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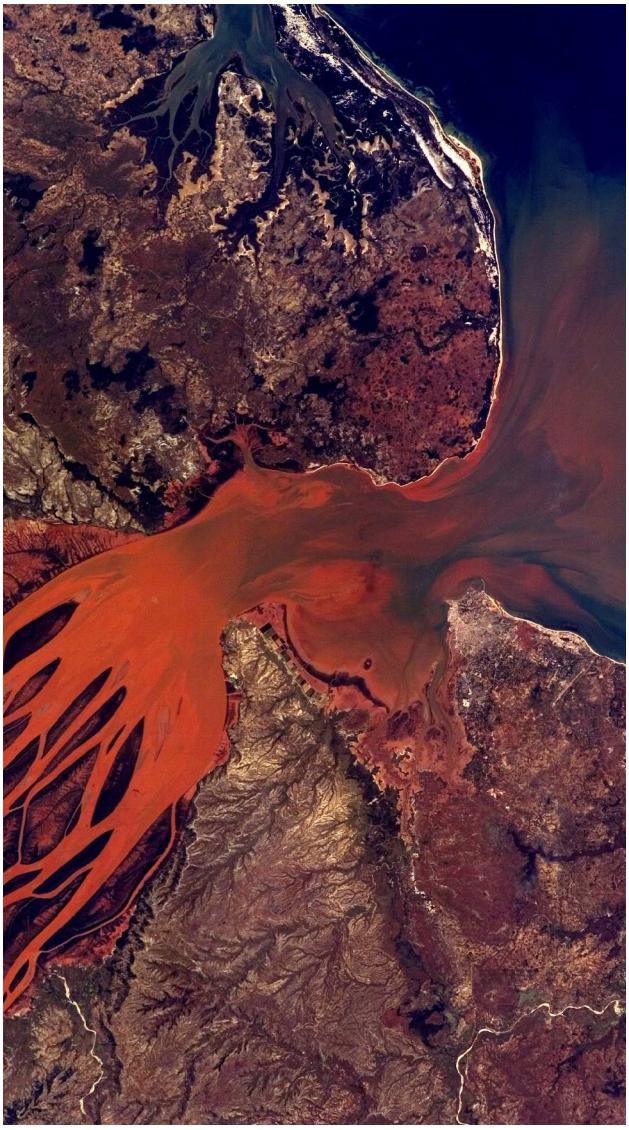

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Issue #05 Accidents

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Accidents

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Disasters are perceived as natural events that originate in climatic, geological, or hydrological processes, but their intensity and impact are profoundly influenced by the way societies build, expand, and manage risk. For centuries, humans have extracted materials from the ground, built cities on unstable land, straightened rivers, drained wetlands, and enclosed water bodies to meet the needs of expanding economies. Each earthquake, flood, or fire exposes the consequences of these decisions, revealing not only the limits of control but also the interdependencies that shape contemporary society. Yet, rather than being understood as structural failures, these disasters are often framed as isolated crises, exceptions to an otherwise functional model that can be corrected through new technological solutions.

The Industrial Revolution marked a turning point in the belief that nature could be fully governed through technology, intertwining scientific advancements with emerging ideals of modernity. It provided the technological and economic conditions that allowed modernity's ideals of progress, control, and optimization to take shape, laying the groundwork for its broader project of environmental and infrastructural management. With it came an unprecedented expansion of cities, the acceleration of resource exploitation, and the conviction that industrial and scientific advancements could surpass natural limits. Modernity, as Rosalind Williams (1993) describes, was not just a historical period but a way of thinking capable of framing technological progress as a means to reshape and manage human interaction with the environment, rather than simply a project of domination. The great civil infrastructures of the twentieth century (bridges, dams, railways, power plants, highways, irrigation systems, levees, mines, ports, and large industrial zones) embodied this ideal, becoming both economic engines and symbols of progress.

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They were designed to last, to secure stability, to neutralize risk. Yet, these structures, once considered definitive solutions, now require continuous maintenance, retrofitting, or even complete redesign in response to shifting environmental conditions and unforeseen vulnerabilities. The idea that landscapes could be permanently fixed is becoming increasingly difficult to sustain. What was framed as progress, straightening river meanders, reclaiming land from the sea, creating artificial water reservoirs, has in many cases introduced new forms of instability especially in deltaic areas.

The realization that human action has transformed the planet on a geological scale has led Paul Crutzen (2000) to propose the Anthropocene, a very popular term rooted in earlier discussions of human geological influence, such as Vladimir Vernadsky's (1926) biosphere theory and Antonio Stoppani's (1873) concept of the Anthropozoic era. The Anthropocene basically refers to how industrial expansion, urbanization, and extraction have left irreversible marks on Earth's climate, atmosphere, and geology. While the scientific debate over whether this constitutes a formal era continues, the premise is difficult to ignore: human intervention has profoundly altered natural organic cycles. Urban areas are the materialization of these transformations, the result of centuries of redirected water flows, deforested lands, eroded shorelines, drained marshlands, altered floodplains, and rerouted river systems. But these processes do not occur in isolation: they are embedded in a system that has historically prioritized economic expansion over environmental precautions, short-term profit over long-term resilience, and industrial intensification over ecological balance. Many large infrastructures were built on the assumption that conditions would remain unchanged, that the world in which they were designed would persist indefinitely. Yet, the opposite is true. Disasters reveal how these assumptions break down, exposing vulnerabilities that extend beyond infrastructure failure to broader societal consequences such as political instability, forced displacement, and climate migration. For centuries, cities, engineered landscapes, and territorial management strategies have been shaped by the belief that human intervention can

impose stability on natural systems. Yet, these systems, once designed to function invisibly in the background of daily life, become most visible when they fail. As Stephen Graham (2010) suggests, breakdowns expose not only technical shortcomings but also the deeper contradictions of a model built on the illusion of permanence.

The twentieth century was dominated by a belief in technological determinism, the assumption that engineering solutions could always mitigate risk, that systems could be designed to correct nature's unpredictability. This belief has also fostered a growing reliance on technology as the ultimate problem solver, reinforcing the perception that large-scale technological systems are the only viable solutions to challenges such as resource management, disaster mitigation, and urban mobility. David Nye (1994) points out that modernity has increasingly placed faith in technology as the "panacea for every ill" reinforcing a reliance on large-scale technical systems while diminishing individual and communal engagement in addressing environmental and infrastructural challenges. But as Lewis Mumford (1964) warned decades ago, this mindset reduces the environment to a set of isolated variables, overlooking its broader systemic interdependencies. Today, as climate change accelerates, the consequences of this fragmented approach are becoming increasingly evident. Technology advancement, once seen as pillars of modernity, was based on the premise of permanence and stability, yet disasters expose these very assumptions as flawed. The effort to impose order on natural systems has, in many cases, resulted in unintended consequences: flood defenses that intensify risk, transportation networks that fragment natural drainage, and water management systems that fail under changing climatic conditions. Rather than ensuring long-term security, these interventions have, over time, contributed to the vulnerabilities they were meant to eliminate (Beck, 1992). Infrastructure once designed for stability now struggles with shifting environmental conditions. Systems built to control water, regulate landscapes, or protect against natural hazards are becoming increasingly misaligned with evolving

climatic realities. The interplay between human interventions and natural processes amplifies risks, demonstrating how engineered landscapes often contribute to the very vulnerabilities they were meant to mitigate. The belief in control is confronted by the reality of constant adaptation.

But adaptation is not a new realization; it is a condition that modernity sought to escape. Historically, cities and settlements have developed in response to the natural rhythms of water, temperature, and seasonality, adapting their structures and practices to environmental conditions (Rohland, 2018). The shift toward rigid infrastructures, designed for permanence, was not just a technical choice but an ideological one, a belief that uncertainty could be transcended rather than negotiated (Bankoff, 2019). By the mid-twentieth century, however, ecology had become firmly established as a scientific discipline, building on earlier work by naturalists and biologists such as Ernst Haeckel, who first coined the term in 1866. The rise of systems ecology, led by figures like Eugene Odum (1953), introduced a new way of understanding natural systems, emphasizing interconnections, feedback loops, and system-wide interactions, challenging the assumption that nature could be simplified into controllable units. Thomas Hughes (2004) introduced the concept of the ecotechnological environment, framing nature and technology not as opposing forces but as components of an interwoven, evolving system, one where past interventions reshape future conditions rather than providing definitive solutions. This is not a rejection of engineering but a recognition that past solutions could no longer sustain the future. Ecology revealed that landscapes are not static, that the climate is not a constant, that many environmental processes function independently of human intervention and cannot be fully controlled, regardless of technological advancements. The challenge, then, is not to abandon technology but to rethink its purpose, to move from static interventions toward systems that can adapt to shifting conditions.

And yet, despite decades of ecological awareness, the dominant response to disasters often remains rooted in the belief that technological fixes can restore stability, rather than addressing the deeper systemic dependencies that have shaped vulnerability in the first place. As Mike Davis (1998) highlighted in Ecology of Fear, disasters are not just failures of planning but the result of historical patterns of urbanization and land use, shaped by economic and political priorities. The framing of nature as an adversary, a force to be tamed and controlled, has reinforced a scientific discourse that often obscures the role of human agency in producing these vulnerabilities. In California, fire corridors have been turned into suburbs, floodplains into industrial districts, earthquake-prone regions into dense metropolitan hubs. The assumption that disasters are unpredictable, external shocks ignores the extent to which landscapes have been deliberately configured to advance economic agendas rather than respond to environmental realities. Ports and industrial districts have been built on unstable land, highways have fragmented natural drainage systems, and urban heat islands intensify the effects of extreme temperatures, making cities even more vulnerable to climate impacts.

Perhaps then, disasters should not be seen as disruptions to an otherwise stable system, but as a direct outcome of how societies have chosen to build, expand, and organize risk over time. As accidents. Christopher Tunnard and Boris Pushkarev (1963) observed that despite centuries of technological development, modern societies have not freed themselves from nature, but have instead paradoxically deepened their reliance on its resources and cycles. Industrial economies remain dependent on water for energy production, agriculture for food supply, and stable climates for infrastructure durability. The very systems designed to ensure security continue to tie human survival to ecological processes, revealing how modern development has not replaced nature but rather restructured its flows to serve our needs and survival. Yet, infrastructures continue to be built as if they existed outside of these dependencies, as if stability were something that could be

engineered rather than something that must be continuously negotiated. If the twentieth century was defined by a desire to master the environment, the twenty-first century must be shaped by a different approach, one that accepts uncertainty, that moves away from rigid interventions and toward adaptive systems capable of responding to change.

In this issue of the Journal of Delta Urbanism, we accept that disasters are not external events that interrupt an otherwise stable world; they are part of the system itself: the result of decisions made over decades, sometimes centuries. We aim to re-frame natural disasters as human induced accidents because the separation between human settlements and nature is an illusion, one that has long shaped how cities are built, how infrastructures are maintained, and how risk is understood. The question now is not whether technology can eliminate uncertainty, but whether it can be rethought to work within it. We will not build against nature but within its logic, designed not to control but to accommodate, not to resist but to transform. Accidents, then, are not interruptions but the inevitable consequences of a world engineered on unstable foundations, revealing the tensions between human ambition and environmental reality.

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In JDU #5, the “Paper” section opens with Cristian Seguel Medina’s call for a landscape-based paradigm in Valparaíso, Chile. Emphasizing the city’s vulnerability to wildfires, floods, and landslides, Cristian critiques established planning approaches that have historically neglected natural systems, recasting urbanization as an adaptive process that bridges growth, infrastructure development, risk and ecosystems. Catherine Venart and Maryam Naghibi follow with an exploration of the accidental properties of substance, such as disconnection, instability, and failure, not as anomalies but the inevitable outcomes of long-standing planning logics in Amsterdam’s Nieuw-West. Tracing urban transformation over time, Catherine and Maryam reveal how accidents expose the dynamic interplay of

landscape, infrastructure and habitation. Megnaa Mehtta closes the section by challenging climate determinism in the Bengal Delta. Through the case of Ghoramara Island's erosion, Mehtta shifts the blame away from sea-level rise, highlighting instead a triad of anthropogenic causes: sediment entrapment by upstream dams, river engineering for the Haldia port, and intensified ship traffic transporting fly ash.

The "Dialogue" section presents an exchange between Jeremy Bricker and Dicky Pelupessy, questioning the fundamental nature of disasters and human propensity in shaping risk. Drawing from their respective expertise in hydraulic engineering and psychology, they argue that what is defined as a "disaster" refers not to the disastrous event itself, but to its consequences. Their exchange builds on Dicky's essay "Earth, Humankind, and the Haze Disaster", published in the "Practise" section, which offers an alternative perspective on how disasters are perceived.

The "Project" section features an examination by Enno Zuidema, Pasha Vredenbregt, Anna Herngreen, Quiryn Kaasschieter, and Sophia Arbara of the Groningen earthquake as a human-induced disaster, both physically and politically. This article explores how distrust and marginalization shaped recovery efforts and highlights design interventions that go beyond structural reinforcement to restore social cohesion. Through architectural pools, opportunity mapping, and quality-driven planning, the Groningen case reveals how disasters can become catalysts for systemic change.

The "Dictionary" section examines the notions of 'Urbanism' by Ngaka Mosiane, and 'Delta' by Luisa Cortesi through the lens of the Global South. In contrast to traditional definitions centered on refinement and order that in the South African context led to historical displacement, economic exclusion, and state policies, Ngaka introduces the concept of displaced urbanism to highlight how marginal communities develop their own urban landscapes, blending modernity and tradition, survival and aspiration. Beyond the aesthetics of

middle-class urbanity, this perspective challenges conventional planning approaches and calls for the recognition of diverse, lived urban experiences. Luisa follows closing this issue of JDU with an ode to the Bengal delta and its poet, Rabindranath Tagore. Drifting between land and water, bodies and borders, loss and belonging, the piece traces the tidal rhythms of the delta. Through Tagore's words, the piece evokes a landscape shaped as much by erosion and memory as by resistance and renewal, where poetry becomes a vessel for living with uncertainty and sensing what is changing before it disappears.

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