban soil does not change the deceptive classification of the soil of the site due to area classification. Although this might be an oversimplification, it still exhibits a vision of an endless loop of urban remediation that adds little to no value, especially given the required resources, and contradicts the rational myth of being able to "clean the city".

SUSTAINABLE AND INTEGRATED URBAN SOIL MANAGEMENT PERSPECTIVES

Soil remediation in urban areas has historically been widely regarded as an intrinsically sustainable practice (Hou et al., 2023). This has largely been attributed to the elimination of toxic chemicals from the environment, enabling the reclamation of contaminated land for alternative purposes and thus mitigating urban sprawl (Dulić & Krklješ, 2014; Hou et al., 2023; Swartjes et al., 2012). Nevertheless, comprehensive sustainability evaluations and lifecycle-focused approaches have revealed numerous detrimental environmental and socioeconomic consequences associated with conventional methods (Diamond et al., 1999; Ellis & Hadley, 2009; Favara et al., 2019; Hou et al., 2023; Lemming, 2010).

SUSTAINABLE ALTERNATIVES

As such, sustainability has become an increasingly important focus within the remediation industry in recent years. Across the globe, numerous countries have established Sustainable Remediation Forums (SuRFs) to advance and advocate for sustainable remediation practices (Ellis & Hadley, 2009; Favara et al., 2019).

Life-cycle studies of soil remediation have repeatedly shown that traditional off-site disposal, simultaneously being the most widely used remediation strategy (EPA, 2023), has an exceptionally severe negative impact on the environment, ranking among the most detrimental and harmful remediation activities (Diamond et al., 1999; Hou et al., 2017; Lemming, 2010). This practice entails the excavation of contaminated soil, its transportation and disposal at off-site locations, and is widespread due to its simple nature. In an urban context, it entails the transportation of substantial volumes of contaminated soil through densely populated areas.

The environmental, social and economic impact of remediation can, however, extend far beyond the immediate site or even local communities (Hou et al., 2014). One study suggested that the emissions from applying off-site disposal at *a single brownfield site* in the USA could emit as much as 2% of the annual co2 emissions of the entire state (Ellis et al., 2008, as cited in Ellis & Hadley, 2009).

While this is an extreme case, consequently, increasing concern about environmental imposition has initiated extensive efforts dedicated to the development of more sustainable practices.
These advances range from remediation in-situ methods, such low impact bio- and microbial remediation (Dada et al., 2021; Hou et al., 2023) and nature-based immobilisation of contaminants (Wang et al., 2019) to technological advancements and intra- and intersectoral partnerships regarding the implementation of electrified heavy machinery (By & Havn, 2022). Most efforts are, however, directed at large-scale urban remediation and management projects pertaining to macrolevel soil quantities, such as Lynetteholmen. Thus, despite being within the same institutional field, the concerns presented in this chapter get little attention. This means that the institutional structures, practices, and boundaries concerned with slightly contaminated soil and smaller quantities of soil are taken for granted and have become neglected. This presents us with the next contradiction.

CONTRADICTION 5

Despite a growing body of evidence against traditional remediation methods, such as off-site disposal, and innovations and advancements in alternative practices, Copenhagen Municipality and most other institutional actors still perform these inferior practices. This presents an institutional contradiction between knowledge (boundaries) and action (practices).

NO ACTION

There are furthermore multiple other sources demonstrating that the act of remediation has a lower net environmental benefit (NEB), both locally and globally than the NEB from taking no action and leaving the contamination untouched (Diamond et al., 1999; Hou et al., 2017; Lemming, 2010; Suer et al., 2009; Vignes, 2001). This has proven to be true even in cases of severe soil contamination (Lemming, 2010; Mauko Pranjić et al., 2018), and thus the NEB in cases of slightly contaminated soil must be expected to be even lower (Hou et al., 2017), again providing contradictions.

CONTRADICTION 6

If the net environmental benefit of off-site disposal of slightly contaminated soil is equal to or smaller than that of "no-action", the legislation necessitating remediation could put a larger burden on the environment, thus contradicting its original purpose.

IMPLEMENTING SUSTAINABLE SOIL REMEDIATION PRACTICES

As the range of alternative methods continues to expand, practical Life Cycle Assessment (LCA) decision-making has been promoted. This involves conducting site-specific comparative analyses of different approaches to assist in the sustainable selection of the most suitable practices (Favara & Skance, 2017; Lemming, 2010). These are still rare and require both financial and knowledge resources (Favara & Skance, 2017). However, integrating an LCA into an institutional framework can assist decision-makers and stakeholders by providing guidance, aligning expectations, and enhancing solutions for remediation objectives and priorities.

The Danish Environmental Protection Agency published and proposed such a methodology for assessment that "provides a tool for enhanced sustainability dialogue *[sic]*" (Søndergaard et al., 2022, p. 9). This and many other recent efforts towards implementing sustainable remediation practices follow the principles in the ISO standard for sustainable remediation (ISO 18504:2017). Sustainable remediation was defined by the International Organization for Standardization (ISO) in 2017 as "the elimination and/or control of *unacceptable risks* [emphasis added] in a safe and timely manner while optimising the environmental, social, and economic value of the work" (ISO, 2017).
The wording in this definition thus further contradicts the imposition of remediation of slightly contaminated soil by promoting and using the ISO 18504:2017 standard.

CONTRADICTION 7

The standard specifies that *unacceptable risks* should be controlled or avoided in a safe and timely manner. However, the Danish Environmental Protection Agency has expressed that "the contamination level in slightly contaminated soil is not significant enough to warrant its removal" (Miljøstyrelsen, n.d., p. 1).

The standard is meant to be used as the foundation for a tool to facilitate enhanced sustainability dialogue but has not yet facilitated dialogue to redefine the existing boundaries.

INTEGRATED PERSPECTIVES AND BURDEN SHIFTING

Informational material on slightly contaminated soil published by the Danish Environmental Protection Agency provides further knowledge and provides sources of contradictions regarding the remediation of slightly contaminated soil.

This material and other sources repeatedly specify that the risk pertaining to the interaction with slightly contaminated soil is almost insignificant (Hansen, 2006; Miljøstyrelsen, n.d., 2002a; Miljøstyrelsen et al., n.d.). It further specifies that *if no precautions are taken* (such as washing hands before meals or after playing in the dirt), it is comparable to the risk and concentration that an average Danish citizen would consume *every day*. This is largely due to low thresholds embedded in the SQCs. More relevantly for sustainable urban planning, the information material stresses that the risk is "significantly lower than the risk imparted by air pollution in larger cities" (Miljøstyrelsen, n.d., p. 2). As the replacement of soil in urban areas is largely dependent on off-site disposal, it significantly contributes to increasing particle contamination and air pollution (Diamond et al., 1999). This results in "environmental burden shifting" (Yang et al., 2012), where the environmental impacts are shifted from one area of concern to another, thus presenting another contradiction.

CONTRADICTION 8

The process of remediating slightly contaminated soil in urban areas presumably poses a greater risk for human health than the risk related to physical contact with slightly contaminated soil due to particle contamination and air pollution. This not only causes harm, but it also directly contradicts the purpose specified in the Soil Contamination Act of "preventing or evading harmful impacts on [...] human health" (Jordforureningsloven, 2017, §1).

INTRAINSTITUTIONAL DIVERGENT OBJECTIVES

Barriers to sustainable remediation persist due to stakeholder mismatches, efficiency concerns, and limited timescales, as pointed out by Hou et al. (2023). A significant challenge lies in reconciling conflicting intrainstitutional values, which emerge from the ongoing processes of producing and replicating institutional actions by various actors across multiple intrainstitutional levels. Traditional financial models governing decision-making processes, as well as the planning objects that make these phenomena and decisions administrative, often overlook the environmental, social, and economic impacts associated with remediation. Sustainability considerations thus only gain relevance when indirect costs are

quantifiable and transparent or when such non-monetary institutional sustainability goals become practical and administrative. However, these new perspectives can clash with existing institutional rationales, resulting in contradictions.

DECARBONISATION

Carbon neutrality, a new imperative for the economy, is gaining significant prominence and agency within many bureaucracies, including Copenhagen Municipality. As such, responsibilities and goals have been interjected into the administrative directories at an executive level (interview with the Head of Division at TMF). To manage these goals, increased accounting of emissions and environmental impact is currently being deployed and implemented. These goals do, however, become more difficult to reach once the impacts of urban soil management and off-site disposal are accounted for, creating an intrainstitutional contradiction between the objectives in different parts of the organisation.

CONTRADICTION 9

The introduction of more rigorous carbon accounting measures, quantifying the environmental impacts of remediation processes, presents a growing challenge in the pursuit of achieving carbon neutrality and fulfilling administrative responsibilities.

ECONOMIC AND RESOURCE-DRIVEN OBJECTIVES

Meanwhile, certain economic and resource-driven interests are continually pushing for institutional stability. KMC Nordhavn, a resource centre and disposal site owned by Copenhagen Municipality, is guarding such interests and objectives. Firstly, KMC Nordhavn is financially supported through disposal fees from both private and bureaucratic actors and a reduction and profits benefits Copenhagen Municipality and funds activities and projects.

Secondly, CPH City and Port Development (da.: By & Havn), predominately owned by Copenhagen Municipality, is accountable for large infrastructure projects, such as Lynetteholmen (By & Havn, n.d.). These necessitate astronomical volumes of "clean fill" (recyclable waste materials for construction projects, such as uncontaminated soil (NBDELG, 2022)). Furthermore, the disposal site at KMC Nordhavn has reached its limit, and an ongoing expansion necessitates increased amounts of clean fill (Københavns Kommune, n.d.-b).

These mechanisms present thus institutional economic contradictions and resource-driven contradictions.

CONTRADICTION 10

A reduction in the disposal of soil at KMC Nordhavn would decrease their profit, thus making it more difficult to fund projects such as large-scale infrastructure. Thus, efforts to save money and reduce emissions in construction projects through decreased soil remediation would

contradict efforts to uphold activities that fund other efforts towards (sustainable) urban planning.

CONTRADICTION 11

Reducing the overall disposal of soil would restrain efforts to construct large-scale projects that necessitate large volumes of clean fill. This would subsequently slow progress or require the acquisition of soil from alternative sources, leading to delays or increased costs, creating contradictions between the different intrainstitutional objectives and projects.

BIODIVERSITY AND ECOLOGY

Anthropogenic disturbances such as construction activities and soil management practices alter urban soil properties, and such activities can impact soil quality and influence both below- and above-ground biodiversity (Grewal et al., 2011; Smith et al., 2006; Tresch et al., 2018). Simultaneously researchers found no correlation between heavy metals and decomposition or earthworm activity (Tresch et al., 2018), indicating that slightly contaminated soil would not be of worse ecological quality. Meanwhile, increasing urban biodiversity is becoming of increasing concern in Copenhagen Municipality, which could conflict with soil remediation.

CONTRADICTION 12

If the disturbance of soil involved in replacing slightly contaminated soil negatively impacts both below- and above-ground biodiversity, it would contradict other institutional goals related to increasing urban biodiversity. It could also potentially worsen soil quality, creating worse conditions for plant growth and contradicting landscaping efforts.

RESULTS

The institutional landscape of soil exhibits contrasting narratives, with notable shifts in knowledge, practices, and transformative changes. However, it also reveals areas of stagnation, where certain elements remain unchanged and resistant.

This tells a story about the institutional work that has gone into both condensing soil as a planning object, but also innovating it as an institutional field, consequently embedding contradictions into it. These contradictions thus stem from the process of deliberately influencing or transforming soil as an institutional field.

The process of simplifying the complexities of soil management practices, previously consisting of site-specific evaluations, into a condensed, generalisable, and easily governable planning object has created incompatibilities, conflicting objectives and institutional contradictions. Institutional work by urban bureaucracies such as Copenhagen Municipality and other local institutional fields thus creates embedded discrepancies in the management of soil. These range from irregularities between legally imposed remediation and what institutional

norms otherwise would advocate to paradoxes created by different parts of the same legal framework.

Meanwhile, deliberate work to innovate soil remediation practices and perspectives, such as creating alternative sustainable practices and exploring integrated soil remediation perspectives, has significantly advanced the overall institutional field of soil management. Such efforts have created new knowledge and increased both the awareness and availability of sustainable actions. Local urban bureaucracies and other institutional fields, such as Copenhagen Municipality and the Danish Ministry of Environment and Environmental Protection Agency, have, however, not reacted to such innovations by reimagining their activities. As a result, this misalignment between practice work and boundary work has introduced a discernible gap between the existing knowledge base and the corresponding actions undertaken.

This inconsistency can result in the undertaking of less-than-optimal remediation actions, which shifts environmental impacts and potentially compromises the well-being of both the ecosystem and humans that the institution otherwise tries to protect.

Finally, institutional work, such as the recent addition of less resource-driven objectives in Copenhagen Municipality, including decarbonisation, has created intrainstitutional conflicts. These collide with the traditional, stable, and locked-in goals of profit and resources, such as clean fill, and must compete against each other, often at a disadvantage for the recent additions. Meanwhile, institutional work aimed at sustainability, such as increased accounting of remediation impacts or competing efforts to increase soil resources and decrease emissions and costs, can create internal paradoxes and set hinder progress.
This signifies the need for intrainstitutional negotiations and reconciliation of objectives.

The presented contradictions should not be seen as conclusive, and no resolution is presented, but rather they are presented as the foundation for a discussion, potential reimagination and negotiation of the future of soil as a planning object.

CONCLUSION & REFLECTIONS

The purpose of these analyses was to shed light on the institutional work that went into condensing the urban phenomenon of soil into a bureaucratic planning object and how this embedded contradictions into it.

In addressing the first aspect, it has become evident that intentional institutional efforts, coupled with changing contextual factors, have played a significant role in shaping soil as a planning object. The process of simplifying and condensing a complex urban phenomenon, such as soil, into a manageable and controllable planning entity

has involved numerous cycles of institutional processes, ultimately culminating in its stabilisation. However, in line with dialectical theory, institutional incompatibilities and contradictions will naturally occur.

Thus, regarding the second aspect of the purpose, it is important to recognise that while these contradictions originate from various sources, they all emerge through the mechanism of institutional work. This can especially be attributed to the dynamic between institutional innovation and institutional stagnation, indicating discrepancies between practice work and boundary work. As such, despite significant innovation, progress, and re-imagination in the overall field of sustainable soil management, it is noteworthy that urban soil as a local institutional field and bureaucratic planning object has remained unchanged throughout this period.

Based on these observations, a hypothesis is formulated:

While considerable practical work has been undertaken, resulting in corresponding changes, there has been a striking absence of boundary work directed at change.

Therefore, the subsequent focus of this thesis is to initiate and engage in boundary work, with the ultimate goal of using contradictions to mobilise change agents. By challenging existing institutional boundaries, this work aims to inspire others to join a reimagination and transformation of soil as a planning object, hopefully, "digging a path" for a new sustainable and inclusive paradigm in urban planning.

DESIGN WORK

At first glance, the identified contradictions presented in the previous chapter may appear as a separate result or process from the act of mobilising others, but the reality is that both have been conducted simultaneously, highlighting their interconnected nature. Identifying and mobilising tensions and contradictions are intrinsic parts of both the analysis process and design work rather than separate tasks.

In comprehending and unravelling the embedded contradictions within planning objects, the acquisition of information from diverse sources has emerged as a pivotal undertaking. While desk research and literary investigations can offer valuable insights, the most effective and embedded knowledge emerges from real-life interactions and engagements. Engaging with stakeholders, conducting interviews, and participating in meetings not only provides first-hand experiences and access to diverse perspectives, but importantly, it simultaneously acts as a platform to construct social arrangements and mobilise change agents.

In this research, the mobilisation potential of ideas, frames, contradictions, tensions and their related knowledge objects is of central focus. By equipping and "performing" these elements and observing the responses and subsequent actions of others, we can assess the impact and significance of these contradictions in shaping institutional work. Therefore, the formation of such "action nets" signifies the ability of contradictions to generate momentum for change and influence the course of action.

Through this work, we not only identify and understand the contradictions but also explore their transformative potential. As such, the contradictions presented in the previous chapter are very much the result of the iterative design work presented in this chapter.

METHODS

In order to identify and assess contradictions and their potential for initiating change, it is necessary to mobilise other actors.

As demonstrated in the analysis, engaging and encouraging others to "roll the snowball" has played a crucial role in identifying institutional work and the subsequently embedded contradictions. This process can be viewed as actors responding and acting upon my actions. Simultaneously, this signifies a process of transforming actors into change agents.

I use Barbara Czarniawska's perspective of *action nets* to describe these "collective actions, connected [and

initiated] by one another" (Corvellec & Czarniawska, 2014, p. 7). First introduced by Czarniawska in 2004, such actions are if already situated and embedded in an institutional structure, perceived as necessary because they require each other to maintain institutional order. Nevertheless, in the case of novel ideas, they have the potential to mobilise and form connections *if* they are recognised as effective strategies for achieving objectives (Czarniawska, 2004). From this perspective, it is preferable to use the term *actants*, signifying both that which "undertakes an act" as well as highlighting that these can be both human and non-human.

I have used the action net perspective actively as a method to identify contradictions embedded in "soil" by being provided with information from actants who have acted upon my exploration. In addition, this approach is employed to determine whether the identified contradictions have the potential to act as actants that can mobilise other actants, creating action nets.

The formation of these action nets, therefore, represents the capability of contradictions to generate momentum for change and influence the course of action.

IDENTIFYING CONTRADICTIONS AND TESTING MOBILISATION POTENTIAL

This exploration starts by elaborating on the original motivation for my thesis by looking at initial cracks in the "institutional surface" and the actors who identified them.

SURFACE CRACKS

The initial actor within Copenhagen Municipality to openly acknowledge institutional incompatibilities within the management of soil was a building site supervisor focused on climate adaptation projects who had previously worked as an environmental caseworker. In their previous role, they had been responsible for advising stakeholders on contaminated sites and granting permits for the use of slightly contaminated soil in construction. Having later transitioned to a different role, this individual had a comprehensive understanding of institutional structures and values but also a newly acquired distance allowing for critical reflection and identification of contradictions and tensions.

This reflective distance presented the supervisor with two main sources of tension and discrepancies.

Firstly, an excessively precautionary institutional approach to soil remediation centred around unempirical information. The supervisor implied that slightly contaminated soil was not nearly as risky as the institutional structures would otherwise indicate. Secondly, such an excessive approach created negative impacts on the

environment and human health, which ultimately outweighed the very concerns they were attempting to safeguard.

These initial reflections and explorations, while not constituting a substantial investigation, were expressed to their colleagues and certain actors in positions of authority in 2018 but had little effect. Ultimately the efforts to raise these concerns further were discontinued (interview with the building site supervisor). Although these raised concerns did not have an immediate effect, they did, however, later became actants and initiated the beginning of an action net.

In early 2022, a sustainability-focused project manager and close colleague of mine attended a sustainability leadership course, wherein they were tasked with delving into a case study of their own choosing.
The manager had previously been involved in a project wherein they encountered challenges related to soil management. The overall aim of the project was to execute the project while implementing a circular approach to minimise its environmental footprint (as reported in their course submission). As part of this, they aimed to minimise soil disposal and consequently reduce reliance on new soil and virgin resources.
However, this proved challenging and unfeasible, leading the project manager to reflect critically on existing conventions. During this process, the project manager engaged with the previously mentioned supervisor and their concerns, which then became actants. This further encouraged the project manager's reflective process and served as an initial step toward becoming another connected actant, thereby expanding the action net.

These actors, their work and proposed paradoxes served as actants and also provided the inspiration and a starting point for this thesis. Through the initial action net and the work presented in this and the previous chapter, I also became another connected actant.

EXPANDING THE ACTION NET

The convoluted and comprehensive nature of this design work was executed over the course of 5 months. This work, with its continual and iterative nature, is characterised by multifaceted interconnections, thoughts, and perspectives, which do not lend themselves well to simple reduction.
Instead, recognising the importance of providing a nuanced and descriptive account, I will attempt to describe the diverse themes for the proposed actants, their immediate impact and derived actants.

As the theory suggests, incorporating a greater number of alternative frames, in my case, themes of contradictions, increases the probability of gaining recognition and legitimacy, creating new actants in an expanding action net.
As such, I have tried and tested many different frames,

leading me to identify new contradictions, strengthen (or sometimes weaken) frames, occasionally creating a chain of actions.

These frames, which correlate with previously presented contradictions, are:

- CO_2 and circularity
- Biodiversity and ecology
- Financial and human resource allocation
- Human- and ecosystem health

CO_2 AND CIRCULARITY

Action nets surrounding greenhouse gas emissions and circularity had already developed as I entered the field. Concerns from the executive board in Copenhagen Municipality created actants in the form of goals and objectives that the head of division at TMF again acted upon. As a result, the action nets exhibited significant strength, and actants had long been emerging throughout the entire institution. However, when it came to soil management, there was a lack of knowledge regarding its impacts. Consequently, there was pressure on me to become an actant, understanding and quantifying the impacts to make these tangible actants themselves. Such action would solidify the evidence and be beneficial for understanding soil management and the raised concerns. This led me to a *very* extensive exploration into both the collection and extrapolation of appropriate data, as well as the technical aspects of quantifying and interpreting such information, enabling it to become a powerful actant itself. Through this process, many have been involved, and others have become highly active actants themselves.

BIODIVERSITY AND ECOLOGY

Biodiversity is a growing institutional concern in Copenhagen Municipality. However, despite the presence of many policies and practices aimed at creating better conditions, I have not encountered significant institutional concerns related to below-ground biodiversity and ecology. Nonetheless, the perspectives of a few project managers have positioned me as an actant, driving my pursuit of further knowledge. Others have resisted the development of such action nets, expressing concerns about soil quality and conditions for plant growth.

FINANCIAL AND HUMAN RESOURCE ALLOCATION

Despite the extensive focus on finances in Copenhagen Municipality, which would suggest that this theme has the most legitimacy for change, this has categorically not been the case. Instead, the existing action nets have shown to be so strong that they impede the formation of new ones. Locked-in institutional mechanisms and perspectives on resources mean that the economy of local projects becomes irrelevant as an actant in relation to the existing and extensive economies and actants. Meanwhile, circular economies are currently less institutionally quantifiable. Similarly, uncertainties have been

raised about whether new soil practices would positively impact or just shift the economy in local projects, thereby weakening the action net.

However, surprisingly, or maybe not so surprisingly, looking at previous institutional work, action nets surrounding human resource allocation, administration and debureaucratisation have begun to emerge. These are concerned with the extent of resources used for managing urban soil and have created actants in the Department of Soil and Groundwater in Copenhagen Municipality. However, this department has otherwise been particularly resistant to change regarding the other mentioned concerns, primarily due to its strong connections to the existing and highly stable action nets surrounding the governing soil legislation. I have not actively undertaken extensive efforts to generate additional actants except for exploring how soil remediation efforts may yield limited value due to various institutional contradictions.

HUMAN- AND ECOSYSTEM HEALTH

Finally, and the start of this entire endeavour, both existing and newly formed action nets are competing to either stabilise or change the institutional planning object. Existing action nets are acting to ensure that urban soil is considered clean and unproblematic for humans and the local environment in accordance with the legislation. Meanwhile, the newly formed action nets, in which I have become embedded, are striving to promote a more holistic perspective on sustainability. They use this perspective and the supporting evidence as actants to expand their network, which can challenge existing ones. After identifying many of the contradictions, I engaged in conversations with the Danish Environmental Protection Agency. Wanting to see if they could either recognise or dismiss the contradictions, I presented many of the thoughts from the previous chapter, especially related to human- and ecosystem health, relating to their stated purpose. The agency representative was quite interested and expressed that this was a matter which they had not discussed before. As such, I was asked to forward them an email outlining the concerns and arguments so they could discuss it in plenum. Despite complying with this task, I never heard back., thus the actant seemed to have little effect.

RESULTS

Undoubtedly, there is a process of institutional change underway in how urban soil is managed in Copenhagen Municipality, and the final outcome of such a change process remains speculative. However, new objectives and strong action nets concerning co2 and circularity are certainly catching momentum.

An action net approach was very efficient at identifying both sources of contradictions and more information. Actors could quickly dismiss, verify or elaborate on questions, contradictions or curiosities, often leading me

in new directions, connecting me with others or even partaking themselves in further explorations.
Through these explorations, I have created non-human actants, which, together with me and others, have ignited yet more actors to act on their own, becoming actants. Some of these institutional actors are motivated by the inequities and unbalances of the current institutional value system and want to uncover and qualify such a perspective, while others are motivated by imposed institutional objectives such as carbon neutrality. Despite whether they have motivational differences, those who see to benefit from its efforts are doing work to expand and strengthen this action net even further.

Contradictions which were quantifiable, such as emissions or cost, and those which were simple to understand and seemingly irrational, such as the potential endless loop created by the interplay between §72 b and §50 a, have seemed to have an advantage in getting reactions from others.
Meanwhile, other contradictions were more convoluted and difficult to grasp, and some were so deeply entrenched and embedded in everyday life that actors had a hard time reimagining them. This was especially true for many of the contradictions rooted in legislation, as actors often expressed that these were set in stone and could not be discussed or reimagined. This was equally true for many of the strong and legitimised existing institutional structures that were causing contradictions with others with less legitimacy. These action nets, such as those safeguarding the economy of KMC Nordhavn, had such an authority on actors that they felt it would be hopeless to challenge these structures.
As a result, some contradictions have been less successful at mobilising change agents, and existing action nets are still competing for how or whether such a change should express itself or whether the system should stay locked into existing objectives and mechanisms.

However, as a result of this initial phase of mobilisation, others are now actively recruiting me in their process of reimagining soil as an urban planning object. Through these efforts, I hope to contribute and participate in expanding the understanding of the role of soil within urban environments.

SOLUTION

Suppose you were seeking definitive solutions on how soil management practices should be shaped and how soil should be reimagined as an urban planning object. In that case, this chapter and the whole thesis might fall short of your expectations. Moreover, in comparison to the extensive size of this thesis, this particular chapter may appear shockingly brief.

Initially, when embarking on the work for this thesis, I was urged to show "what was at stake in urban soil management". The objective has since been to display the complexities of soil as an urban phenomenon and how simplifying such a phenomenon into a condensed governable planning object naturally embeds contradictions into it. So rather than providing immediate relief in the form of conclusive solutions, the intention in this chapter is, based on the insights gained from the case study, to emphasise the considerations that should go into future processes.

The primary consideration, moving forward, is that change processes regarding urban soil management in Copenhagen need to be situated within the broader contextual framework of previous institutional work and change processes. Examining what facilitated stability in the first case is therefore essential to determine whether proposed changes have the potential to be successful or if they may pose risks to the overall transition toward sustainability. When working with urban planning objects, such as soil, this means a continued focus on how planning objects can make complex situations easily administrable and governable. The concern for simple and unbureaucratic soil planning and management was previously both the initiator for change and the intermediary to relieve conflicts. As such, efforts to change soil planning practices need to partake in the impossible task of both nuancing and keeping urban soil management simple and manageable.
Furthermore, rather than engaging in roundtable negotiations, I propose that future work in establishing and building out action nets is a more thoughtful approach which should be continued. I would argue that relying on a collaborative approach would foster ownership, reduce resistance, and increase the likelihood of sustainable outcomes. Such an approach could serve as a processual skeleton which grows institutional capacity for reflection upon other otherwise taken-for-granted conventions and can help ensure long-term progress and enable more sustainable urban planning.

However, it is equally important to acknowledge that the work conducted in this thesis merely scratches the surface of the ongoing and forthcoming institutional process of change in urban soil management.

DISCUSSION

This thesis explores the dynamics and implications of condensing complex urban phenomena such as soil into planning objects. Taking place within the context of urban soil management in Copenhagen, it aimed to investigate the role of institutional work in identifying and navigating urban contradictions, with a particular focus on how these could be used for the reimagining of everyday and taken-for-granted bureaucratic planning objects to enable more sustainable planning practices.
The overarching problem formulation that guided this study was:

> *"How can everyday and taken-for-granted planning objects inside urban bureaucracies be reimagined from within to enable more sustainable planning?"*

To address this problem, two specific research questions were formulated, which guided the subsequent analyses and design work.

1. *How has institutional work embedded contradictions within Copenhagen Municipality's planning object "soil"?*

2. *How can institutional insiders identify and use contradictions to mobilise change agents and reimagine soil as an urban planning object to enable more sustainable planning in Copenhagen Municipality?*

The first part was approached by examining historical factors and institutional work involved in constructing soil as a planning object and exploring more recent institutional efforts involved in developing new urban planning practices.
These two analyses revealed that condensing the intricacies of urban soil management into a simple planning object and introducing new institutional objectives had inherently embedded contradictions into soil as a planning object. Furthermore, it showed that recent but unimplemented advancements in the institutional field of urban soil management had created a contradiction between the planning object and the existing knowledge on sustainable urban soil management practices.
There were examples of intrainstitutional incompatibilities, such as institutional bodies using the same management framework but approaching soil management and remediation in converging ways and discrepancies between the official guiding material and the governing legislation. Moreover, recently introduced objectives, such as carbon neutrality and circularity, showed that isomorphism conflicted with divergent interests. Overall, there was a discrepancy between knowledge of soil risks and sustainable practices and what was acted out in the institution, indicating a lack of connection between boundary work and practice work.

Many of these were the points of frustration for institutional actors who could not reach their objectives or were concerned for urban sustainability.

This second question, a central part of the problem formulation, was approached through design work and engaging in an action net approach. Through this work, engagements with actors and information not only served as a means to identify contradictions but also as a platform to construct social arrangements and mobilise others. This approach created a rippling and looping effect, wherein actors became actants and helped to uncover new contradictions and engage in further actions for mobilising others.
This work revealed that contradictions in urban soil management could act as powerful catalysts of mobilisation and help strengthen institutional efforts toward change. Contradictions effective at mobilisation were generally those which were easy to quantify or those that already had existing action nets, such as environmental concerns. Employing these created both large interest and resulted in other actors taking further actions to build support, expanding and strengthening the action net. Furthermore, the work revealed that while specific contradictions could motivate change agents, others, typically linked with strong institutional structures and mechanisms, such as economic dependencies, had limited effectiveness. These existing action nets had perceived legitimacy exceeding the alternative nets. This highlights the importance of continually identifying and testing the mobilisation potential of additional contradictions, underscoring the importance of an iterative and combined approach.

Thus, although it could appear as if the analyses and design work were separate components in answering the problem formulation, the reality is that both have been conducted simultaneously and affected each other, highlighting their interconnected nature. This aligns well with Zietsma & Lawrence's results, which indicate that institutional change results from not only one kind of work but also the interplay between boundary work and practice work.

THE CASE OF AND FOR SOIL

The landscape of the institutional field of soil tells a tale of contrasting narratives. On the one hand, it unfolds a narrative of substantial changes marked by transformative shifts and evolving knowledge and practices. Yet, on the other hand, and more recently, it reveals pockets of stasis, wherein certain aspects remain untouched and resistant to change.

This divergent narrative and the extensive institutional work the field has undergone have resulted in an abundance of institutional discrepancies, incompatibilities, and contradictions within the institutional landscape of urban soil.

While this might seem like an extreme case, especially looking at the contradictions, such discrepancies are, from a dialectical perspective, not surprising but rather a natural part of institutionalisation and totality (Benson, 1977). A simplified representation of reality, as planning objects are, cannot contain the intricacies of the absolute phenomenon they try to encase without compromising other factors. This outcome is not unexpected and represents the trade-off involved in prioritising objectives such as governability and planning. As such, contradictions inherently become embedded in them. However, the findings suggest that such contradictions do not need to be approached with caution or conflict but should serve as points of interest and curiosity. Seo & Creed (2002) further hypothesise that these contradictions are the "seeds of institutional change" (p 226) and that actors engage in such change processes by first employing a critical perspective of unmet interests or contradictions.

And while this is true, I would argue that such an exposition is not always enough to start change processes, as seen by the previous work of the building site supervisor. On the other hand, it could be argued that they *did* initiate such a process, as I otherwise most likely would not have embarked on this journey. But despite underscoring the importance of contradictions in change processes, the theory does not elucidate much about how such contradictions practically can be identified and mobilised in the real world but rather seems to assume that they will eventually expose themselves.

Furthermore, the findings emphasise the importance of not only finding and understanding the contradictions but also exploring the underlying mechanisms and structures that led to them. By exploring the institutional work that gave rise to contradictions, one gains insights into the existing power dynamics, institutional structures, and cultural norms within the urban bureaucracy. This understanding helps identify the entrenched practices, beliefs, and routines that contribute to the contradictions and hinder sustainable planning efforts. Recognising the institutional work behind contradictions thus allows learning from past experiences and avoiding pitfalls in future endeavours.

This fascinating case, along with the undertaken exploration, therefore, offers a comprehensive and applicable vision of not only the institutional work that goes into embedding contradictions into institutional constructions, such as planning objects, but also of the work that can be done to unlock them *through their discovery*.

It is within this context and perspective that my thesis has unfolded itself, offering a valuable contribution to the existing body of knowledge on sustainable design.

These findings also suggest that institutions should not try to undermine efforts at exposing contradictions and institutional incompatibilities but rather see them as an opportunity to grow or become more stable. This further highlights the institutions' and bureaucracies' role in promoting curiosity towards confoundments and change.

EMBEDDED AGENCY AND ACTION NETS

It is a common perception that institutional actors comply with the desires and expectations of their institutions, and the concept of embedded agency highlights this interdependence and paradox between actors and their social, technological, and organizational contexts (Emirbayer & Mische, 1998). While it is true that institutional actors are often expected to adhere to the established norms, rules, and goals of their institutions, it is essential to recognize that their actions can go beyond mere compliance. In the context of action nets, Corvellec and Czarniawska (2014, p. 16) argue that while action nets are influenced by the existing institutional order, they also have the potential to challenge and transform this order. This suggests that institutional actors possess agency and can actively contribute to reshaping the institutional dynamics they operate within. Building upon this understanding and the idea of embedded agency, I firmly believe that institutions should actively embrace and integrate values of curiosity and a willingness to adapt. By cultivating an environment that fosters the capacity for change, institutions can empower their actors to question and critically examine existing norms and practices. This creates a space for exploration, experimentation, and the emergence of new ideas, innovative approaches, and transformative possibilities. This, in turn, can bring significant benefits to the institutions themselves. By embracing curiosity and promoting a culture of openness to change, institutions can tap into the collective intelligence and creativity of their actors, fostering a culture of continuous improvement and adaptability.

The findings indicate that engaging in such an approach can help not only identify and mobilise contradictions for a single process of change but also build overall institutional capacity for ongoing change and reflection.

COLLECTIVE ACTION AND AUTHORITIES

According to Corvellec and Czarniawska (2014), action nets encourage actions at all institutional levels and do not prioritise hierarchy, but still, it is important to acknowledge that institutional change processes will most likely involve engaging with authoritative paths at some point. In the context of urban bureaucracies like Copenhagen Municipality, this is certainly true. However, this should not discourage actors. Rather, I strongly believe that action nets offer a more effective pathway to making an impact within such systems.

Action nets, providing a platform for collaboration, knowledge sharing and coordination of efforts, enable actors to pool their resources and expertise. This collective action approach of building out nets can amplify the impact of individual actors, making it easier to navigate bureaucratic processes and advocate alternative approaches. These foster a sense of ownership, empowerment, and engagement, and by including actors who may have previously been marginalised or excluded from

decision-making processes, they democratise the change process. This inclusivity can lead to increased legitimacy and acceptance of proposed initiatives, making it more likely for institutional gatekeepers to consider and adopt alternative pathways for change.

But, pertaining to actor-network theory, this, of course, is only true if actors, actions, or rather actants, can translate themselves into other actants.

THE POWERS AND HAZARDS OF NON-HUMAN ACTANTS

Some actors may have more influence and control over the network due to their position, resources, or expertise. However, as Corvellec and Czarniawska (2014) suggest, power is not solely held by human actors but can also be distributed among non-human actants. For example, a technology or a knowledge object can shape the actions and decisions of human actors within the network.

This aligns well with my observations, and through my exploration of action nets and contradiction, I observed significant variations in the efficacy of different actants within the networks. Notably, quantifiable knowledge objects, such as CO_2 calculations, emerged as potent catalysts capable of capturing the attention and engagement of actors within the network. Their quantifiable nature gave something for actors to grasp onto, informing their choices and behaviours.

While this underscores the agency of non-human actants in shaping actors' perceptions, decisions, and behaviours, such knowledge objects cannot work on their own, and their continued adaptation depends on the active participation of human actors. Human engagement breathes life into these objects, ensuring their ongoing relevance and responsiveness to changing circumstances and emerging challenges. Otherwise, these objects risk stagnation, becoming static artefacts that are taken for granted and resistant to change, akin to the current planning objects, again underlining the importance of institutionally infusing values of curiosity and a willingness to adapt.

SUSTAINABLE ACTIONS

But what about sustainable urban soil management and the fundamental question and paradox that initiated this thesis, you might ask.

That question was and remains:

> "Does the process of urban soil management in Copenhagen Municipality exacerbate the very concerns that it and the surrounding institutions aim to protect?"

Maybe disappointingly, not being an environmental engineer, I still cannot credibly answer this question, despite having my opinions.

What I can do and have done, however, is to trigger these seemingly embedded contradictions and stimulate critical thinking in the bureaucratic landscape of Copenhagen Municipality. By doing so, I have aimed to inspire others to engage in similar reflections and to develop a critical capacity. From an action net perspective, my work will continue to cause ripples.

This offers promise to institutional individuals who may feel they lack the perceived authority to initiate such large-scale sustainable change. Instead, it suggests that every action holds value and every actor has the potential to become an influential agent or actant, enabling and empowering others. This perspective aligns with the notion of the butterfly effect, where small actions can have far-reaching consequences and contribute to broader systemic change.
Secondly, it signifies that sustainable transitions within institutions do not solely rely on external or exogenous change. Rather, they can originate from within, from any actor within the system. This approach aligns with transition theories such as Transition Management, where innovation is tested through small "experiments". However, an action net approach adheres to a less planned and strategic approach. This perspective instead emphasises that individuals should not wait for collective action to be initiated elsewhere but should take the initiative themselves. It encourages proactive engagement and empowers individuals to make a difference, recognising that change can emerge from various points within the system.

BEYOND SOIL

As a reader of this thesis, I recognise that you may have had reservations regarding the relevance of the presented work beyond urban soil management.
The work and contradictions presented in this thesis *are* indeed highly directed towards the institutional structures surrounding soil. Hopefully, concurring with an action net perspective, this work can affect a transition towards more sustainable urban soil management in Copenhagen and the planning object that guides everyday work.

However, I have shown that these insights also hold a much stronger significance for the overall direction of this thesis, directing and shedding light on the process involved in intentionally affecting institutional structures and cultivating a capacity for reflection upon otherwise invisible and taken-for-granted structures.
I would argue that understanding the context of any institutional structure helps not only to understand the underlying mechanisms and contradictions but also gives insight into how they can be avoided in the future. As such, institutional change processes should be met with curiosity rather than criticism. For those interested in intentionally affecting institutional structures such as

planning objects, I, therefore, recommend an action net approach as an imperative part.

During my work for this thesis, I encountered an interesting perspective from someone who believes that the time is ripe for institutional changes in urban soil management. While this assertion may hold validity, I propose that it is not only the ideal timing but also the methods employed in initiating these that allow for a sustainable transition of these otherwise taken-for-granted objects.

CONCLUSION

Working within large institutional organisations such as urban bureaucracies, we all start to wonder about certain seemingly irrational norms or rules at one point or another. This puzzlement often appears when challenges in our everyday work emerge, causing us to reflect upon otherwise taken-for-granted practices and planning objects.
These planning objects are necessary bureaucratic structures which condense complex phenomena and transform them into manageable entities that make an otherwise chaotic world governable. But simplifying a complex world into simple and strict rules and guidelines that shape our everyday work does not come without compromise and can become points of frustration or conflict.

However, it is the actions we choose to take when faced with such confounding situations that matter. We have different options: we can do nothing, often influenced by the institutional norms and complacency that may have been inadvertently ingrained in us. We can, however, also act upon these confoundments. One way is to respond with criticism, demanding immediate resolution and seeking authority to address the issue. Alternatively, there is another path we can take, one that fosters a process of curiosity and exploration.

This thesis explores one such case of not only confoundment but also of employing curiosity situated within bureaucratic urban soil management in Copenhagen and asks the question:

> *"How can everyday and taken-for-granted planning objects inside urban bureaucracies be reimagined from within to enable more sustainable planning?"*

Thus, this thesis provides recommendations for those interested in intentionally affecting institutional structures such as planning objects.
First, any change process of reimagining existing institutional constructions, such as planning objects, needs to comprehend and situate itself in the context in which the structures were developed.
Contradictions within institutional structures, such as planning objects, can come from many places, including the very process that condensed the intricacies of the urban fabric into them in the first place. When new institutional objectives or innovation challenge existing structures, they inherently create incompatibilities and become points of conflict. By understanding not just the contradictions but also the underlying institutional work and mechanisms that led to them, change agents can gain insight into how they can be avoided in the future, thereby protecting the institution and themselves against vulnerabilities.

Besides involving curiosity, such a process is best initiated by actors who can engage in transdisciplinary work and are situated and can circulate within the institutional structures. Peripheral or less specialised actors have an advantage in navigating these bureaucratic systems freely and effectively by circulating and engaging with a wider range of actors. This approach thus goes beyond relying solely on the expertise of specialists and instead encourages the integration of diverse perspectives and multiple fields of knowledge. By drawing on and embedding themselves in various institutional structures and disciplines, change agents can encourage collaboration and develop collective, more holistic and unconventional solutions to complex urban planning challenges.

While there are many approaches to urban sustainability transitions, the work presented in this thesis suggests that adopting an action net perspective in institutions such as urban bureaucracies can provide a valuable opportunity to simultaneously identify, test, and mobilise contradictions within the everyday and taken-for-granted planning objects so that they can be reimagined and enable more sustainable planning. Not only has this approach shown promise for mobilising collective action, but such an approach simultaneously allows for less confrontational change processes than traditional authoritative approaches, which in the end, benefit both the institutions and their actors.

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