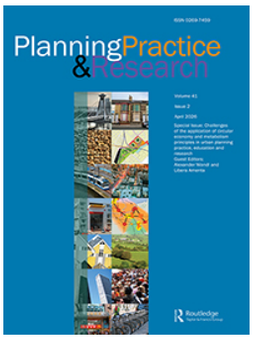

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PRACTICE REVIEW

Living with water: (re)imagining land–sea spaces in Naples as a design strategy to (re)conceptualise port cities as circular landscapes

Paolo De Martino[a,b], Francesco Musco[b] and Michelangelo Russo[c]

[a]Department of Architecture & Department of Urbanism, TU Delft, Technische Universiteit Delft, Delft, Netherlands; [b]Department of Cultures of the Project, IUAV University of Venice, Universita IUAV di Venezia, Venice, Italy; [c]Unina DIARC-Dipartimento di Architettura, Universita degli Studi di Napoli Federico II, Naples, Italy

ABSTRACT

This article explores the transitional spaces of Naples' port city, proposing a shift in perspective by viewing coastal territories from the sea. It highlights how fragmented land–sea interaction spaces can become experimental grounds for circular processes and environmental infrastructures. By analyzing Naples and European port cities, it questions the current linear planning of ports and their disconnection from urban life. The article focuses on the spatial dimension of circularity, advocating for reimagining wastescapes – neglected spaces between land and sea – as multifunctional, resilient landscapes. Through case studies and scenario thinking, it proposes new ways of living with water, challenging existing urban-port planning paradigms.

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Port cities; water; circularity; land–sea interaction; transitional landscapes

1. Introduction

Port cities are fascinating transitional landscapes, liminal and porous spaces at the intersection of land and water where different flows of goods, people and culture meet and sometimes collide (Russo, 2016; Hein, 2021).

For urban planners, designers and historians, the interface between land and water is one of the most fascinating topics. This threshold space is the place where solid and liquid come together, where large-scale economies meet urban palimpsest and where the city takes on a landscape connotation (Russo, 2016; Moretti, 2020). It is in this space which is controversial by nature that the contemporary challenges are concentrated, from environmental to demographic and social pressures. Dealing with port cities means reflecting on history and (abandoned) industrial heritage and on how the new economic and energy models will impact the environment and people's lives in the light of changing water conditions. Since the second half of the 19th century, port cities have undergone

CONTACT Paolo De Martino p.demartino@tudelft.nl; pdemartino@iuav.it

profound spatial and functional transformations (Hein, 2016a, 2016b). Some scholars have argued that circularity and resilience have accompanied the development of the port and the relationship with the city for centuries, if not millennia, with ports that have reinvented themselves, adapting each time to the needs of modernity (Hein & Schubert, 2020). The intimate relationship was also reflected in the governance. In the past port spaces were dominated by the houses of merchants and governed by kings and rulers. Who oversaw the port was also in charge of the city. It can be argued that this was also the case of the millenary city of Naples. Here, for more than two thousand years, the city and its port were the backdrop for theatrical acts where kings and dominions from different cultures and places competed for the interaction spaces between the port and the city, enriching it with architectures and monuments, widely regarded today as the most beautiful in the world. As a result, the development of the port was planned in conjunction with the city.

Industrialization has imposed significant global changes with ports moving away from cities initiating an irreversible process (Hoyle & Hilling, 1984; Hoyle, 1989, 1992, 2000; Kokot *et al*., 2008; Hein, 2011). This has undermined the concept of ports themselves, changing the spatial, social and economic model of the port city from unitary entity to the one characterised by physical detachment (Bruttomesso & International Centre Cities on Water, 1993; Pavia & Di Venosa, 2012).

Today ports form a continuous and strategic territorial organism with the larger and metropolitan territory around them. While historically ports have represented the natural extension of the city towards the sea, the marketplace and the large urban square on water, today they are configured more as a rigid and not porous spaces within the city. From elements strongly connected to the urban palimpsest, ports have progressively lost their nature of landscape to become places of logistics and large-scale infrastructures, sectoral machines that progressively moved away from cities and consequently from the imaginary of inhabitants (Russo, 2016).

Modernity has therefore generated fragmentation and loss of the social, cultural and economic continuity between port and the larger territory challenging the concept of circularity. The features of contemporaneity as well as the edges between port and city appear uncertain and indefinite, as a collage of problematic landscapes, an archipelago of heterogeneous pieces waiting for new configurations. They represent fragments of cities, infrastructures, unused or abandoned areas, polluted soils, vacant buildings that are the result of a metabolic development that is no longer circular and of uneven growth of the city with its port (Amenta & De Martino, 2018; Castigliano *et al*., 2020). At the same time, these places are the historical legacy, potential spaces with a design potential. This contribution looks at these landscapes, especially in the port of Naples, as a precious resource to be reinserted within the urban metabolism of the city again. Circularity becomes a design tool and a metaphor to approach the port city of Naples with the aim of starting a sustainable regeneration of the coastal territory and creating new perspectives for living with water. Many of these areas are now at the end of their industrial and production life cycle or awaiting new developments such as the oil field or the container terminal put in place by the port authority in East Naples. This article, by also looking at some examples in Europe, investigates whether circularity can help reconceptualise and redesign land–sea

interaction spaces in Naples, which is still today in a waiting condition (De Martino, 2016, 2021).

2. Methodology: case studies and scenario thinking approach

In a recent publication, Hein and van Mil (2019) pointed out that existing interpretative models for mapping and analyzing port city territories are no longer able to provide enough understanding of the challenges at play (Hein & van Mil, 2019). New research methods and theoretical approaches need to be mobilized in order to better understand how land and water influence each other. This article aims to fill this gap by asking what does circularity mean for the port city of Naples? How can a circular approach help re-conceptualizing the port towards new ways of living with water?

It mobilizes the concept of circularity to assess the relationship between land and water, ports and cities in Naples. Methodologically, the article is composed of three main parts. The first part is about Naples. Here, challenges and opportunities are discussed to identify spaces for actions at the intersection of land and water as potential laboratories to create new narratives around water. The second part provides a review of the concept of circularity mostly in relation to port cities. By doing so, it also discusses a few emblematic examples in Europe – Rotterdam, Amsterdam, Antwerp – to show the different connotations and scales the concept of circularity can take. The main goal of this comparative investigation is to inspire for new imaginaries and scenarios for Naples. The last part is more explorative. It uses a scenario thinking approach for Naples that finds inspirations from the comparative case study research. The basic idea behind the scenarios is that they do not aim to predict the future but to explore possible spaces (Godet & Roubelat, 1996; Abou Jaoude *et al.*, 2022). Scenarios are a point a departure; they do not propose final assumptions, rather they can help imagining new forms and urban potential. They consist of descriptions of (im)possible situations, contrasting stories about plausible futures. New (provocative) scenarios can initiate conversations among local stakeholders and help to engage with the critical relationship between land and water. Therefore, scenarios do not claim to plan everything. They are used here as narratives, fascinations capable of tracing a direction in a context made up of differences, complexities, conflicts and uncertainties. More than predictive or normative approaches, the scenario indicates possible new narratives, interpretative models and cultural approaches for living with water.

3. The port city of Naples: a coastal landscape facing path dependencies

This section of the article focuses on the port city of Naples in relation to its metropolitan area. In this territory, the development of the port has followed an unconventional path and, contrary to many European port cities, such as Rotterdam or Barcelona among others – where the port expansions have been an opportunity for the different authorities to rethink historical waterways and surrounding areas – in Naples this process never took place. As a result, the city lives a condition of limbo in a waiting condition between a nostalgia of past and the need to tackle future challenges. This limbo has turned into an unresolved land–sea relationship. The Neapolitan case reflects a broader Italian condition, in which different structural and governance aspects have ensured that the port has

never abandoned the historic city, growing on itself and adapting from time to time to the challenges of modernity. In Naples, the areas between port and city have historically been characterized by a deep interconnection of spaces and functions, but starting in the 19th century, the port and city were designed by the different authorities as two autonomous entities. The result was the formation of a fragmented and uneven interface in which the different urban and port flows overlap without integration (Figure 1). Since the 20th century, port expansions related to logistics and the construction of a new container terminal in the east of Naples have projected the port beyond its traditional boundaries, defining new scales of relationships, contributing both to improving the infrastructural characteristics and to separate the city from its sea.

In various publications, the history of Naples has been reinterpreted in the light of its path dependencies. Naples' entire evolutionary narrative, spanning its architecture and infrastructure, intricately intertwines with the historical trajectory of its institutions. Over time, diverse actors with varying influences and powers have played pivotal roles in shaping the port's development, ultimately dissolving the once-intimate relationship between the city and its waterfront (De Martino, 2021; Paolo; De Martino, 2023). Path dependence is understood as a resistance by institutions and people to change patterns of behavior and a tendency to repeat decisions and experiences of the past. If, on the one hand, the concept of path dependence refers directly to a problem of governance, on the other hand, Fernand Braudel talked about a dimension of inertia linked to space and the geography of places (Braudel, 2017).

Path dependence serves as a theoretical instrument for analyzing actors' interactions and gaining deeper insights into the spatial dynamics of Naples. Its utilization serves a dual function: firstly, as an interpretative tool to comprehend the city's spatial condition, especially in light of the transformations in its port that have distanced it from the water. Secondly, path dependence is redefined as a cross-cutting principle to address the porosities within Naples' current governance structure and to transcend the identified 'waiting condition'. Interpreting Naples through the lens of path dependence means entering the history of decisions, visions of the actors and the transformation mechanisms of the port–city relationship that still influence the present acting against circular principles and land–sea integration. Many of the challenges of port and city play out in spaces that actors wish to claim. In Naples, the area of San Giovanni a Teduccio to the East of the city is an emblematic example of a site where competing interests have blocked spatial development since the beginning of the 20th century. This strategic area has long been home to oil installations and container terminals that serve the city of Naples and beyond (Figure 2). Port and city authorities have competing goals for the

Figure 1. East Naples. Source: Paolo De Martino.

Figure 2. East Naples. Source: Paolo De Martino.

site. The Port Authority has proposed the much-needed expansion of the container terminal with a new platform extending into the sea. The municipality aims to re-establish a spatial, economic, and social connection between citizens and the sea and, to this end, has proposed a new beach next to the container terminal as an opportunity to connect different parts of the city. Despite the urgency for the authorities to resolve this conflictual relationship, a final decision has not been reached.

The law n. 84/1994 as well as recent policies related to the introduction of port systems (Law 169/16 and 232/17) have framed the contact areas between the port and the city as being of strategic interest. However, some structural issues have prevented the definition of territorial integration processes between port, city and landscape: the presence of an operational port in a highly urbanized area and the consequent lack of decentralization processes of the port's industrial functions are emblematic examples. Over time, this has contributed to define those phenomena of path dependence that have hindered the construction of a common vision (Arthur, 1988; Hein, 2015a, 2015b; De Martino, 2016, 2020).

There is therefore a need for a change of perspective that looks at circularity as a landscape regeneration strategy. It is in this porosity of spaces and governance that the port authority, the municipality of Naples and the regional authority have the opportunity to reimagine their relationship, and experiment with new approaches towards a circular territorial metabolism (Sohn *et al.*, 2018). The Campania region has recently worked on preparing Maritime Spatial Plans in response to the Directive n. 2014/89/UE. The European Directive offers enormous opportunities in terms of recalibrating the land–sea relationship by triggering virtuous processes of landscape enhancement, environmental protection and conflict mitigation for uses and functions related to the sea (Figure 7). This could represent a new juncture to help the city and its port to move beyond path dependence.

In the contemporary scenario, Europe's seas are bustling with a myriad of activities orchestrated by well-established sectoral planning systems. These activities include maritime transport for commercial goods, operation of ports, fisheries, and tourism. Alongside these traditional sectors, the integration of new technologies such as offshore wind, submarine cables and pipelines, hydrocarbon exploration, research and cultivation, as well as aquaculture and marine biotechnology, adds a layer of complexity. To address the delicate balance between natural and human-induced elements, the concept of maritime spatial planning (MSP) has emerged. MSP, a fundamental component of the

blue economy, centers around economic activities that are not only ocean-dependent but actively contribute to oceanic well-being, aligning with the principles of sustainable development.

The European Union's Integrated Maritime Policy (IMP) serves as a comprehensive framework, urging enhanced coordination across various policy domains to foster a unified approach to maritime issues. Within the IMP, the Maritime Spatial Planning (MSP) pillar is governed by the European Directive 2014/89/EU, mandating all coastal Member States to formulate a national maritime spatial plan by 31 March 2021. Emphasizing the consideration of Land–Sea interactions, the MSP Directive opens avenues for the potential application of MSP to support the strategic development and evolution of ports. Over the past decade, the Italian government has actively crafted maritime policies and tools to support the blue economy and marine conservation. Importantly, the maritime spatial plan operates not as a replacement for existing planning tools but as a superior and strategic layer. It ensures alignment among diverse sectoral plans, such as territorial coordination plans and landscape plans. Functioning as a strategic planning tool, the maritime spatial plan provides guidelines and criteria, steering potential new directions for marine usage. Due to its legal nature, maritime spatial plans are conceived as programs with the ability to directly influence not only marine areas but also terrestrial activities with potential impacts on marine waters (Carella *et al.*, 2024).

Maritime Spatial Planning can represent an innovative tool to rethink the land–sea interaction areas (Barbanti *et al.*, 2015). In Naples (Figure 3) this would mean, as a first step, to restart from the coastline and from the system of abandoned spaces to regenerate the port territories, identifying their strategic nature both from a spatial (land and sea) and governance point of view. The second step would be to recreate a system of relationships between citizens and the sea and between cities, ports and metropolitan and regional territories: This has to do with specialized areas, production and logistics, but also industrial architectures, protected underwater areas, parks and nature reserves. These transformable 'systems of spaces', potentially connected to the existing city, thus acquire a specific role of physical and spatial connection with land and sea. This perspective, as in other European contexts, can be an opportunity to keep port development and landscape and environmental protection together.

4. Circularity and port cities

In an era where population and resource demand are continuously growing and land seems to be run out, people have recognized in the sea new development opportunities. The Union for the Mediterranean estimates that by 2030, 80% of the Mediterranean population will live on 10% of land located along the coast. This is giving way to processes of urbanization of the sea (Couling & Hein, 2020). The coexistence between urbanization of the sea and the enormous fragility of the coastlines leaves many open questions in terms of socio-cultural and environmental sustainability.

Air, water and soil pollution, acidification of ecosystems, biodiversity loss, climate change and waste generation put immediate, medium- and long-term economic and social well-being at risk (EEA, 2015). A new, circular approach that aims at recycling

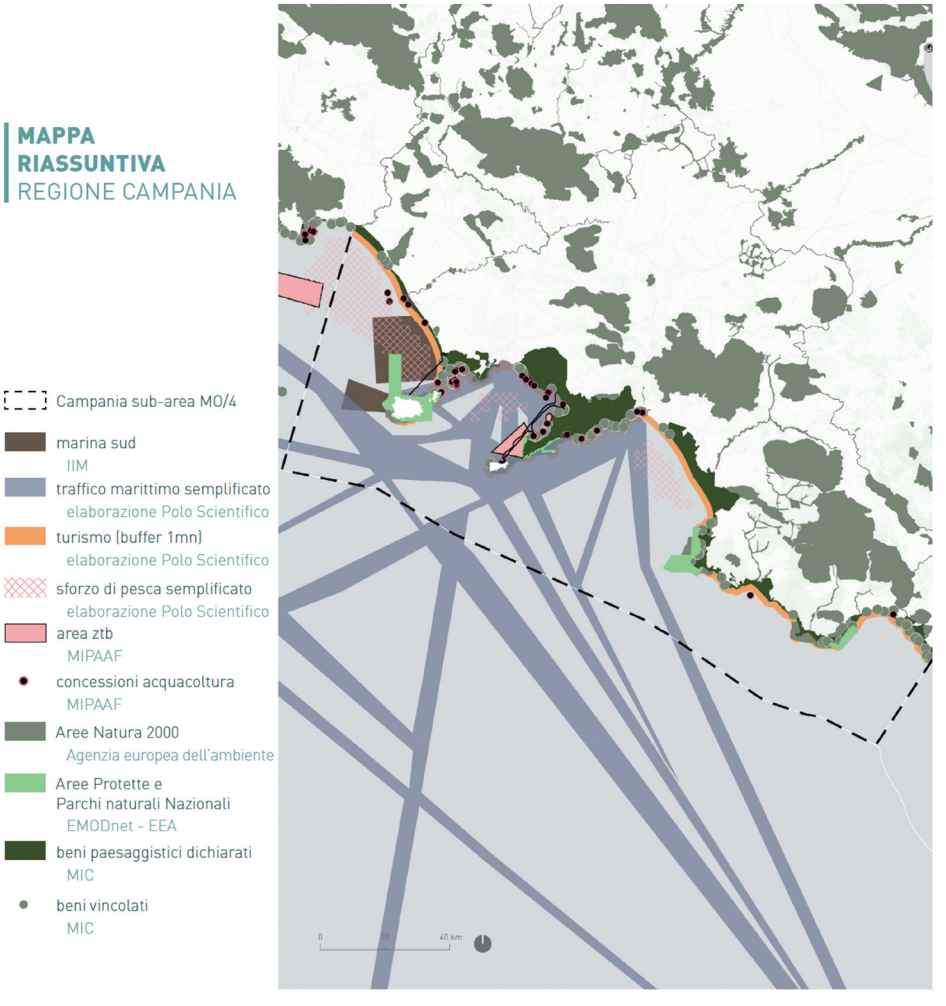

Figure 3. Map of the Campania region showing the different flows and complex coexistence of uses of the sea.

leftover spaces between land and water could provide answers to these challenges with port cities playing a key role.

This article examines port cities as both territories of historic linear economic growth models and as

potentially key players in the development of circular practices. Although circularity is widely shared in both academic and professional fields – who could possibly oppose circularity? – this article argues that the concept is also widely abused and misunderstood, especially when it comes to port cities.

The definition provided by the European Commission defines the circular economy as 'a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the

end of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby creating further value' (EC, 2020).

The concept of the circular economy reflects the recognition that European systems of production and consumption need to be fundamentally transformed to achieve the EU's 2050 vision of living well within the limits of our planet. In essence, a circular economy represents a fundamental alternative to the linear take-make- consume-dispose economic model that currently predominates. This linear model is based on the assumption that natural resources are available, abundant, easy to source and cheap to dispose of, but it is not sustainable, as the world is moving towards, and is in some cases exceeding, planetary boundaries (Steffen *et al.*, 2015).

The concept of circular economy mainly refers to economic models and only recently scholars have started to reflect on its spatial dimension to better understand how much space the transition needs and where to intervene (Libera Amenta & Van Timmeren, 2018).

The recent trend of specialization and standardization of ports, driven by global forces, have pushed national and local authorities to plan ports independently of their historical, cultural, social, and economic contexts of reference. As a result, ports often fail to interact with or take into account the interests of citizens, local municipalities, small companies, and start-ups. However, despite the current interest – both academic and professional – in framing port transformations as part of a larger urban system, ports are still expanding linearly, in a way that is detached from cities, people and landscapes.

Shifting to a port–city relationship that can advance circularity would require a deep restructuring of socio-economic models; one that accounts for closing loops and resource efficiency, which addresses the legacy of reliance on global chains, and tackles environmental impacts of traditional port activities such as oil processing and trade.

Today, the urgency of the challenges at stake has led many port and city authorities to make the concept of circular economy a key element of their planning policies. Located at the edge of sea and land, port cities are indeed the first to experience the impact of climate change. Public, private, port, city, and regional stakeholders are aware of the need to address the climate crisis and support the energy transition in line with the European Green Deal that aims to set a blueprint for a circular economy (EC, 2019a, 2019b).

As highlighted by several European policies, ports play a key role in the transition to a circular and low-carbon economy. These are the places where transitions shape the future to continue to create added economic and social value for many people. Despite this excellent position, a successful transformation towards future-proof (city) port areas is far from a given. There is no single way of being circular and change cannot be achieved only through regulation or market forces. It requires many steps from many actors over a longer period. It is up to the port authorities, the (port) business community and the city and regional governments involved to turn this challenge into an opportunity.

Despite today Rotterdam hosts the most polluting port in Europe, some small-scale initiatives can suggest a possible change of direction. In that respect, circularity can become a tool to rethink policies and planning practices in order to reimagine space, economy, and environment through non-linear models and as possible pathways for sustainable development.

In the Netherlands, the Metropolitan Region of Rotterdam-The Hague (MRDH) has been working on a roadmap towards circularity. 'Circularity is defined as renewability of all natural resources: energy, water, biological and technical materials, air and top soil.' The goal is to have 100% of renewable energy by the 2050. The ambition is to move from a centralized linear economy towards a delocalized, distributed, and circular economy. According to the roadmap, the next economy will change the way cities are managed and the way people interact in the society (MRDH, 2016). The roadmap works as a strategic orientation, an overall strategy towards innovation. Blue City project (Figure 4) is an emblematic example that goes in the direction of the circular economy. Here, waste becomes a resource and loops are closed in different ways. Center to the project is the recovery of the Tropicana building, an old pool built in the 1980s and abandoned in 2010. After a few years of dereliction, the company BlueCity has bought the vacant building and decided to turn it into a creative incubator for entrepreneurs who want to experiment circular economy principles. The companies work on waste by making them input for new processes. For example, coffee leftovers are reused by another company for the cultivation of mushrooms, CO_2 is reused by a company that produces spiruline, finally fruit waste is reused to produce a material similar to leather. The project also allowed for a reappropriatement of the waterfront by the community, reestablishing a relationship between people and water.

In Amsterdam, the topic of decommission of polluted industrial areas is tackled by reintroducing waste into the processes of urban metabolism, providing new meanings, values and functions to territories that are configured as abandoned suburbs close to the center. This occurs, for example, in the northern area of Amsterdam, with the experimentation carried out at the 'De Ceuvel' site (Figure 5). The latter has become an icon for

Figure 4. Blue city tropican, Rotterdam. Source: https://upload.wikimedia.org/wikipedia/commons/9/9c/BlueCity_Tropicana_%28Rotterdam%29_DSCF5230_copy.jpg.

Figure 5. De Ceuvel. Source: Paolo De Martino.

the regeneration of a polluted and abandoned area, through phytoremediation processes. During the long process of soil regeneration, which will last about 10 years, the space hosts designers and creatives together with bars and restaurants. Temporary houseboats have been placed on the De Ceuvel site temporarily with the aim, once the process is over, of returning the decontaminated land to the municipality of Amsterdam so that it can be reintroduced into the urban process.

Changing scale, the case of Stadshavens in Rotterdam creatively rethinks the abandoned areas between the port and the city as a key to strategic development. Indeed, this happens in the RDM Campus, a former shipyard between the city and the port of Rotterdam, where the municipality together with the port authority proposed the creation of a cluster of knowledge and innovation, which is, in fact, a return of the port to the city. The RDM Campus (Figure 6) includes activities belonging to the manufacturing sector in relation to the port with related education and research programs. Another example is the makers' district (M4H), located on the other bank of the Maas River, which today offers space for manufacturing companies, companies and start-ups to start their businesses. Together, the two sites will host a mixed functional area with residences and companies, configuring themselves as a creative city hub (Vries, 2019).

In Antwerp, the 'Green Singel' project (Figure 7) is the result of an extensive analysis conducted by the municipality of Antwerp on the possible processes of robust infiltration of green areas around the city. The project questions how

Figure 6. RDM campus. Source: Paolo De Martino.

Figure 7. Antwerp. Green Singel. Source: karres en brands.

a landscape approach can help to repair the urban fractures generated by the major infrastructural developments introduced starting from the 1960s in order to recreate a spatial and environmental continuity between around the Antwerp Ring. Rethinking this infrastructure is an opportunity to introduce a large green corridor triggering a progressive transformation of the territory and effectively offsetting the environmental impacts of the port on the city and the region (Karres-en-Brands, 2011).

These examples highlight the strategic role played by the spaces of relationship between port and city in re-inventing the public perception of the port and the surrounding areas. These examples also highlight the fact that the different groups of stakeholders need to find solutions that are not only technical but also help develop a shared mindset that allows for spatially, institutionally, and socially integrated development of what are currently disjointed port city territories and strategies. It aims to develop, promote, and test new approaches and tools to facilitate collaboration among port city stakeholders on the topic of circularity and living with water. This is also in line with the AIVP Agenda 2030, the world's first initiative to adapt the UN's 17 Sustainable Development Goals for the specific context of city–port relationships (AIVP, 2018).

5. Two scenarios for Naples to make the port city a circular landscape

Naples has been a territory in a waiting condition for centuries. Here, reimagining the land–sea spaces would mean responding to a plurality of unresolved aspects and therefore designing the waiting spaces that are putting pressure on the city. First of all, the oil field (see Figure 9) with huge oil storages close to the city centre that asks for a different strategy is more compatible with nature and people's lives. The second topic has to do with the port expansion proposed by the port authority back in 2018 with a rigid platform in concrete towards the sea

that has dismantled any possible ideas for people to get back to the sea. Finally, there is the theme of the recovery of the industrial heritage of the Corradini building (Figure 8) which today is a backdrop to a landscape which is awaiting new configurations.

It is evident that so much exists in terms of heritage, but much still needs to be done in order to build a unitary coastline scenario capable of integrating, recycling and reinventing

Figure 8. San Giovanni a teduccio. Source: Paolo De Martino.

Figure 9. Scenario 1, port–city archipelago. Map developed by Paolo De Martino.Basic map by Campania Region database.

the existing urban palimpsest by reconnecting it to the sea. The next two scenarios propose a research direction by looking at the sea and the opportunities offered by Maritime Spatial Planning as a tool to better plan this renewed relationship between land and water.

5.1. Scenario 1: port city archipelago

The regional territory of Naples is a fragmented space where a logic of archipelagos dominates, with closed and poorly connected spaces, absence of public spaces and insufficient infrastructures. This fragmentation asks for a wider integration able to combine the needs of the port with its flows and functional enclaves with the city, its culture and economies. The scenario therefore proposes to go beyond the traditional idea of the port as a mosaic of functional enclaves. On the contrary, the vision highlights that today the quality of the landscape is played in the spaces of transition, left over areas between different environments and types of lands and water uses (residential areas, agricultural areas, industrial and natural sites). Balancing this relationship becomes crucial and also the main task of planning in the future of Naples. Startups and new businesses, as demonstrated by the case of Rotterdam, could influence the existing port–city model. Moreover, some relocation of activities could be vital. This would allow to reuse some abandoned spaces at the edge of the port with new economic and cultural activities to promote a diversification of the economic model of the port.

These new businesses, such as companies in the field of circular economies, logistics, and clean energy could develop testing ground for innovation into and around the port. As the M4H in Rotterdam has shown, small companies are not looking for large hectares. On the contrary, young entrepreneurs want to be close to the city, the knowledge institutes and the urban amenities. Naples, with its rich palimpsests, can offer this environment. The scenario therefore imagines a new pedestrian path (in yellow and with different heights) which crosses the entire port perimeter from east to west. This path also embraces the historical traces of the city and its monuments, testifying to a strong and intimate relationship between the morphology of the port and the urban palimpsest. The scenario reorganizes the port area into three macro spaces. The first one (in blue) would represent the cultural hub as the area of the port closest to the historic city. By moving the shipyards to Castellammare di Stabia (where an already active industry exists) an entire piece of the port could be destined for passengers and cultural and recreational activities (e.g. learning centers and port centers). In brown, the energy hub would be reinvented in order to host new energy sources in close contact with the entire system of the old oil field reinvented to allocate new residential and advanced tertiary areas in the sector of clean energy. A long park along the port perimeter as buffer zone would be necessary to compensate and mitigate port activities in the future (Figure 9).

5.2. Scenario 2: from water to land

In a context of growing and competing uses of marine spaces, it can be argued that there is no separation between what happens on water and what takes place on land. All sea-related activities continue on land and vice versa. This applies to the flows of goods and people, logistics and energy among others. The complexity of these relationships requires

that these two entities (land and water, ports and cities) need to be planned in a more interconnected way rather than according to sectoral and disjoint planning tools.

Seen from this perspective, the relationship between port and city, and the potential territorial regeneration linked to it touch upon different scales of landscape. The landscape of Naples is in fact a landscape that has been built over the centuries starting from the sea and it is only from the sea that it is possible to grasp the complex relationships of its palimpsest and the different landscape areas that develop along the coast. There is therefore no single landscape, but different landscape structures and these must always be seen in relation to the sea and the different uses, functions and economic activities that develop into the water (Figure 10). The experiments carried out in Antwerp, in particular on the robust infiltration of nature within and around the port, is an inspiring approach that underlines the need to look at the port infrastructure in a landscaping way, using the challenges of the port as an opportunity for a larger territorial project.

Thus, the proposed scenario reflects on the challenges and opportunities to develop maritime economic activities hand in hand with environmental protection by looking at the sea as a landscape and strategic space. The vision proposes a shift of paradigm in planning from a land-oriented approach to one that is mostly oriented towards the sea and its broader relation with the territory. The vision also aligns with the Maritime Spatial Planning (MSP) introduced by the Directive n.89 of 2014 and its implementation in 2016 (n.201 of 22/November/2016).

Therefore, in line with the methodological framework proposed by the MSP, the scenario aims to reconceptualize the coastline as a complex and multifunctional space in which different uses and activities can coexist, from fishing, to aquaculture, plants for oil and gas extraction, maritime transport, tourism, enhancement of the heritage, scientific research and this can happen in respect and analysis of the specific vocations of the considered maritime region.

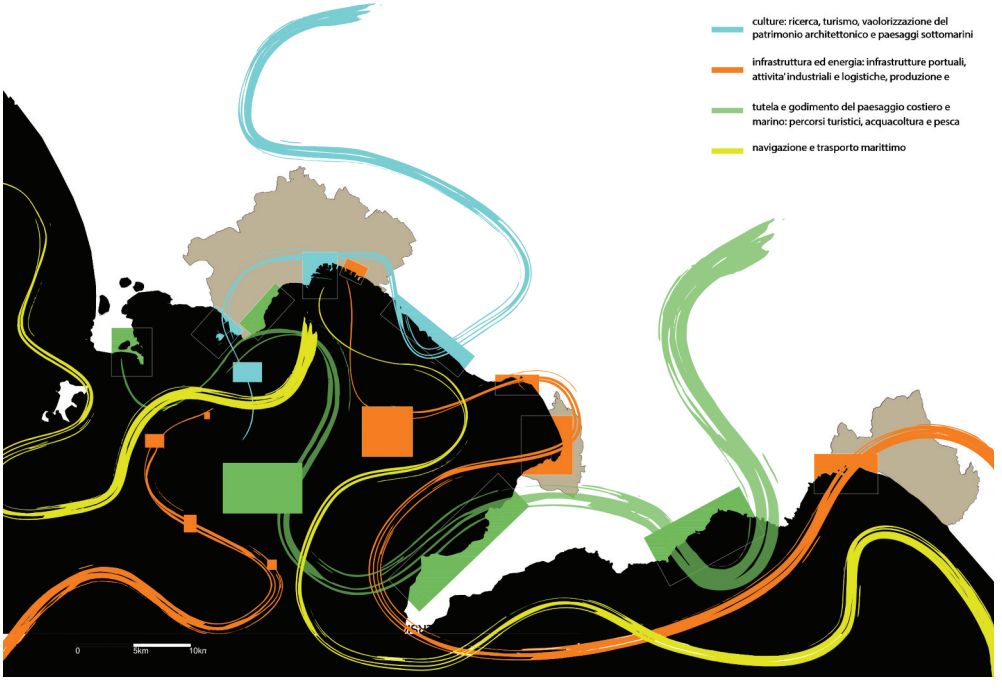

Figure 10. Scenario 2, from water to land.

Looking at land from water could help overcome historical conflicts of interest and build a territorial vision, which in fact is still missing today in Naples. In line therefore with the MSP initiative, the scenario proposes to develop a regional plan of the sea able to find a sustainable coexistence of interests and functions to connect land and water.

Circularity in Naples: Comparative table of scenarios

Dimension	Scenario 1: port city archipelago	Scenario 2: from water to land	How this answers the questions
Core Idea of Circularity	Reuse and transformation of residual port spaces into mixed-use cultural and economic hubs	Integration of marine and terrestrial planning into a unified landscape logic	Circularity means valorizing existing assets, minimizing waste of space and function, and enabling cross-scale regeneration
Spatial Strategy	Stitching together fragmented urban-port enclaves with new public paths and programs	Reconceptualizing the sea as an extension of urban planning and a key element of territorial infrastructure	Circularity becomes a spatial logic to rewire disconnections – either within the city or between city and sea
Social Strategy	Creation of pedestrian connections, cultural centers, and community uses within the port	Strategic planning for shared uses of the sea, reducing land-use conflicts and promoting inclusive access	Circularity promotes social reconnection by breaking down physical and institutional barriers
Cultural Strategy	Celebrating historical layers and reactivating the urban palimpsest through adaptive reuse	Embracing the sea as a historical and cultural lens through which to understand and reimagine the city	Circularity engages cultural memory and identity as key elements of regeneration
Scale of Intervention	Local/urban (within port–city boundary)	Regional/territorial (sea-land continuum)	Circularity applies across scales, from local reuse to regional planning
Governance & Tools	Port regeneration through design and urban policy	Use of Maritime Spatial Planning (MSP) as a regulatory and visionary tool	Circularity requires integrated governance models, combining urban design, environmental policy, and regional planning
Environmental Approach	Creation of green buffers and repurposing of polluting infrastructures (e.g. oil fields)	Ecological planning of marine areas to enable coexistence of nature and economy	Circularity enables ecological resilience through multifunctional landscapes and infrastructural transformation
Economic Opportunities	Attracting clean-tech and circular economy businesses, fostering innovation	Developing sustainable marine economies (fishing, aquaculture, tourism, renewable energy)	Circularity aligns economic development with environmental and social goals
Similarities Between Scenarios	Both prioritize reuse, integration, and reconnection of fragmented systems (urban, ecological, infrastructural)		Circularity is a unifying principle across different strategies
Differences Between Scenarios	Focus on internal regeneration of port–city space	Focus on marine planning and the port as a regional connector	The site and scale of circular intervention vary, but the objective of reconnection remains central
Circular Port-Sea Relationship	Port as cultural, economic, and social infrastructure embedded in the city	Sea as a territorial infrastructure that shapes urban and regional planning	Circularity redefines the port-sea relationship from functional separation to spatial, cultural, and ecological interdependence
Overall Vision for Naples	A port–city integrated through adaptive reuse and cultural regeneration	A marine-urban region governed by a shared spatial vision of sustainability	Circularity is a transformative approach that offers new imaginaries and concrete strategies for the regeneration of Naples and its relationship with the sea

6. Conclusions

This article has explored the complex relationship between the port and the city of Naples from a landscape and circularity perspective. It has asked how circularity can serve as a design principle and strategic framework for reconfiguring the land–sea interface in port cities – particularly in a place like Naples, where historical fragmentation, industrial legacies, and planning inertia have produced a deep disconnection between the city and its waterfront.

The two scenarios – Port City Archipelago and From Water to Land – emerge from this investigation as speculative yet grounded design responses. They propose distinct visions for how circularity might be translated into spatial, social, and ecological strategies for reconnecting land and water.

In the Port City Archipelago, circularity manifests through the reuse of underutilized spaces within the port perimeter to host new economies and cultural functions. Here, circularity is a spatial strategy: it works by activating residual areas, bridging infrastructural barriers, and stitching together a fragmented urban fabric. It is also a social strategy, promoting public access, pedestrian connections, and new cultural hubs in spaces previously closed to the city. Finally, it is a cultural strategy, embracing the city's historical palimpsest and allowing it to inform future uses, rather than be erased by mono-functional port logic.

In contrast, the From Water to Land scenario repositions the sea not as a boundary, but as an active agent of planning. Circularity here is expanded to a regional and ecological scale: it involves integrating marine spatial planning with urban design, enabling multifunctional uses of the sea and promoting a sustainable balance between environmental protection and economic development. The strategy is not only to repurpose land but to plan from the sea, recognizing marine spaces as extensions of the urban landscape. This reconceptualization calls for robust interdependencies between land-based infrastructures and sea-based activities, reshaping how energy, mobility, and ecological systems are planned.

While the two scenarios differ in their emphasis-one is more urban and programmatic, the other more territorial and infrastructural – they share a foundational idea: circularity as a process of reconnection. Both challenge the traditional separation between port and city, and instead propose a multi-scalar and integrated approach, where residual spaces become laboratories for innovation, and where the port is understood as a living infrastructure – ecological, economic, and cultural.

A comparative table can clarify these points further, summarizing how each scenario engages with circularity through different types of interventions (reuse, multifunctionality, ecological regeneration), different spatial logics (inner port transformation vs. maritime-territorial integration), and different governance scales (local reuse vs. regional planning). Such a table would make more explicit how the methodological tool of scenario-making supports the inquiry into circularity by articulating design principles through concrete spatial visions.

Ultimately, the circular approach re-conceptualizes the port–sea relationship by dissolving rigid boundaries and reintroducing flows – of people, nature, knowledge, and culture. The port is no longer a detached infrastructure but a key node in a broader ecological and territorial metabolism. Circularity, as shown through the case of Naples, is

not a fixed model, but a strategic lens that can guide tailored interventions – whether to heal spatial fractures, enable new economic pathways, or re-anchor the city's identity in its relationship with the sea.

These scenarios, rather than offering definitive solutions, serve as provocations – tools to stimulate a much-needed conversation on how we might reinvent our coastal cities for the challenges of the 21st century. In Naples, this means not only reconnecting land and water physically, but also culturally and politically, recognizing the port as a site of shared futures.

6.1. Attributions

All the parts of this article have been developed and approved by all the authors.

However, the paragraphs have been written as follows: §1 by all the authors; §2, 3, 4, 5 by Paolo De Martino; § 6 by all the authors.

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