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Do Good!

Sustainability and Urban Design



Amsterdam center and Grachtengordel (canal-ring), 2006, source: Bureau Monumenten & Archeologie gemeente Amsterdam.



Gracht (canal) houses, Amsterdam, 2005, photo by Christian Salewski.



Flood protection test of the Maaslantkering in Hoek van Holland, Deltawerken, in the Netherlands, 1997, source: Ministerie van Verkeer en Waterstaat, Rijkswaterstaat.

Sustainability has become the leading policy idea worldwide. In this article, we will try to decipher what ‘sustainable urban design’ means. We will argue that we have to go beyond quantifiable indicator systems and ecological technology for a sustainable urban strategy. In an analogy to the idea of ‘good governance’, we should not keep to the ill defined global term ‘sustainable urban design’ but aim at good urban design that is specific in each situation and open for the future.

Sustainability – and Growth

Fortunately, the idea of sustainability has long left the circles of science, environmentalism and transnational organization since the commission, chaired by the former Norwegian Prime Minister Gro Harlem Brundtland, presented its rapport ‘Our Common Future’ to the General Assembly of the United Nations in 1983. It famously defined the term:

“Sustainable development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future.”¹

While this quote became common knowledge despite or precisely because of all its vagueness concerning ‘needs’, ‘aspirations’ and ‘futures’, the commission was not naïve enough to support smart, slow, or no growth ideas as a consequential thought that many environmentalists follow. To the contrary, the not-so-famous second sentence of the famous paragraph 49 dryly stated:

“Far from requiring the cessation of economic growth, it recognizes that the problems of poverty and underdevelopment cannot be solved unless we have a new era of growth in which developing countries play a large role and reap large benefits.”²

This rejection of any notion of an approaching, inevitable Malthusian Catastrophe³ is fundamental to our even posing the central question of this article: What is sustainable urban design? Urban design is a wide-ranged discipline that always requires some form of growth. It operates at different scales, time-horizons, and programmatic and procedural constellations. We will try to illustrate some of our ideas by drawing from various projects that we have elaborated at the ETH Zurich and at KCAP Architects & Planners in Rotterdam. Each project has its own ‘needs’, ‘aspirations’ and ‘futures’, so the question of sustainability will have to be answered for each situation anew.

Needs: Lessons from Amsterdam

The old center of Amsterdam seems to embody the ideal held by many advocates of sustainable urban design, as a brief overview of current literature on

the topic suggests. It's obvious qualities are small-scale urban structures, heavy use of slow and public transport, social cohesion and preservation of historical heritage. It is revealing that these publications never feature the larger picture. Without the huge technological flood protection systems of the Netherlands the small-scaled, pedestrianized city could not survive. This is a good example of a problem encountered in any discussions on sustainability: many issues and scales are multiply interrelated, and a just evaluation of causes and effects becomes very difficult. For those that set sustainability against short-term speculation, Amsterdam still holds some truth: the houses on Herengracht have never lost their quality of life, and despite a high volatility in periods of war and plague, their property values in real terms only doubled during three and a half centuries, as Piet Eichholtz's Herengracht Index shows.⁴

Today, housing is in chronic shortage and the development of new neighborhoods in Amsterdam is strongly regulated by the administration as well as by technological and economic standards of the building industry. When the derelict site of Amsterdam's former water plant was redeveloped in 1993, one of the most difficult tasks of the urban designers, Kees Christiaanse Architects and Planners (now KCAP) was to convince the developers that the concept of a car-free and ecological neighborhood was feasible and that there was a market for it. Against all arguments that cars were essential, this proved to be a key to the success of the GWL-Terrein. Of the 600 apartments, 300 are owner-occupied. They sold within hours even though the new owners had to give up on their cars to buy. Twenty years later, according to recent polls, the inhabitants are among the Amsterdamers most happy with their living situation and their built environment, and their frequent participative neighborhood events and parties give a vivid first-hand impression of the statistics.⁵ The term sustainability was not widespread when the project was planned, but up to this day it is often referred to as a best practice case for sustainable urban design. Interestingly, the aim of the urban design for GWL was not sustainability but a 'good urban design' for a new Amsterdam neighborhood. Successful project features include ecologic technology like rainwater collectors, participative design of public and green space, high density and a mix of functions, social housing, rental apartments and private property that includes a wide variety of housing types, a flexible overall design guideline and the commission to different architects for the building design, the integration and refurbishment of existing industrial heritage and micro-climate design. We can find these today on most checklists for sustainable urban design. But as fixed recipes or checklists fail to produce good design, sustainability is more than advanced technology or a resurrection of neo-traditional, mixed-use, high-density quarters. A closer look at the real or presumed 'needs of the present' can overcome these formulas, as the car-free GWL Terrein showed.



GWL-Terrein from the air, Amsterdam, 2001, source: Peter van Bolhuis/ Pandion.



GWL-Terrein, view from the inner landscape, Amsterdam, 2001, photo by Jan Bitter.

1 UN Documents Cooperation Circles, *Our Common Future. Report of the World Commission on Environment and Development*. Chapter 1: A Threatened Future. November 2007. Cf. A/42/427, <http://www.un-documents.net/ocf-01.htm>.

2 Ibid.

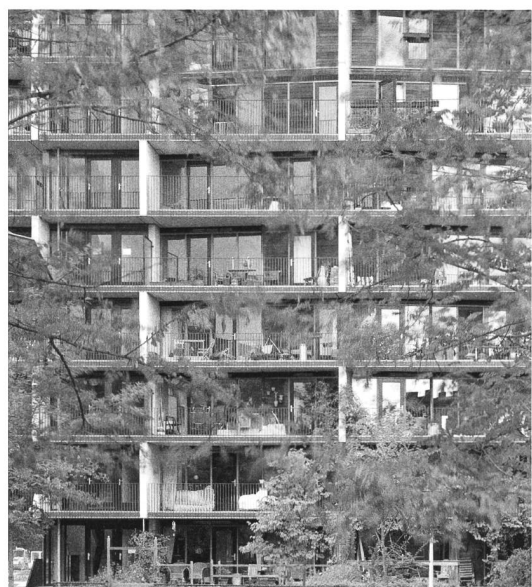
3 Thomas Malthus (1766–1834) essay on the principle of population from 1798 argued that an exponential population growth would always and certainly outrun the linear production of food. Even if this did not happen, mainly due to increased productivity and birth control, and the reductionism of the idea was heavily criticized, the idea remains recurrent in actual debates about the future of our civilization. Cf. www.wikipedia.org.

4 Piet Eichholtz, *A Long Run House Price Index. The Herengracht Index, 1628–1973*. First version 1994, this version 1996. Social Science Research Network. Cf. www.ssrn.com, March 31st, 2008.

Also: Russel Shorto, "This Very, Very Old House", in: *The New York Times* (March 5th, 2006). See also www.nytimes.com (March 31st, 2008).

5 KCAP, *Situations*. Rotterdam: 010 Publishers 2005.

Design Urban Design, not Checklists



GWL Terrein's 'red' industrial heritage and mixed housing and 'green' ecologic and participative landscape, Amsterdam, 2001, source: KCAP Architects & Planners.

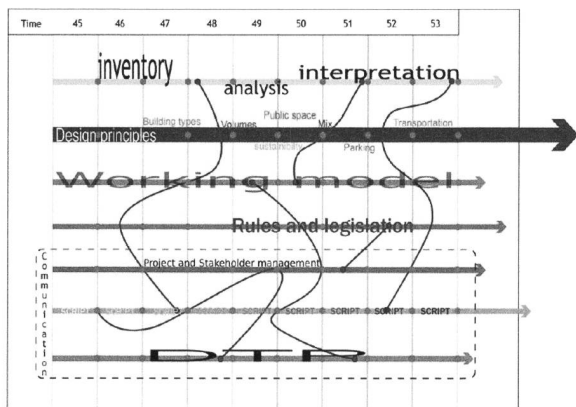


Dongtan location map in the Yangtse river delta, 2005, source: Arup.

Even if GWL's green and red urban landscape is often claimed to be a best practice case, we obviously still fall short of an overall definition for sustainable urban design. The vagueness of the idea of sustainability has led to many efforts for further definition. When people speak about sustainability in architecture in association with urbanism, they are mostly referring to technologies like energy saving, recycling materials, environmental technology management, or ecology. Especially since the last report on global climate change released by the Intergovernmental Panel for Climate Change, zero-carbon-emission design is all the range. For accommodating rapid urbanization, this seems to be a tricky problem. Foremost, Arup's Dongtan 'Eco-City' is a key project for internationally marketing 'China's Green Leap Forward'.⁷ The new satellite city of Shanghai claims to become the first carbon-free city using technological features like highly insulated constructions and a ban on carbon-based vehicles. It is a good sign that China aims at sustainability, but there are major questions concerning the likelihood of any social sustainability in its current political system, starting with the idea of participative planning. And Dongtan could turn out to be a Potemkin's eco-village. It is planned on the seashore of Chongming Island in the flood-threatened river delta of the Yangtse, now an important and protected bird's reserve. The decision to build a new town far out requires a massive 28 kilometer bridge and tunnel constructions and large bridges over the Yangtse at its broadest width. The project reminds us that even though reducing the ecological footprint of cities is clearly a very important goal, policy makers and urban designers worldwide have to be careful not to fall back to the rightfully heavily criticized technocracy of the 1960s through the back-door of a quantified checklist-sustainability. If we look at the state-of-the-art indicator systems for sustainability such as the Swiss Monet index with its currently 163 indicators,⁸ the policy idea of sustainability seems to have gradually turned into a dumping ground for all kinds of things related to it and has therefore become very fuzzy. But sustainability encompasses more than ecologic technology and other quantifiable aspects. Especially in urban design, non-technical aspects involving social behavior and spatial organization can have a great influence on the degree of the use of resources, emissions, economic feasibility, and social cohesion. Accordingly, as practicing and teaching architects and urban designers we can propose the following 'formula':

$$\boxed{\text{sustainable urban design}} = \boxed{\text{urban sustainability}} + \boxed{\text{sustainable technology}}$$

In this formula, the term sustainability is mainly seen from the point of view of the design discipline, something that we could call a holistic approach. From our point of view the technological side of sustainability should no longer be considered a desired ideal or test case, but an accepted standard, a self-evident



part of the project requirements. If we agree on that we can concentrate on the other component of our formula: urban sustainability. This category encompasses ‘future-proof’ urban structures that allow for spatial qualities, social conditions, and long-term economic development. As designers, we currently start from the following fields for good urban design: transformation from the status quo, use of site-specific traces & identities, active landscaping, climate orientation and water & surface management, efficient and mixed land use & scale, variety in urban and building typology, public space network and innovative mobility concept, catalyst effects of the relation between public & private program.

Situations and Uncertainty

As we will see, these criteria are not strictly applicable, off-the shelf concepts (or ‘GWL everywhere’) but can lead to very different solutions. One reason for this is not only the scale, but the specific ‘situation’ each project presents. This idea that Dalibor Vesely once proposed to describe the condition of the urban landscape in all its complexity is crucial to our idea for urban sustainability:

“Situation is not a technical but an ontological term; it is our mode of being in the world. The capacity of typical situations to hold together sometimes very heterogeneous elements and the capacity to give them a primary common meaning makes them not only a critical vehicle of urbanity but also an important criterion of the basic humanity of urban space.”⁹

In all its openness, ‘situation’ is a useful term, because our field of work does not consist of isolated categories, but rather of a mixture of themes, programs, typologies, contexts, and methods. Our proposed working method is consequently based on the notion of working on all of these categories at the same time. Our studios at the ETH provide a good example of working with situations. In the Urban Research Studio,¹⁰ students investigate a specific urban situation over the course of a semester, combining scientific and design methods to develop a deeper understanding of the city and its society. The team concludes the research by producing specific books like the 2007 *London – 100 Tage Research* that attempts to trace and document the status quo and its specific identity. The Urban Design Studio meanwhile aims at an activation of the students’ understanding of the city to work out feasible strategic proposals such as the 2007 *Visions for the Yokohama Waterfront*.¹¹ We strongly believe that sustainable urban design requires thinking about and designing of urban situations in a thorough and precise, yet creative and daring way. This is obviously a balancing act. The combination of both approaches, research and design, is necessary because we have to admit the limits of our ability to really understand the city. Ultimately, we still fall short of a complete understanding of our urban conditions. But as we still have to take decision under the condition of uncertainty, we can see an analogy to political and economic science that uses the comprehensive idea of ‘good governance’ as a prerequisite for a successful development of societies. After all, sustainable urban design means good urban design to us.

Parallel working method, Urban Design Studio, 2003, source: Urban Design Studio, Nicolas Kretschmann, Chair for Urban Design, ETH Zurich.

Parallel research structure, Urban Research Studio: process and content, 2007, source: Students of the Urban Research Studio London.

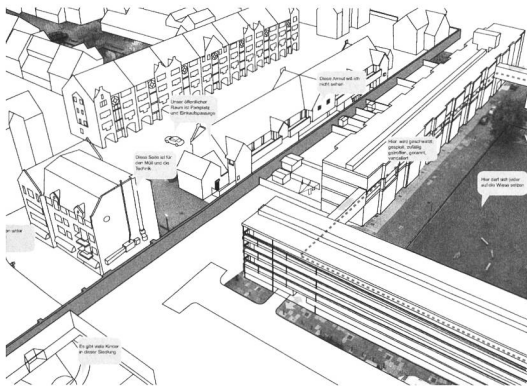
7 Clifford Coonan, “Carbon-free living. China’s green leap forward.” In: *The Independent* (February 6th, 2007). Cf. www.independent.co.uk, April 1st, 2008.

8 Bundesamt für Statistik (BFS), des Bundesamts für Umwelt, Wald und Landschaft (BUWAL) und des Bundesamts für Raumentwicklung (ARE), *Nachhaltige Entwicklung in der Schweiz, Indikatoren und Kommentare*. Neuchâtel: BFS 2003.

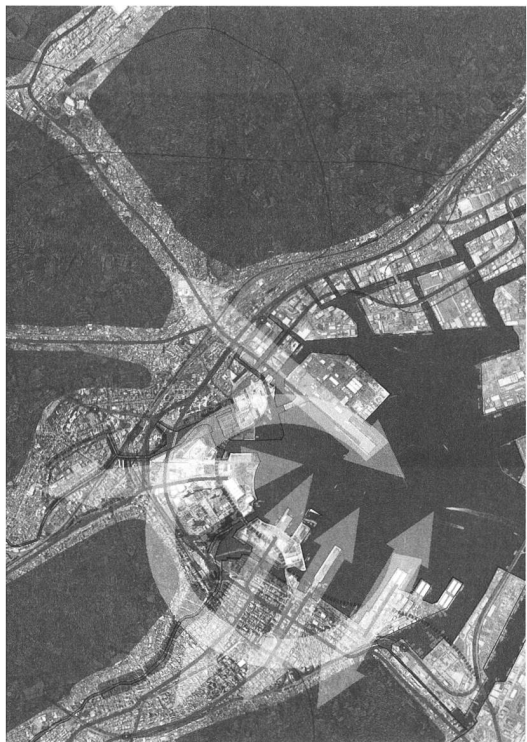
9 Dalibor Vesely, “Change and continuity in the contemporary city.” In: *The Cambridge Architectural Journal*.

10 Cf. www.urbanresearch.ethz.ch.

11 Cf. www.urbandesign.ethz.ch.



Situation: walled residential development, Isle of Dogs, London, 2007, source: students of the Urban Research Studio London.



Strategic vision for Yokohama, 2007, source: students of the Urban Design Studio, Visions for Yokohama: Urbanity on the Waterfront.

Aspirations: Prospects for London

Amsterdam's GWL Terrein is a rather small urban inlay of 6 hectares. When KCAP together with EDAW and Allies and Morrison were asked to come up with a concept for London's Olympic Legacy – the post-games urban integration of the Olympic Games infrastructure that is currently being built in the Lower Lea Valley – their proposal called for good urban design on a much larger scale, targeting an area of 300 hectares. Apart from the difference in scale, there is a principal difference in attitude between the design of an urban project in the traditional way where mostly fixed visions are developed compared to the recognition of urban projects as being part of a continuous process of spatial, functional, and social transformation. Olympic Legacy aims to simultaneously activate and deactivate existing structures and programs and adds new structures and programs that connect and enhance the qualities of the situation. By means of this stepwise, flexible strategy, the transformation process is accelerated and steered into the desired direction. The proposal was thus not a strict masterplan or a candidly rendered urban future, but a strategy that is based on the above-stated principles. Its potential will reveal itself as decisions are reached over the course of the coming decades that the project is to continue. It denies only seemingly fixed, too early determinations of programs, infrastructures, landscape and built-up structures that would ignore the uncertainties that underlie all long-term prospects.

Future: Urban Design Scenarios

As the question of how to transform the infrastructure of London's yet-to-be-held Olympic Games shows, thinking about sustainability and good urban design means thinking about the long-term consequences of decisions that we make today. Strategic urban designers faced with the challenge of rapid urbanization worldwide and fast changing socioeconomic environments will always encounter the problems of complexity and uncertainty: the complexity of situations with their non-linear and wide-ranged interdependencies and the uncertainty of the future. Urban design needs to redefine its long-term-horizon to contribute to a sustainable development of our habitat. Only if urban design not only accepts but incorporates the 'wicked problems'¹² of complexity, uncertainty and the long horizon can it overcome its current crisis and the threat of irrelevance of forthcoming major decision making processes that today's societies face. One method for prospective thinking is the development of scenarios – a method that has influenced urban design since its introduction in the 1980s.¹³ In our design studio 2007, we developed a basis for discussions on the future of the Dübendorf airfield, proposing a science park in close collaboration with politicians, academics, and a range of disciplines.¹⁴ The visualization of our scenarios proved crucial in the ensuing process. With the intent of further developing our methods for the long horizon, one of our current



Students' final books for the Urban Research Studio, 2007, source: Students of the Urban Research Studio London.

research projects focuses on Urban Design Scenarios.¹⁵ It aims at a thorough understanding of the relevant tools and instruments that are necessary and prerequisite for the development of new ones. The urban design discipline should aspire to reestablish its key role in thinking about the future of our cities, a role it held over centuries in the tradition of designing ideal cities and utopian projects. Sustainability is in many ways a question of common understanding in our society and consequential individual behavior. Good urban design should be an integral part of this communication and decision making process and not only a morphological formula.



Sustainable Urban Strategy

To accomplish this, it is necessary that the urban designer concentrates not only on the spatial and programmatic design, but also on the process of implementation. The process according to which a design vision is implemented also needs to be 'designed'. This leads to a further elaboration of our simple equation:

An integral approach therefore consists of a design vision and a transformation strategy in combination with an activating and stakeholder management process – the organized involvement of potential interest groups. By playing 'simultaneous chess' instead of a linear arrangement of successive phases in a design-process, we can simultaneously work on inventory, analysis, interpretation, vision development, elaboration, presentation, and communication. The simultaneity enables us to some degree to do justice to the complexity of tasks which we usually cannot fully control in a linear and conscious way. In the end, urban situations are always complex. If we admit that we can only partially understand the present and that we cannot know the future, sustainability certainly also means to leave decisions open for future generations, as Richard Sennet once stated.¹⁶ It might be rather difficult for the human mind to integrate unknowns and uncertainty instead of seeking a total design control.¹⁷ But we are sure that the city should not only be open in the present for human life in all its variety, but also leave an option space for an open future.

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Stepwise transformation of the urban mosaic Olympic legacy, Lower Lea Valley, London, 2007. Source: students of the Urban Research Studio London.

12 Cf. Horst W. J. Rittel / Melvin M. Webber, "Dilemmas in a General Theory of Planning." In: *Policy Sciences* (1973), No. 4, pp. 155–169.

13 In spatial planning, scenario methods were introduced in the 1960th.

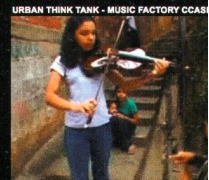
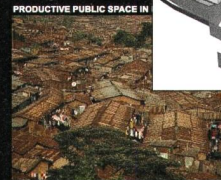
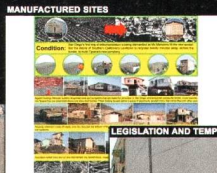
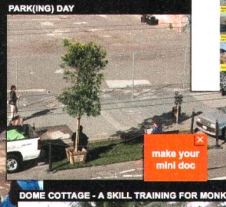
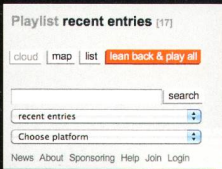
14 Verein Machbarkeit Stiftung Forschung Schweiz (ed.), *Machbarkeitsstudie für einen nationalen Innovationspark*. Hombrechtikon: 2007. Cf. www.stiftung-forschung-schweiz.ch.

15 Christian Salewski, "Urban Design Scenarios, research project". Cf. www.urbandesign.ethz.ch.

16 Richard Sennett, "The Porous City." Lecture at Urban Age Berlin, 2006.

17 Cf. Angela Wilkinson / Felix Werle / Christian Salewski, "Rendering Uncertainty. Lessons from Urban Design and Scenario Planning", paper for the 1st EIASM Workshop on Imagining Business, Oxford University. forthcoming.

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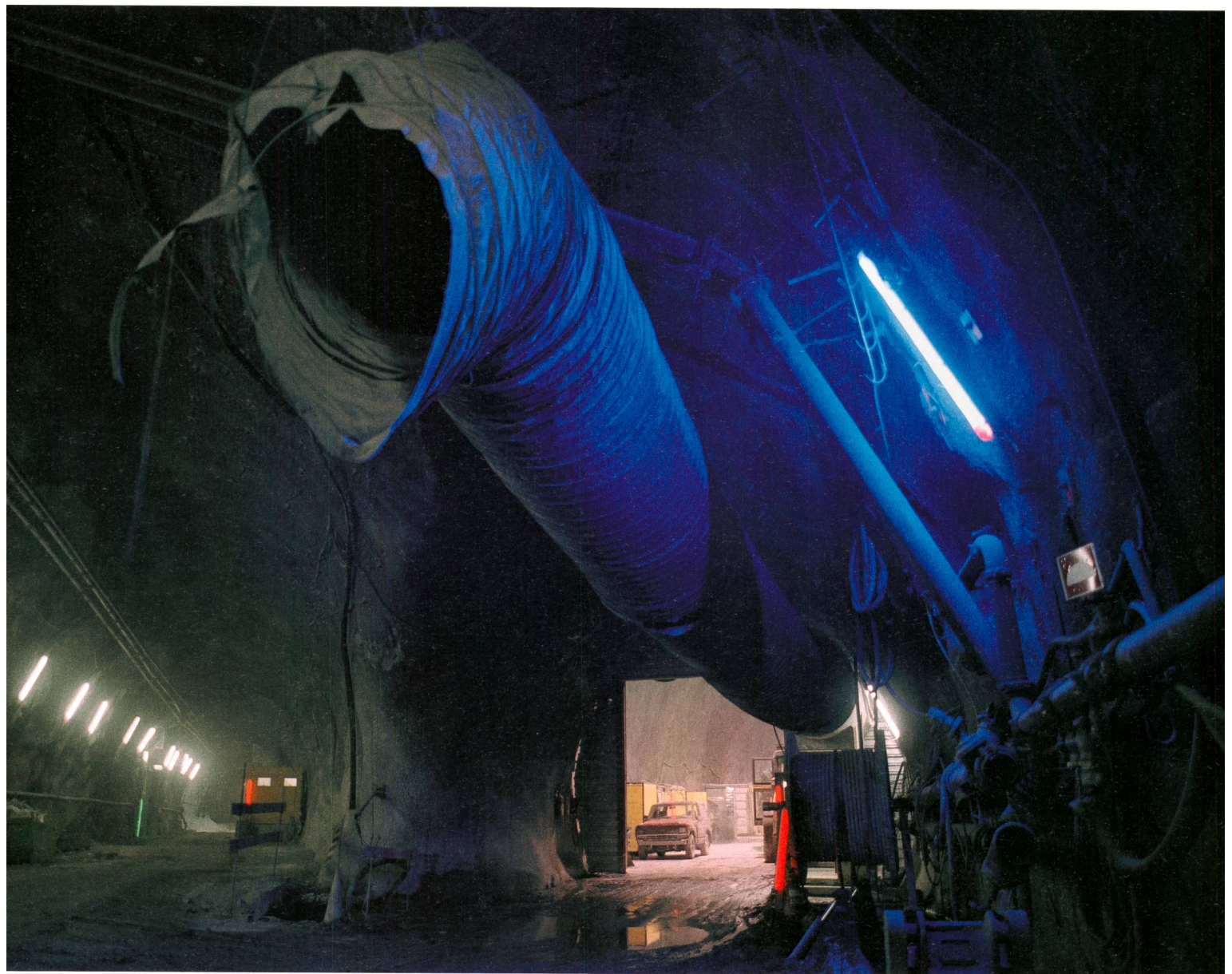
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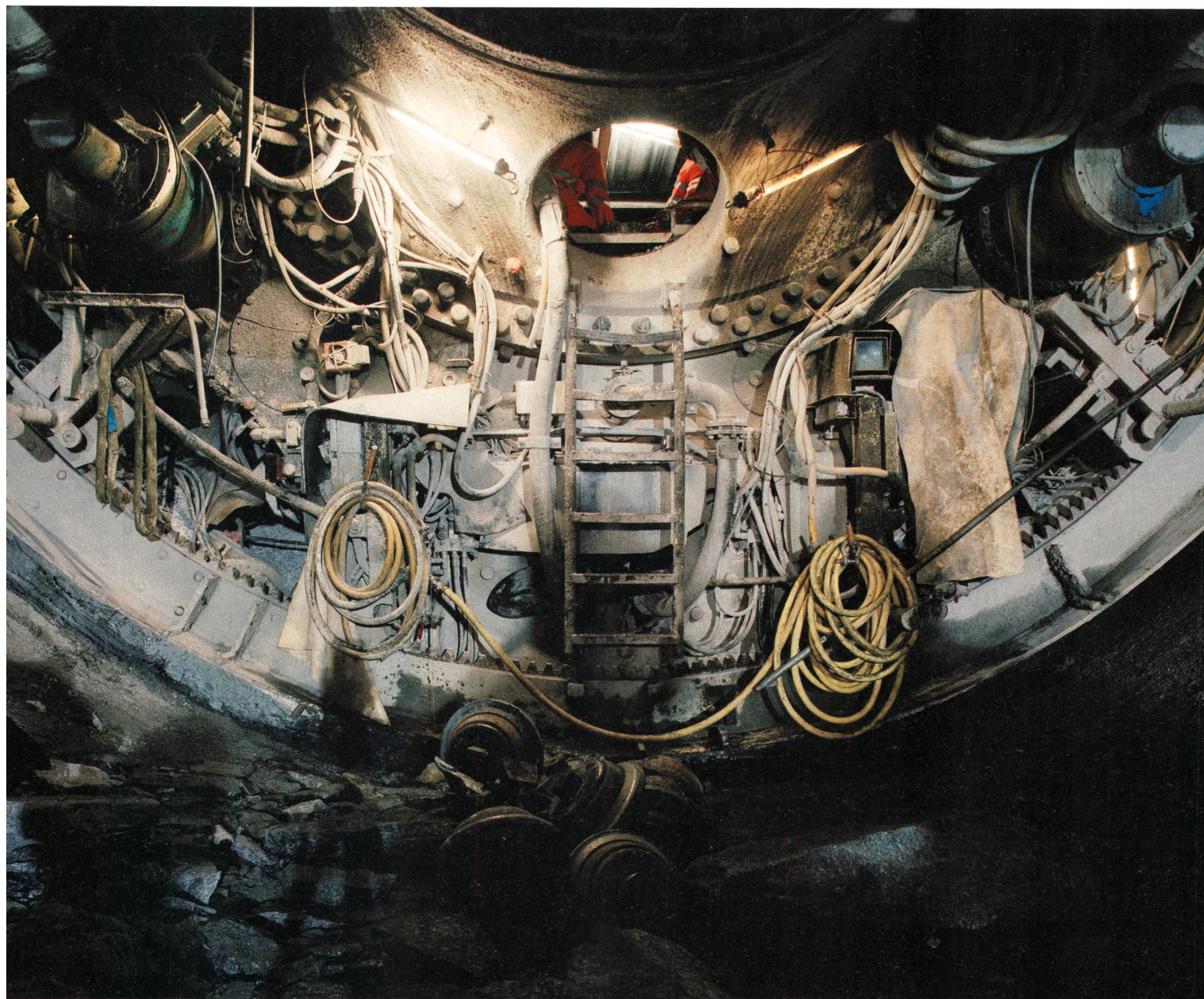
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