

**Adaptive Strategies in Naples and Beirut  
Methodology, Scenario Thinking and Design Fiction**

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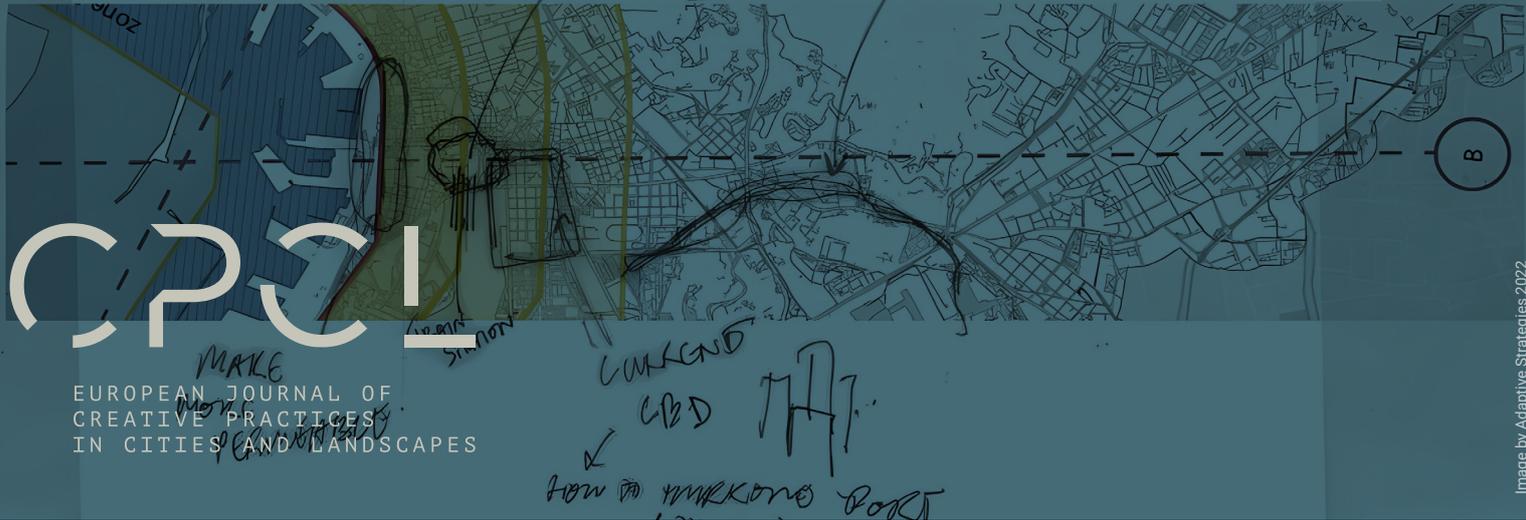
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## MAIN SECTION

# Adaptive Strategies in Naples and Beirut: Methodology, Scenario Thinking and Design Fiction

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## ABSTRACT

Port cities are places at the edge of sea and land, where flows of goods and people create unique spaces, institutions and cultures, often over long periods of time. History matters when it comes to understanding and designing the future of port cities such as the two ancient Mediterranean cities of Beirut and Naples, where institutions and spaces are the result of *longue durée* histories. Long-standing spatial and institutional frameworks in these cities have influenced recent plans. In the Italian city of Naples, historic spaces and practices have impeded transformation, because port and city authorities are pursuing divergent and historically established goals while many industrial sites, including areas used by oil industry, await redevelopment. In Beirut, reconstruction following the tragic explosion of 2020, which significantly damaged both port and city, shaping and perhaps limiting the present and future of the city. This article analyses the historic development and the opportunities for future planning of Naples and Beirut through the lens of the Adaptive Strategies course, a master-level course coordinated by Carola Hein and co-taught with Paolo De Martino and John Hanna at TU Delft in 2022. Students, through imaginative methods, rethought the relationship between land and water, port and city, questioning current planning models and imagining new resilient and adaptive processes.

## KEYWORDS

*Port Cities, Landscape, Water, Adaptive Strategies, Naples, Beirut.*

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## Introduction

Port cities, located at the edge of land and sea, are landscapes in transition.<sup>1</sup> They lie at the forefront of many urgent contemporary questions including those related to climate change, changing water conditions, digitalization and migration, and for centuries they have been paradigms of energy transition, societal change and cultural innovation.<sup>2</sup> Port cities are more than ports. With their longue durée history, cultures and architectures, port cities are a mirror of society, its economic and political models and technological development. Examples include the changes introduced by the oil revolution at the beginning of the 20th century.<sup>3</sup> Similarly, beginning in the 1960s, containerization has triggered changes in the city and regional economy and therefore in society, resulting in ports that have progressively moved away from cities.<sup>4</sup> Understanding and addressing these challenges is key to the development of adaptive strategies and long-term perspectives.<sup>5</sup> Developing adaptive strategies requires more than technical intervention; it requires rethinking and redesigning basic spatial and socio-cultural paradigms.

This article analyses two port cities - Naples and Beirut - that serve as examples of the challenges Mediterranean port cities face now and into the future. The article explores these territories through the experience of the second-level master-level course Adaptive Strategies [AR0110]

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- 1 Enrico Formato and Michelangelo Russo, "Re-Use/Re-Cycle Territories: A Retroactive Conceptualisation for East Naples," *TeMA-Journal of Land Use, Mobility and Environment*, 2014.  
Hein, C. *Port Cities: Dynamic Landscape and Global Networks*. New York: Routledge, 2011.  
Hoyle, B., and D. Pinder, eds. *European Port Cities in Transition*. London: Belhaven Press, British Association for the Advancement of Science, Annual Meeting, University of Southampton., 1992.  
Hein, Carola, Sabine Luning, and Paul van de Laar. "Port City Cultures, Values, and Maritime Mindsets: Defining What Makes Port Cities Special." *European Journal of Creative Practices in Cities and Landscapes* Vol. 4, no. 1 (01/01 2021): 7-20.  
Jansen, M., A. Brandellero, and R. Houwelingen. "Port-City Transition: Past and Emerging Socio-Spatial Imaginaries and Uses in Rotterdam's Makers District." *Urban Planning* 6, no. 3 (2021): 166–80.  
Kokot, Waltraud. "Port Cities as Areas of Transition - Comparative Ethnographic Research." (01/01 2009).  
De Martino, Paolo. "Naples: A City Away from Water." *Planning Perspectives* (2023): 1-16.
- 2 Carola Hein, *Port Cities: Dynamic Landscapes and Global Networks* (Abingdon, Oxon; New York: Routledge, 2011); Carola Hein, "Port Cities and Urban Wealth: Between Global Networks and Local Transformations," *International Journal of Global Environmental Issues* 13, no. 2/3/4 (2014): 339, <https://doi.org/10.1504/IJGENVI.2014.064510>; Carola Hein, "Port City Porosity: Boundaries, Flows, and Territories," *Urban Planning* 6, no. 3 (2021): 1–9; Carola Hein et al., "Changing Minds: Towards Water-Based Architecture and Public Space for the Future Urban Archipelago," November 2023, <https://www.portcityfutures.nl/news/changing-minds-towards-water-based-architecture-and-public-space-for-the-future-urban>; Carola Hein, Sabine Luning, and Paul Van De Laar, "Port City Cultures, Values, and Maritime Mindsets: Defining What Makes Port Cities Special," *European Journal of Creative Practices in Cities and Landscapes* Vol. 4 No. 1 (2021): 7-20 Pages, <https://doi.org/10.6092/ISSN.2612-0496/13378>.
- 3 Paolo De Martino, Carola Hein, and Michelangelo Russo, "Naples beyond Oil: New Design Approaches in the Era of Retiring Landscapes," *Portus* (Online), no. 37 (2019); Carola Hein, "Oil Spaces: The Global Petroleumscape in the Rotterdam/The Hague Area," *Journal of Urban History* 44, no. 5 (2018): 887–929, <https://doi.org/10.1177/0096144217752460>.
- 4 Carola Hein and Dirk Schubert, "Resilience and Path Dependence: A Comparative Study of the Port Cities of London, Hamburg, and Philadelphia," *Journal of Urban History* 47, no. 2 (March 2021): 389–419, <https://doi.org/10.1177/0096144220925098>.
- 5 Carola Hein, *Adaptive Strategies for Water Heritage: Past, Present and Future* (Springer Nature, 2020).

at TU Delft, coordinated by Professor Carola Hein, with teachers Paolo De Martino and John Hanna. The course emphasises the importance of understanding the past to plan for the future. Learning about a place, its evolution and the people who shaped it are fundamental steps to addressing contemporary challenges and opportunities. The learning takes place through the exploration and mapping of these cities over time. The course posits that we need to establish adaptive strategies that recognize the impact of long-term developments past present and future that we need to develop strategic steps needed to reach them and to assure that diverse actions are aligned to achieve them. The course thus goes beyond the concept of a pure masterplan and instead proposes evolving strategies that are aligned with narratives and design fictions. Students proposed possibilities and images, which leave room for uncertainty. These traces and signs are also the result of a stratigraphy of stories and sometimes legends that can bring different stakeholders together.

## **Adaptive Strategies: Methodology, Scenario Thinking and Design Fiction**

The 10-week course, Adaptive Strategies, starts from the assumption that design needs more than a single plan to capture the future. We argue that designers need to develop long-term pathways that acknowledge different challenges and opportunities along the way. The goal is thus not only to build a project but to continuously reflect on the impact of an intervention and its meaning for the future. To understand how to turn challenges into potential adaptive interventions, one part of this approach is to acknowledge the relevance of time and the different temporalities of transforming space, society and culture over time. It takes into account the fact that space, institutions, societies and economies all change in different ways and with different rhythms and at different scales and with different processes.

Working on scenarios, as a tool to activate adaptive strategies, enables participants to critically reflect on the evolutionary history of places and the communities that inhabit them; this is the first step in establishing a relationship with the city. Scenarios are a part of the design process of searching for long-term futures while also responding to short-term intervention through timelines towards the future. The course promotes scenarios as an interpretative and unconventional tool for the formulation of new narratives, pushing students to consider long-term developments and extreme solutions. Design adaptive strategies in the course have looked at the theme of recycling, urban regeneration, reclamation, conservation and enhancement of the industrial heritage. Scenarios do not propose final outcomes, rather they can help with imagining new forms and with recognizing urban potential. Scenarios suggest a process of speculation in which everything is possible and at the same time everything

is questioned. New (provocative) scenarios can initiate conversations among local stakeholders and help a new generation to engage with the critical relationship between land and water. Therefore, scenarios do not claim to plan everything. The scenario becomes an image capable of tracing a direction in a context made up of differences, complexities, conflicts and uncertainties. More than assertive projects, the scenario indicates possible new narratives, interpretative models and cultural approaches for living with water.

The construction of the scenario requires thinking the interconnection of some crucial themes:

The course is set up with a three-step approach: understanding, (re)interpreting and (re)designing port cities in line with the methodological exploration introduced with the recently published *Port City Atlas* by Carola Hein.<sup>6</sup> For each of these steps the students were asked to reflect analytically through sketches, maps, texts and collages to reimagine the future of Naples and Beirut in light of environmental transitions. Addressing these challenges posed by the multiple transitions requires a profound reorganisation of the territorial hierarchies, rethinking relationships between energy and nature, economy and environment, infrastructure and water, and culture and history in ways and with temporalities still to be understood.

The course focused on Naples and Beirut, two port cities joined together by the Mediterranean Sea, serve as examples of the role of adaptive histories that take into account a *longue durée* history. They illustrate the weight of path dependencies established over time in space and in institutions, and the need for long-term, adaptive strategies that create a new equilibrium among diverse actors. These strategies can help achieve new spatial configurations that go beyond fragmentation, new collaborations at the scale of the city and the region and a profound shift in the governance structure and mindset of the authorities of port, city and territory.

The course worked on future imaginaries for the two Mediterranean cities through a scenario-thinking approach as an enabler of adaptive interventions.<sup>7</sup> Port authorities and municipalities in these port cities, in different ways and at different scales, face the challenge of having to rethink entire parts of the territory at the edge of the port and within the port itself. The results, in their diversity, highlight the need for a profound paradigm shift

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6 Hein, C., I. van Mil, and L. Ažman-Momirski. *Port City Atlas*. Nai010 Publishers, 2023.

7 Grace Abou Jaoude, Olaf Mumm, and Vanessa Miriam Carlow, "An Overview of Scenario Approaches: A Guide for Urban Design and Planning," *Journal of Planning Literature* 37, no. 3 (2022): 467–87, <https://doi.org/10.1177/08854122221083546>; Carola Hein and Elise Van Dooren, "Teaching History for Design at TU Delft: Exploring Types of Student Learning and Perceived Relevance of History for the Architecture Profession," *International Journal of Technology and Design Education* 30, no. 5 (2020): 849–65, <https://doi.org/10.1007/s10798-019-09533-5>; David Sarpong and Mairi Maclean, "Scenario Thinking: A Practice-Based Approach for the Identification of Opportunities for Innovation," *Futures* 43, no. 10 (2011): 1154–63, <https://doi.org/10.1016/j.futures.2011.07.013>.

in the definition of solutions as well as the tools to realise them.<sup>8</sup>

The course starts with research on relevant socio-economic, cultural and morphological aspects; the objective of the final design was to synthesise the findings and develop scenarios that could build on the synthesis and address the following questions: What role can the port and the development of its surrounding neighbourhoods play in understanding, re-imagining and re-designing the contested identity of the city? Which actors can be involved in this transformation process, and how? What is the story that emerges from this synthesis? What adaptive strategies do students propose to alter this story? The outcome of the final project took the format of schematic plans, collages, visualisations and illustrated narratives.

## **Positioning Naples and Beirut: two Mediterranean port cities in time and space**

The course touched upon two different case studies, Naples and Beirut, each with unique challenges, united here through a shared location on the Mediterranean, a shared position as port cities, and a shared approach of teaching adaptive strategies. Naples is a city in constant search of its coastline, a city away from water. In the eastern area of the city, the port has always worked as an insurmountable barrier. Beirut has experienced many periods of urbanization, destruction, reconstruction and regeneration, which have contributed to the complex nature of its settlements and populations. This paper explores the findings and design results of each of the cities to showcase the opportunities of this particular pedagogical approach.

### **Naples: a city away from water**

Naples, a millenary port city along the Mediterranean coast in Southern Italy, is facing multiple spatial, social and environmental challenges. Seen from the sea, the port merges with the city, becoming a unique entity with the landscape and Mount Vesuvius. The latter acts as a fascinating backdrop, but also represents one of the greater risks for the coastline and the regional territory (Fig. 1).

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<sup>8</sup> Carola Hein, Yvonne van Mil, and Lucija Ažman Momirski, *Port City Atlas: Mapping European Port City Territories: From Understanding to Design* (Rotterdam: nai010 publishers, 2023).



FIG. 1 The port of Naples from the sea. Source: Paolo De Martino

With its strategic location at the centre of the Mediterranean Sea, Naples lies at the intersection of flows of various natures and scales: oil flows, commercial and touristic routes and migration<sup>9</sup> (Fig. 2). To better understand the challenges that port and city face today, the city of Naples requires exploration on a regional scale in line with the concept of port city territories outlined in the Port City Atlas by Hein.

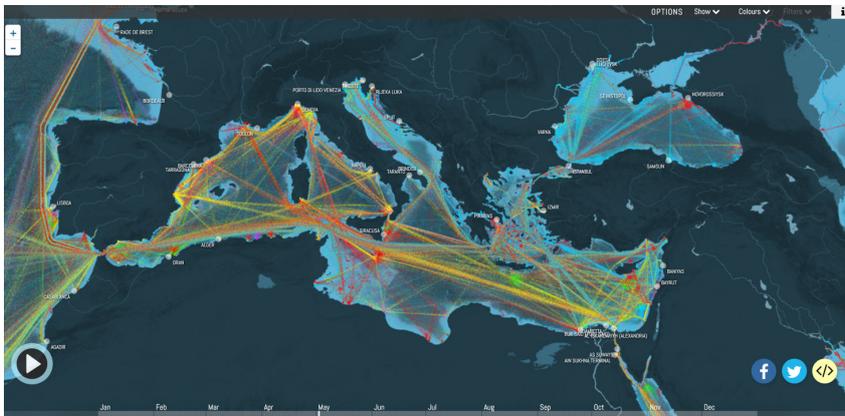


FIG. 2 System of flows crossing the Mediterranean Sea. Source: <https://www.shipmap.org/>

In Naples, like many other port cities around the world, beginning in the 20th century, the spaces and temporalities of port and city became increasingly separate. Port activities and related infrastructure started

9 De Martino, Paolo. 2021. "Land in Limbo: Understanding Path dependencies at the Intersection of the Port and city of Naples". *A+BE | Architecture and the Built Environment* 11 (09):1-288. <https://doi.org/10.7480/abe.2021.09.5813>.

De Martino, Paolo. "Naples: A City Away from Water." *Planning Perspectives* 39, no. 1 (2024/01/02 2024): 179-94.

Pugliano, Giuseppina, Guido Benassai, and Edoardo Benassai. "Integrating Urban and Port Planning Policies in a Sustainable Perspective: The Case Study of Naples Historic Harbour Area." *Planning Perspectives* 34 (04/03 2018): 1-21.

to separate the area between land and sea, cutting citizens off from the coast. Since the beginning of the 21st century, the growing scale of ships and the increase in trade has pushed the port authority of Naples to make significant investments in port infrastructures, with tangible impacts on spatial development on the land side. Hundreds of trucks moving in and out of the port everyday generate water, air and noise pollution and damage the urban and historical environment, creating social and cultural frictions.

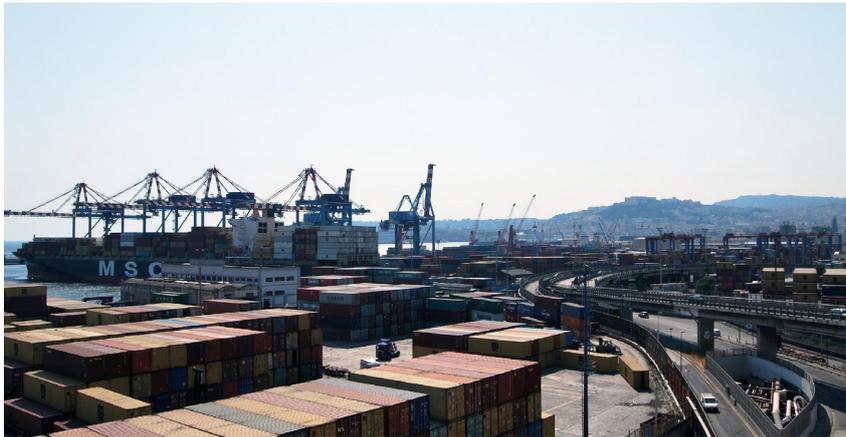


FIG. 3 East Naples. Source: Paolo De Martino

East Naples, a focus of the course Adaptive Strategies, is an emblematic study area of many conflicts, including conflicts that are spatial, social and environmental. East Naples is part of an articulated and complex system of flows and infrastructures spread throughout the region (Fig. 3). Examples include the railway that separates the city from the sea, commercial flows entering the port in the Vigliena area and the power plant. The infrastructures also generate many marginal spaces and undefined buffer zones with a lack of public space. Examples include the abandoned building of Corradini and the historical fort of Vigliena. From a design perspective, those in-between spaces and architectures can play an important role as a resource. This complexity was the starting point for the students in the course, who have been challenged to critically reflect on the historical development of the city, to identify key moments of change in the political sphere and to understand the role the port has played in recent history and the effects of maritime activities and shipping flows on the city's culture today.

The group headed by Giacomo Pimpini aimed to understand the complexity of the Neapolitan territory by looking at the history of its transformation from a small merchant city to an important regional port (Fig. 4). The group has also tried to map the actors involved in port-city transformations and their conflicting interests (Fig. 5). This research highlighted the need to work on overlapping areas between these actors and identify solutions that reduce the pressure from port activities on the city and its sea.

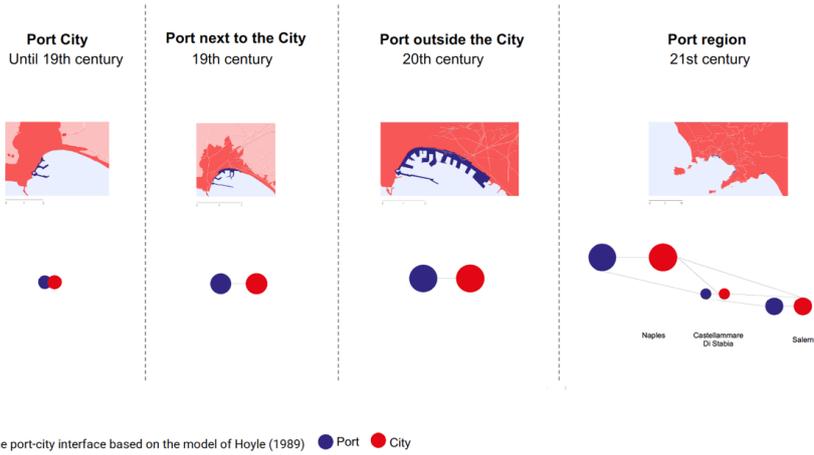


FIG. 4 Naples’ spatial development in history, by Giacomo Pimpini, Meng Chen, Matilda Hoffmann and Jiacheng Xu. Source: Adaptive Strategies 2022

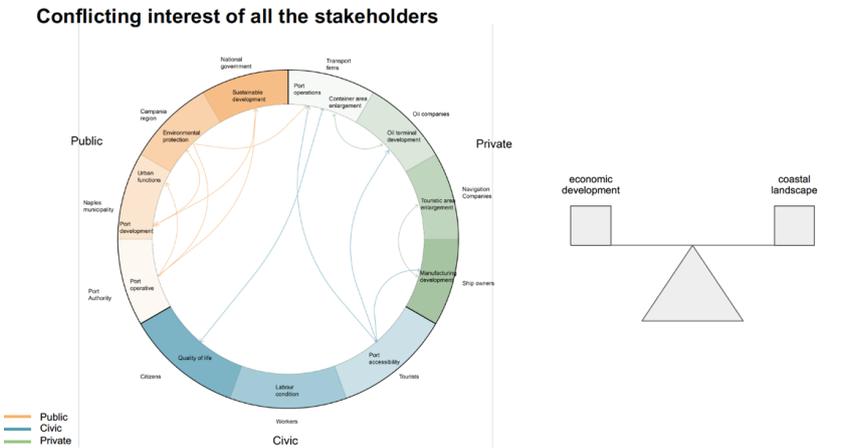


FIG. 5 Port city actors, by Giacomo Pimpini, Meng Chen, Matilda Hoffmann and Jiacheng Xu. Source: Adaptive Strategies 2022

A second group, headed by Ifrah Ariff, identified governance and conflicting uses along the coast as one of the city’s biggest problems (Fig. 6).

The mapping process explored spatial relationships, existing uses, and land ownership. It also highlighted the often-negative impacts of the port on the territory and landscape.

For students, thinking in terms of adaptive strategies has meant challenges into opportunities by looking at the possibilities of densifying innovative port activities in some areas of the port to reduce the general pressure of the port on the city.

It is precisely the places on the edge of the old industrialization that become, for students, the object of design interventions. These landscapes have been (re)interpreted by students as a resource and as new possible environmental infrastructures.

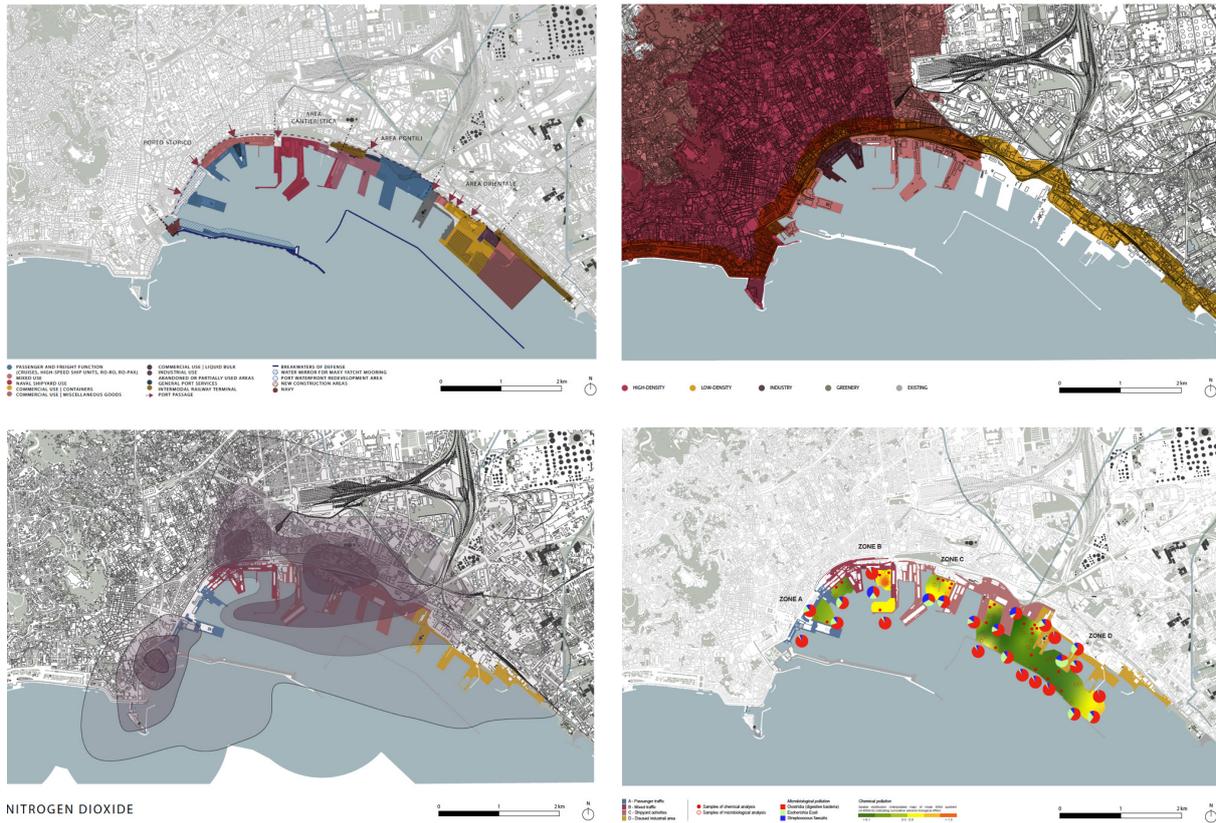


FIG. 6 Maps showing the impacts and pressures on city and sea from port activities, by Artem Alexandrov, Ifrah Ariff, Romée Lems, Luisa Martins, Zuzanna Murzyn and Zuzanna Sliwiska. Source: Adaptive Strategies 2022

## Reconceptualization

The reconceptualisation processes start with how we look at the territory. New insights can lead to new relationships and also leave us disoriented. This was the case with the analysis carried out by the group headed by Ifrah Arif, who, by rotating the map of Naples, highlighted the need for a new perspective (Fig. 7).

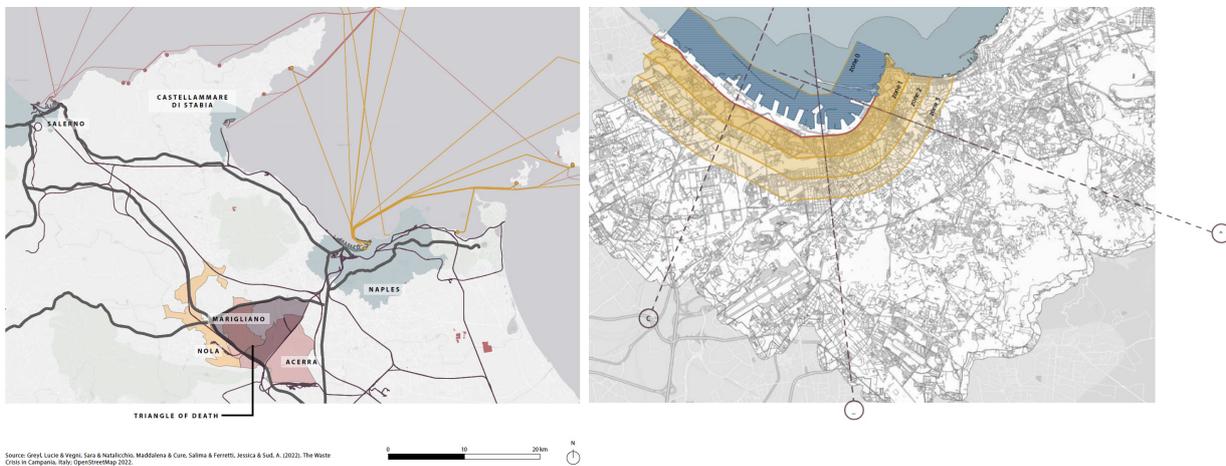


FIG. 7 A rotated map by Artem Alexandrov, Ifrah Ariff, Romée Lems, Luisa Martins, Zuzanna Murzyn and Zuzanna Sliwiska. Source: Adaptive Strategies 2022

A transect approach allowed students to identify three different relationships between port and city. For each of these areas, conflicts and potential were identified, as students sought ways of bringing the coastline closer to the city (Fig. 8).

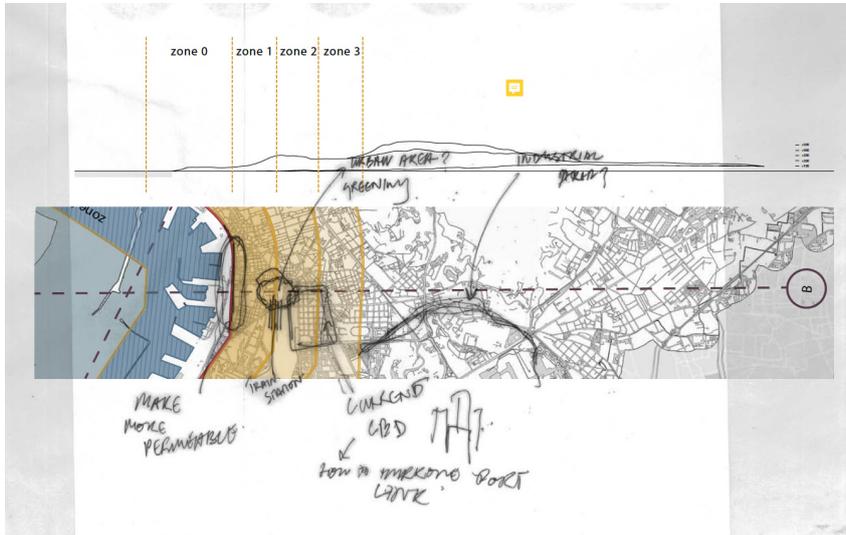


FIG. 8 A transect approach by Artem Alexandrov, Ifrah Ariff, Romée Lems, Luisa Martins, Zuzanna Murzyn and Zuzanna Sliwiska. Source: Adaptive Strategies 2022

This differentiated approach to the city can help reconstruct the system of relations, which, from water, extends towards the land and from land extends towards water by reconceptualizing the edges between land and water and new urban spaces.

The second group, headed by Giacomo Pimpini, focused on the theme of the sea and its ability to configure itself as a mythological landscape. The Greco-Roman past and the myth of Parthenope are just a few examples. These elements from history and mythology contribute to the construction of the image of the city we experience today, a city that is made up of different materials. There is a) the sea as an urban landscape populated by different flows; b) the city as a collage of different fragments: residential areas, industry and port spaces; and c) the city with its functional enclaves (Fig. 9).

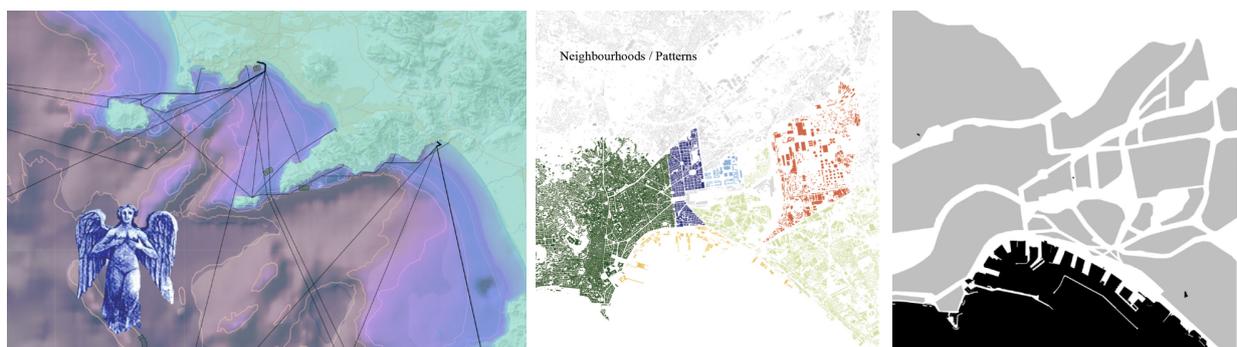


FIG. 9 "The city and its elements" From left to right: a, b and c, by Giacomo Pimpini, Meng Chen, Matilda Hoffmann and Jiacheng Xu. Source: Adaptive Strategies 2022

The students translated the concept vision into a reconnection of the fragments of the territory through new paths, re-appropriating some of the spaces between land and sea (Fig. 10).

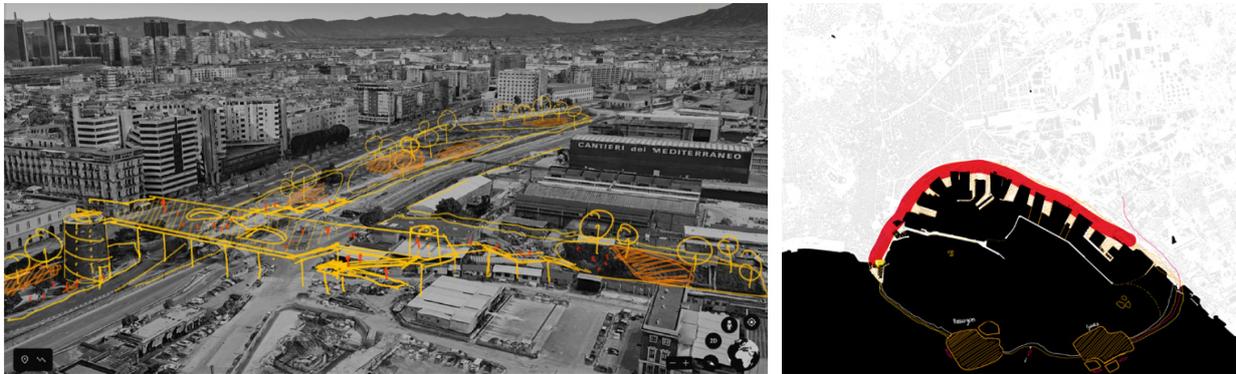


FIG. 10

First concept vision. Reconnecting city fragments by Giacomo Pimpini, Meng Chen, Matilda Hoffmann and Jiacheng Xu. Source: Adaptive Strategies 2022

In addition, the scenario envisions an overall rethinking of the structure of the port so that it can be relocated in the water, thus imagining new possibilities of living with water (Fig. 11).

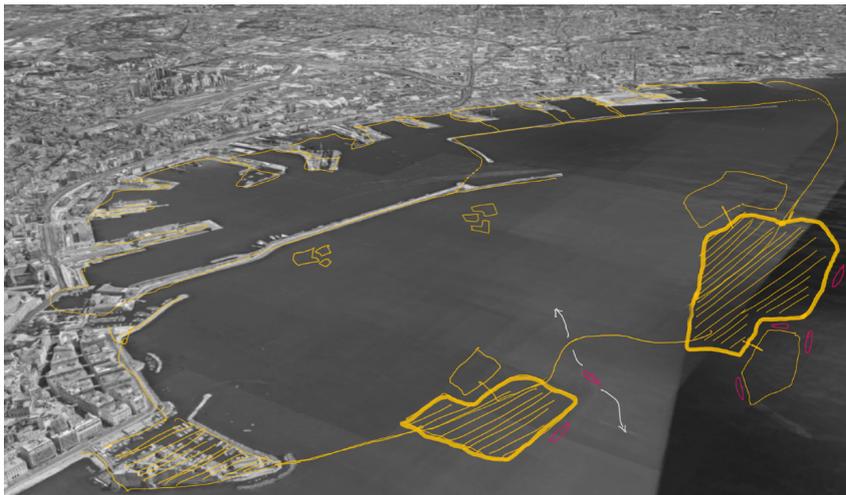


FIG. 11

"A New Urbanization of the Sea" by Giacomo Pimpini, Meng Chen, Matilda Hoffmann and Jiacheng Xu. Source: Adaptive Strategies 2022

## (RE)designing Naples

What do adaptive strategies mean for port cities like Naples? This section of the article deals with the theme of design and the role that the scenario has in the production of new knowledge.

The eastern area of Naples today still hosts fragments of an industrial past, such as the Corradini building and the Q8 oil refinery, which closed in the 1980s. There are oil fields still functioning not far from the historic centre of Naples. Here, authorities are called to rethink these relationships in the light of a new form of living. The territories left between ports and cities need to be recovered and redesigned to make room for more sustainable futures. This raises some questions: How will these places work

in the future? How much space will the transition need? What role can culture play in all of this? To answer these questions, it is necessary to rethink the nature of the port and its relationship with cities and regional territories. This requires new tools and approaches to planning.

## Floating fiction for the port city of Naples



FIG. 12

"Floating Fiction" by Giacomo Pimpini, Jiacheng Xu, Matilda Hoffmann, Meng Chen and Sora Kaito. Source: Adaptive Strategies 2022

In the dungeons of Castel dell'Ovo sits a magic egg. If this egg were to break, the castle and the whole city of Naples would collapse. As sea-level rise and other challenges threaten the stability of the magic egg and of the city, how can we imagine resilient visions for the port city of Naples that will allow it to adapt to future conditions?

In recent decades, the port city of Naples has been trying to solve the problems at the intersection of its cultural identity, urban and social structure, port footprint and network, industrial and energy sector and ecology. Having analysed all these layers of the city, we decided to propose a design fiction. By asking what-if questions, a design fiction allows us to free our minds from present-day constraints to construct a vision that upholds values fundamental to the future of Naples.

Current transformations and future forecasts help us identify some plausible future trends and respond to them. The most critical is sea-level rise. The future is uncertain, but the most pessimistic scenarios predict that the entire port and large areas in the central part of the city will be below sea level by 2100. The city needs to be prepared, mentally and physically, to face this possibility. Secondly, the ongoing energy transition will determine the obsolescence of important stakeholders and large-scale infrastructure across the port city. We must envision which actors will replace them and which alternative energy sources Naples can invest in.

As a result of this analysis, the students proposed some amendments to

the current stakeholder model, which identifies public, private and civic actors. According to the students, designers must think more about more than human stakeholders. Marine life needs to be taken into account when envisioning the future of Naples. In the design fiction they proposed, renewable energy will replace the oil industry and educational stakeholders will be more integrated in port-city development (Fig. 13).



FIG. 13

Old and new stakeholders in "Floating Fiction" by Giacomo Pimpini, Jiacheng Xu, Matilda Hoffmann, Meng Chen and Sora Kaito. Source: Adaptive Strategies 2022

The vision for 2100 is a floating and adaptive port city. It will develop in a series of steps (2050 and 2075), which start with more realistic interventions and move towards more imaginative futures. A floating structure will be gradually put in place, mirroring the morphology of the existing waterfront. The new floating city is composed of two elements. First, a continuous publicly accessible path. Transversal to this path are the transshipment units, which allow goods and people to be transferred from large ships to smaller ships that can reach the mainland.

One of the main goals of this proposal was to free the coastline from the monofunctional and inaccessible port in order to make the coast more accessible and to make it possible to relocate the port before its flooding. This will allow a new ecological area in the central part of Naples to provide fertile ground for biodiversity, while connecting the western and eastern neighbourhoods with more efficient mobility. Parts of the existing port will be transformed, allowing it to welcome new functions adapted to the rising water and other aspects of future scenarios.

A new educational network can expand across water and land to support marine and port research and educate for social awareness and scientific excellence. Existing industries will be transformed to meet future needs. Energy will be produced by exploiting the submarine geothermal and the wave-energy potential, supplying energy for the regional port network. Naples will become the prototype for a strategy that can spread throughout the Mediterranean. The floating port is composed of modular

elements. Thus, the port can grow or shrink, and parts can travel to other ports where they are most needed (Fig. 14 and 15)

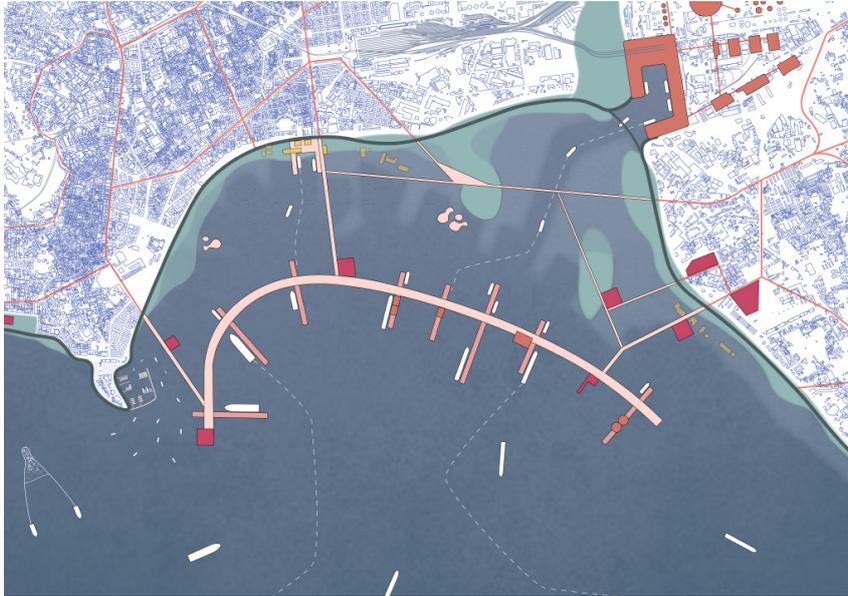


FIG. 14

New port city development that addresses sea-level rise in "Floating Fiction" by Giacomo Pimpini, Jiacheng Xu, Matilda Hoffmann, Meng Chen and Sora Kaito. Adaptive Strategies 2022

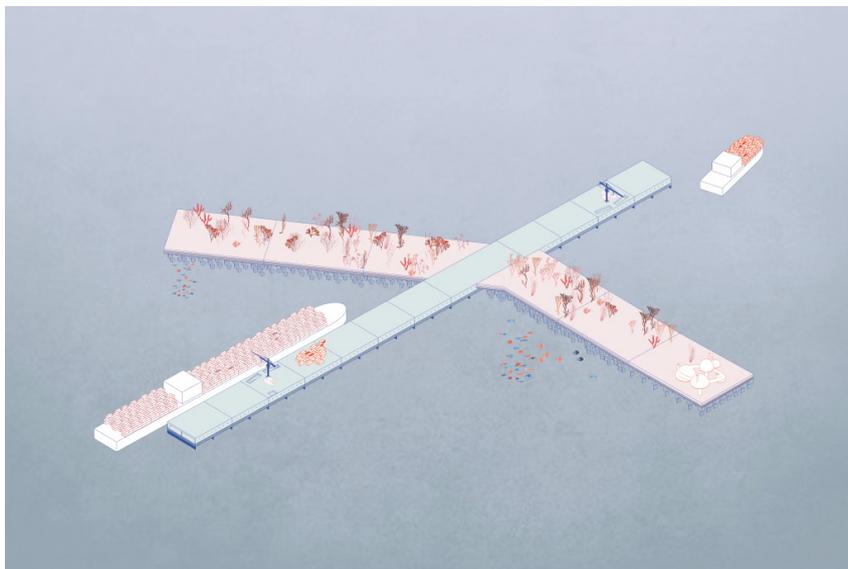


FIG. 15

Floating port module in "Floating Fiction" by Giacomo Pimpini, Jiacheng Xu, Matilda Hoffmann, Meng Chen and Sora Kaito. Adaptive Strategies 2022

## Port Pressure: Densifying the Port to Relieve the City

The intersection between the port and city of Naples presents numerous opportunities to consider the conditions and particularities that constrain urban planning in such water territories. It requires us to think of connections on the regional scale—as goods move from the port towards the

Campania hinterland - while carefully assessing the implications of the wider picture on the microscale. As investigated throughout this course, the port of Naples faces a series of discussions regarding its governance structure expansion plans—which are detrimental not only to the port itself—which is unable to evolve and modernize—but also to the urban context in which it is located (Fig. 16).

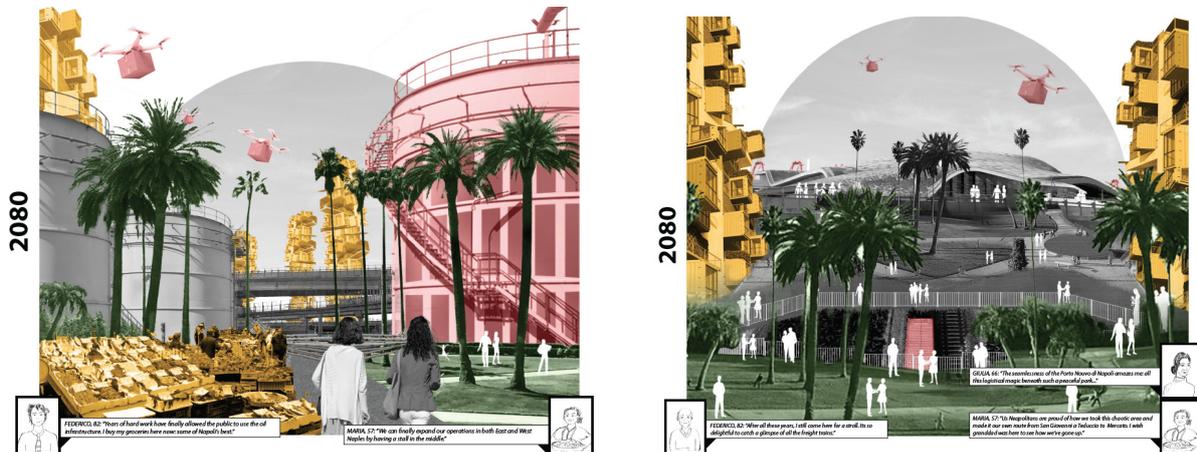


FIG. 16

"Port Pressure" by Artem Alexandrov, Ifrah Ariff, Romée Lems, Luisa Martins and Zuzanna Murzyn. Source: Adaptive Strategies 2022

This condition observed in the port has been adding pressure on the city - mobility, sustainability and social cohesion are some of the aspects which take a toll. The lack of consensus between the different stakeholders hinders development, not only within the port limits but also on the scale of the city, perpetuating and aggravating the separation between port and city and between the eastern and western parts of the city. The students' proposal supports the idea that Naples is a port city, but also emphasizes that Naples is a coastal city,<sup>10</sup> and that the port should be seen therefore as a part of the city and not as an antagonist to it. Furthermore, Naples' port and mercantile vocation dates back to the early 18th century, which makes it a pillar of the 'Italian' and 'modern' development of Naples.

The port activity can and should add value to the city as a whole, by generating revenue but also through the knowledge economy. A port with such outstanding importance in the Mediterranean Sea, and in the Tyrrhenian Sea particularly, can instigate research activity, promote employment and add both financial and immaterial value to the city. It is fundamental to look at coastal port cities through the lens of time, because the observation of current trends indicates that there are a few variables that will impact territory of this sort. Some examples are climate change, leading to rising sea levels; energy transition, with a slow but definite switch from oil to renewable energy sources; and more specifically, changes in

<sup>10</sup> The perception of Naples as a coastal city was one that we were not fully aware of until it was brought to our attention through the answers we received on our Google Forms questionnaire, which was answered by Neapolitans and other people living in the city.

the mode of freight transport and an investment choice in an economic sector of the port itself, with a reduction in the use of containers. In this regard, we look at the territory and at the proposed strategies in the present, in 2030, in 2050, and, more speculatively, beyond 2050. In this way, not only can we ensure the resilience of the proposed strategies in relation to the variables, but we can also discuss phasing strategies which add feasibility to the proposal.

Thus, the general strategy for the proposal is to compact port activity, relieving pressure on the urban context by densifying the Darsena Granili dock, reducing the extent of the horizontal footprint of the port and consequently the obstruction of coastal landscape between the city and the sea. The proposal also envisions a new intermodal hub adjacent to the Via Argine axis, a strategic location in the port-hinterland connection, but also a hinge between East and West Naples.

Transitioning to a smaller scale, the proposal tackles three areas of intervention: the Mercato area in the West and, in the East, the area of San Giovanni a Teduccio (Fig. 17) and what students have referred to as Porto Nuovo - connected to the Via Argine axis - where the proposal establishes a new centrality for port activity, emphasising the port landscape. For each of these three areas, students envision different vocations. They envision different configurations of what the new sea-city relationship could be and various ways the territory where these interventions are situated could benefit from the new configurations.



FIG. 17

On the left is the market area and, on the right, in San Giovanni a Teduccio, a new promenade, as proposed by Artem Alexandrov, Ifrah Ariff, Romée Lems, Luísa Martins and Zuzanna Murzyn. Adaptive Strategies 2022

The Porto Nuovo-Via Argine axis intervention focuses on the densification of the port and the strengthening of connections for the flow of goods to and from the hinterland, breaking the rule that there is an inevitable contradiction between logistics and liveability. In that regard, the project proposed an elevated park over the railway, bridging the Ex-Feltrinelli plot and the surroundings of the San Giovanni a Teduccio station areas that, over the course of the next decades, might undergo mixed-use redevelopment

– particularly in the upcoming realm of mixed-use/industrial zones (Fig. 18, righthand side).



FIG. 18

"Porto Nuovo" by Artem Alexandrov, Ifrah Ariff, Romée Lems, Luísa Martins and Zuzanna Murzyn. Source: Adaptive Strategies 2022

The strategy of densifying and compacting the majority of the port-related infrastructure aims to provide relief for the city, first on a physical dimension, which should later aid the social dimension, clearing ground for more public spaces, providing more access to educational opportunities, including by leveraging the technology and logistics that employment offers. The project envisions such "relief" to gain strength throughout the coming decades, with changes in the modus operandi of ports and perhaps in the energy matrix, all of which are anticipated with the Porto Nuovo hub, facilitating additional opportunities to reclaim the city.

## Beirut

In recent decades, Beirut, the east Mediterranean port city and the capital of Lebanon, has regularly been a topic of discussion among architects and planners because of its controversial post-conflict urbanism. The tragic port explosion on August 4th, 2020, brought yet another troubling layer to the city's trajectory of urban development.

The enormous explosion among the grain silos, on the one hand, highlighted the need to work on security and once more the urgency to plan more adaptively the coexistence between functional ports and cities, especially when ports are close to urban centers.<sup>11</sup> On the other hand, the catastrophic event also highlighted the profound need to work on the resilience and diversification of the economy of the port to avoid economic crises and

11 Asma Mehan and Maurice Jansen, "Beirut Blast: A Port City in Crisis," 2020.

the collapse of the urban metabolic system. All these issues have profound spatial and governance repercussions. Students used those challenges as planning opportunities, questioning the current operating models of the port of Beirut, and thinking about alternative and adaptive methods that can allow the port to better coexist with the larger region and its inhabitants. Beirut's relationship with water is complex. Looking from the Mediterranean at the city, Beirut's coastline is characterized today by very dense post-civil war developments that include a large number of high-rise buildings, which bring a particular sense of heavy urban density and obstruct the view from the central districts. Although the post-civil war developments are especially visible, Beirut was hardly static before the civil war. The role of Beirut as a port city has shifted frequently over the past 200 years, often about local and regional unrest. Recently, it has lost some of its functions as a main passenger port for the pilgrimage population flows to Mecca and Jerusalem. Its role as a transit point between European trade flows and the Syrian hinterland has also experienced some decline. Such shifts have had various impacts on the relationship between the city and the port. The port, which had occupied a very central position within the city, became partially disconnected in the 1930s and 1940s, when the city started to develop an inward orientation. The port district became disconnected from the other parts of the city as the result of a wide avenue introduced to connect the city to the highway. The centrality of the port to Beirut's job market has also experienced some change. In 2004 the port invested heavily in hosting trans-shipment functions. Trans-shipment activities represent 40% of the total volume of port trade. Yet, they bring very little added value for people. In terms of job opportunities, this shift has been estimated to have created 500 permanent jobs and 150 subcontracted jobs. Nevertheless, the port remains important in Lebanese trade and the flow of goods. In 2019 almost 70% of Lebanese imports and exports were transported through the port. Port activities were estimated to represent around 20% of the overall Lebanese GDP. Unlike many Western European port cities, which have spread across vast areas of unused surrounding agricultural land, the port of Beirut is almost surrounded by physical boundaries and dense urban development. The main port activities take place in very close proximity to the centre of Beirut. The port occupies almost half of the northern coast of the city, limiting access to the waterfront and posing many challenges to the city's liveability.

The multiplicity of the actors, conflicting interests, and the complicated set-up of state institutions and involved foreign stakeholders complicates the governance of the port and any opportunities for co-planning with the city. Our attempt to address the modern history of Beirut is not driven by mere curiosity. The contested history of Beirut is nested in its contemporary arrangement, and it becomes imperative for any proposal to consider historical factors when envisioning future developments.

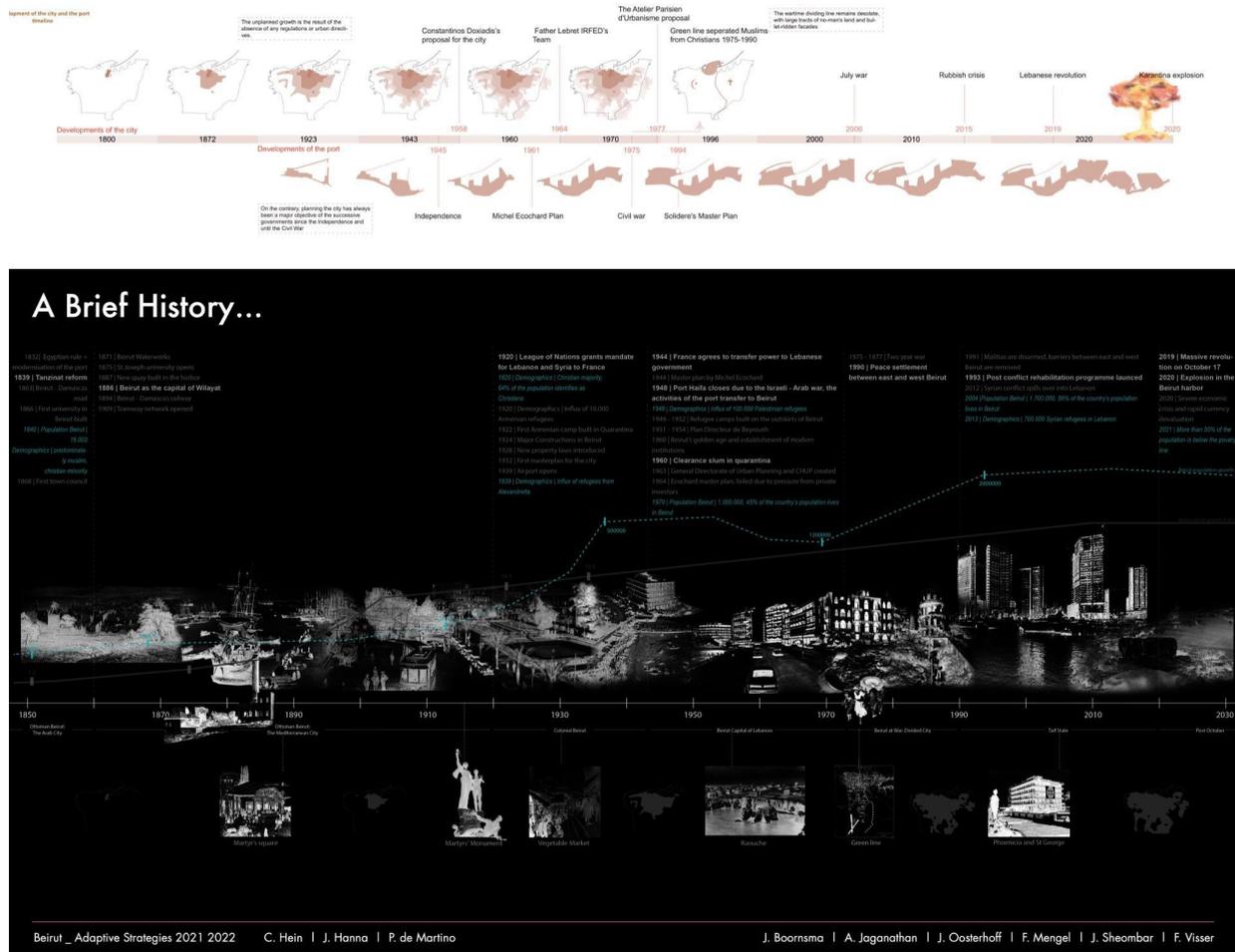


FIG. 19 A historical timeline, by J. Boornsma, A. Jaganathan, J. Oosterhoff, F. Mengel, J. Sheombar and F. Visser. Source: Adaptive Strategies 2022

Looking at Beirut, the student groups explored various frictions within the city – particularly about the port and waterfront. One group of students (Picking up the Pieces) was able to identify two main frictions that start around the port and the coast and extend to the rest of the city, namely those concerning borders and waste management. The students identified a very complex situation of borders within the city. Their analysis looked at three types of borders: 1) around the waterfront of Beirut, 2) the borders of the port and 3) the physical and mental borders of Beirut’s residential neighbourhoods. Concerning the waterfront, the students studied a report produced by Dictaphone (a Lebanese group of artists/activists), which provides a detailed mapping of Beirut’s coast. Because of security functions and private real estate development, many parts of the waterfront remain inaccessible to many citizens of Beirut. Next, the students looked at the borders between neighbourhoods. The students argued that following the war tensions, and also as an outcome of post-war reconstruction, physical and mental borders have impeded social exchange between the neighbourhoods. Finally, the students studied the borders of the port complex. Despite its proximity to the centre of Beirut, the students argued that the physical boundaries of the port, as well as the boundaries created by transport and infrastructure, separate the

port from the city. The port has become a foreign and inaccessible space. The second friction which the students identified involves the city's dysfunctional system of waste management. Between 2014 and 2016, the failure of waste management led to a garbage collection crisis, when many streets of the city contained large piles of garbage. This problem was even more concentrated around the port in the former quarantine area, where several waste management facilities are located. Due to the nature of the area as underdeveloped with a few vacant plots (in comparison to the rest of Beirut, which is extremely dense), the involved actors started to collect garbage there, creating a small mountain of trash.



FIG. 20

"Frictions" by J. Boomsma, A. Jaganathan, J. Oosterhoff, F. Mengel, J. Sheombar and F. Visser. Source: Adaptive Strategies 2022

While a lack of inclusivity and connectivity were common elements in a number of the analyses produced by the student groups, one group (Re-writing Beirut), showed a particular interest in the issue of identity. Their analyses argued for a long-disappeared maritime identity and its recognition<sup>12</sup> (Fig. 21).

12 Hein and Schubert, "Resilience and Path Dependence"; Melcher Ruhkopf, "Globalization, Nautical Nostalgia and Maritime Identity Politics. A Case Study on Boundary Objects in the Future German Port Museum," *European Journal of Creative Practices in Cities and Landscapes* Vol. 4 No. 1 (2021): 113-132, <https://doi.org/10.6092/ISSN.2612-0496/12127>; Hilde Sennema et al., "The Maritime Mindset: A Conceptual and Practical Exploration of Mapping Port Cities," *European Journal of Creative Practices in Cities and Landscapes* Vol. 4 No. 2 (2021): 152-163, <https://doi.org/10.6092/ISSN.2612-0496/14141>.

## OBJECTIVES

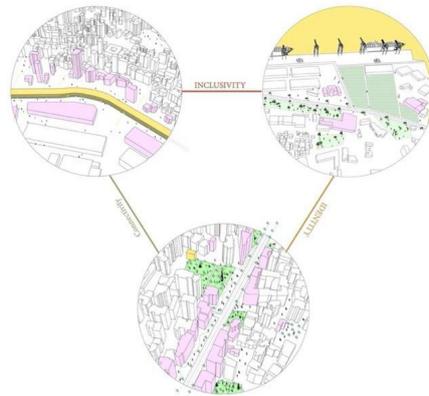


FIG. 21

"Rewriting Beirut" by Mohamed Moussa, Reem Al-Muraikhi, Alaa Hendi, Samir Memovic, Randy Rocha and Diana Alkateb. Source: Adaptive Strategies 2022

## Beirut: Designing Picking up the Pieces

The quasi-futuristic adaptive strategy of the "Picking up the Pieces" group proposed multiple approaches to building new connections within the city itself, and between the city and the extended maritime flows that connect Beirut to many other locations around the Mediterranean (Fig. 22). The strategy works on different levels and scales. Starting from the neighbourhood scale, the group proposed establishing small waste collection hubs at the borders of the neighbourhoods to create new nodes that serve both sides of the border and challenge the existing divisions. These hubs are seen as providing various social functions that evolve around the culture of recycling and include different age and social groups. Together, the established hubs form a new system for waste management and collection around the city that is citizen-centred, with incentives that include a reward system. This system connects to a bigger node around the port where more sophisticated systems for garbage management exists. The situation of the node around the port is to connect to the port functions and provide a new source of national income through exporting recycled and treated material. Through the use of smart systems, the proposal attempts to create a certain level of transparency regarding port functions. With the adoption of these systems, city residents can access information about the different port functions and flows. These systems will be used to regulate the port activities with those of the city to minimize many of the negative externalities of the port. For example, by connecting the two worlds of the port and the city, heavy traffic can be regulated in a way that increases safety.

The "Picking up the Pieces" proposal culminates in its masterpiece: a new agora that opens the centre of the city to the port. The agora will develop

around social and cultural activities that bring residents of Beirut together. It is located at the corner of the port to bring both visual and physical access to port activities. The agora is designed at the end of a longer passage that includes Martyrs' Square, the centre of Beirut that has experienced a complete deterioration of its social function as result of post-war reconstructions.

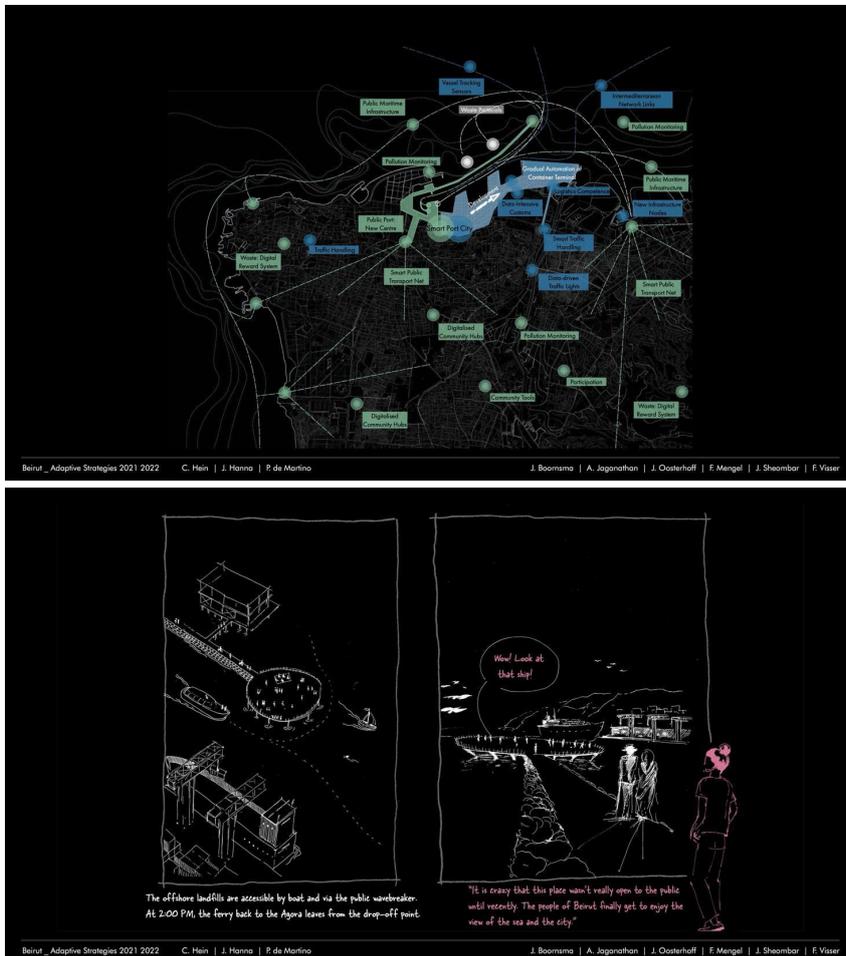


FIG. 22 "Picking up the Pieces" by J. Boornisma, A. Jaganathan, J. Oosterhoff, F. Mengel, J. Sheombar and F. Visser. Adaptive Startegies 2022

"Re-Writing Beirut" (Fig. 23) introduced a strategy focused on reactivating the city's maritime mindset. This strategy aimed to strike a balance between port functions, maritime mindset and quality of life. It acknowledged the economic importance of the port and proposed a further expansion to the east. The climate impact of the port is to be balanced through the introduction of algae farms on the port grounds, which will serve as a clean source of energy. Along the same lines, "Re-Writing Beirut" proposes increasing green areas in Beirut. By connecting the main pine forest of Beirut with graveyards, small neighbourhood gardens and vacant spaces, the proposal aims to create a bold green axis that extends all the way from south to north. Attempting to underscore the maritime history of Beirut, "Re-Writing Beirut" proposes an adaptive reuse plan for maritime-related structures and the areas surrounding them. The old lighthouse of Beirut, currently hidden behind high-rise buildings located around the western side of

the city, will be adapted to new social functions. The idea is to connect the lighthouses around the corniche of West Beirut to create new social meanings around the identity of the port.

KHALIL GIBRAN-LANE

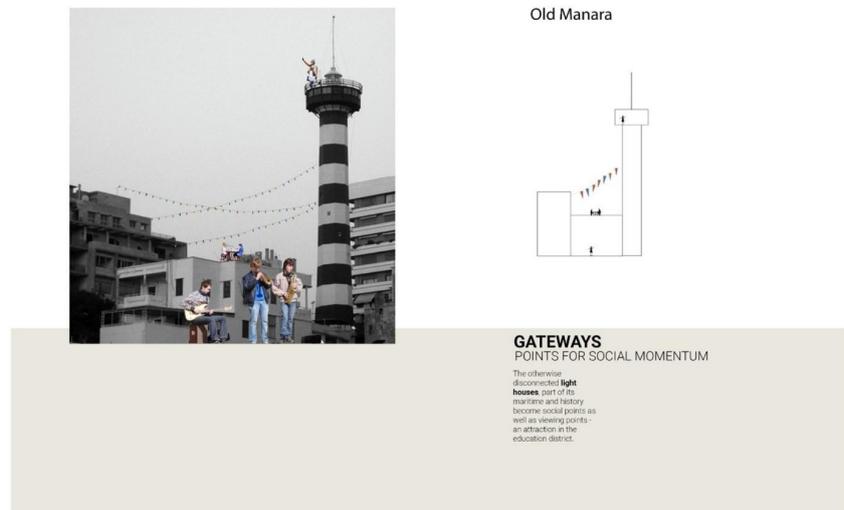


FIG. 23

"Re-writing Beirut" by Mohamed Moussa, Reem Al-Muraikhi, Alaa Hendi, Samir Memovic, Randy Rocha and Diana Alkateb. Source: Adaptive Strategies 2022

## Conclusion

This article has analysed the experience of the master-level course Adaptive Strategies [AR0110] at TU Delft arguing that history matters, especially when it comes to designing the future of port cities. Looking at the past, at the evolutionary history of spaces and institutions and mapping the permanencies as well as the porosities within the territories is a fundamental step to understanding space to better transform it. The course has supported the reflective practice underlying the design. It has trained students to undertake multi-disciplinary research to identify and address the challenges and prospects that cities face in developing adaptive strategies for creating and sustaining just and liveable communities.

Students were encouraged to test formats for identifying challenges and urgencies that can best lead to the identification of adaptive strategies in which short- and long-term interventions at various scales intertwine to achieve the desired impact. To better adapt port cities to future challenges, the course proposed a scenario-thinking approach—which is inherently adaptive—as a tool to (re)design port-city relationships. Naples—with its urban palimpsest—is a city that has hardly adapted to the dynamics and rhythms of the port. At the same time, the port does not seem to always align with the relative slowness that characterizes the city and its inhabitants. In Beirut, the post-war reconstruction plans seem to have paid very little attention to the port. The real estate model of reconstruction focused on deriving maximum profit from the Western and central waterfront, but

that effort came to a complete stop at the border of the port, leaving it and the surrounding Karantina area in a state of uncertainty.

The (re)interpreting step looked at opportunities to build a new relationship between port and city, land and water. In Naples, this meant looking at the system of abandoned industrial areas as new porosities to be regenerated and transformed into new environmental infrastructures between land and water. In Beirut, the recent explosion in the port area was the starting point to completely rethinking the nature of the port in the city.

All of these reflections led students towards the final phase, which was about (re)designing through adaptive interventions. In the case of Naples, some students imagined repopulating the areas at the edge of the port and thus reducing the pressure of the port on the city. Others imagined that the port, detached from the city, could become a flexible and adaptive machine with respect to the times and needs of the city behind it.

The students' projects for redesigning the Port of Beirut focused on developing a new narrative, where the port gets to play a bigger role in the city's image. Whether by bringing access to the port and reclaiming some of its spaces for public functions, or by expanding its activities and introducing a new green approach, the students imagined the port as the driving force of a new chapter in the city's urban history.

Students have learned how to synthesize relevant information about the past and present into knowledge that can inform the exercise of elaborating adaptive strategies with which to steer future development. The focus is placed on experimenting with innovative methods for spatializing and visualizing historically informed analyses, thus allowing hidden knowledge to be uncovered. The idea was to use such knowledge as a force for shifting the design from one preoccupied with solving problems of the present to one geared at opening new possibilities based on a better understanding of the past and steering change into (im)possible futures.

**Paolo De Martino** graduated in Architecture from the Department of Architecture of the University of Naples Federico II (DiARC). After graduating he worked as an architect in Naples, focusing mainly on the reuse of the existing architectural heritage and on urban regeneration. In 2014 he moved to Delft, the Netherlands, where he completed a PhD in a dual research program between Delft University of Technology (TU Delft) and University of Naples Federico II. His PhD research, entitled "Land in Limbo", investigates port cities from a spatial and governance perspective, analyzing the impact that actors have in shaping spatial development. The city of Naples is an emblematic case to question how to rethink the areas of land-sea interaction, at different scales, as opportunities for territorial regeneration. Since 2017 he has been teaching at the Department of Architecture of TU Delft where he is tutoring students in Design Studios such as "Architecture and Urbanism beyond oil", "Adaptive Strategies" and "Designing Public Spaces for Maritime Mindsets", coordinated by Carola Hein. Since 2021, in collaboration with TU Delft, he has been involved in teaching two MOOCs entitled: (Re) Imagining Port Cities: (Re)Imagining Port Cities: Understanding Space, Society and Culture and Water Works: Activating Heritage for Sustainable Development. Paolo De Martino is a member of the PortCityFutures research group and a member of the coordination group. Since 2022 he is a Post doc at the University IUAV of Venice, under the supervision of Prof. Francesco Musco, working on the theme of Maritime Spatial Planning.

**John Hanna** is an architect, lecturer and researcher. His research addresses the spatiality of urban conflicts with a focus on Paris and Beirut. John's wider research interests include Mediterranean and Red Sea port cities, quarantine spaces, architecture and literature, and urban histor(ies) of Africa and the Middle East, particularly in relation to colonialism and nationalism.

**Carola Hein** is Professor of the History of Architecture and Urban Planning at Delft University of Technology and director of the Leiden-Delft-Erasmus PortCityFutures Centre. She has published widely and received a Guggenheim and an Alexander von Humboldt fellowship as well as other major grants. Her books include *Oil Spaces* (2020), *The Urbanisation of the Sea* (2020) *Adaptive Strategies for Water Heritage* (2019), *The Routledge Planning History Handbook* (2017), *Uzō Nishiyama, Reflections on Urban, Regional and National Space* (2017), *Port Cities* (2011), *The Capital of Europe* (2004), *Rebuilding Urban Japan after 1945* (2003), and *Cities, Autonomy and Decentralisation in Japan* (2006), and *Hauptstadt Berlin 1957-58* (1991).

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