Routledge
Taylor & Francis Group

Architectural Theory Review

ISSN: 1326-4826 (Print) 1755-0475 (Online) Journal homepage: www.tandfonline.com/journals/ratr20

# World of Matter

Peter Mörtenböck, Helge Mooshammer, Paulo Tavares, Frauke Huber, Uwe H. Martin & Ursula Biemann

**To cite this article:** Peter Mörtenböck, Helge Mooshammer, Paulo Tavares, Frauke Huber, Uwe H. Martin & Ursula Biemann (2015) World of Matter, Architectural Theory Review, 20:1, 122-134, DOI: 10.1080/13264826.2015.1063524

**To link to this article:** https://doi.org/10.1080/13264826.2015.1063524

Published online: 16 Dec 2015.

*Article*

# WORLD OF MATTER

**Peter Mörtenböck and Helge Mooshammer**
**Paulo Tavares**
**Frauke Huber and Uwe H. Martin**
**Ursula Biemann**

## MATTER > ENERGIES

**Peter Mörtenböck and Helge Mooshammer**

When matter is not reduced to its commodity function, different capacities of energy present on our planet come into sight.

The relationship of human beings to the earth is increasingly experienced as being in a state of crisis. In many places, the neoliberal economy's incessant hunger for resource exploitation has led to trails of destruction and violent confrontation. More and more, the growing magnitude of these operations is giving rise to resistant formations that are not only oriented toward the prevention of specific extraction projects, but are calling for a fundamental overhaul of our perception of the earth as a passive deposit of supplies. The collaborative art project *World of Matter* responds to this call for a more ecological world-view through a collection of visual material on resource matters, arguing that any discursive shift necessitates and depends upon a different perspective on human–earth relations—a new mode of thinking is bound up in engaging a new imaginary of the world.

Architecture plays a decisive role in the acceleration of resource exploitation. The established truth of contemporary economic policies rests heavily on the notion of expanding wealth by securing compound growth. As evidenced by the expansionist and imperial politics of our modern era, accessing ever-new supplies of resources then becomes the key to holding power. Yet, the supply of resources is not simply a question of transferring material goods from one place to another. Supply chains generate their own economic dynamics in which the rationale for resource exploitation begins to rest less on substantiated necessities than on the logics of their own speculative markets.

The urban boom of the last decades has been a major force in spawning such dislocated bubbles of heated production, their eruption leaving a lasting imprint on many regions and populations.[1] Indeed, speculative investment into the built environment around the globe has

*Architectural Theory Review*, 2015, Vol. 20, No. 1, pp. 122–134
http://dx.doi.org/10.1080/13264826.2015.1063524


Routledge
Taylor & Francis Group

remained at the forefront in maintaining a systemic belief in debt-financed investment and redemption through market growth. Demands for associated resources such as construction minerals have continuously outperformed other resource markets. While the mining of mineral raw materials (iron, ferro-alloy and non-ferrous metals, industrial minerals, and mineral fuels) between 1984 and 2011 has seen an aggregate growth rate of 77 per cent, the increase in the area of construction minerals has doubled, with most calculations indicating a growth of up to 135 per cent over the last 30 years.[2]

Accelerated urbanisation puts pressure on global ecologies in terms of resource demands. It also makes apparent the consumption of resources in the construction of cities as well as in their reliance on a continuous supply of further resources to provide for their populations. Cities also tend to obscure significant aspects of their environmental impact as they are commonly perceived as stable structures. Different from other fields of economic activity in which consumed resources are often released very quickly into the environment and their contaminating effect has slowly come to be recognised, cities hold back the outcomes of their resource implementation. Embracing a long-term perspective on the life-cycle of resources, one of the key questions we have to ask is how can new cityscapes springing up around the world be recycled one day? We already are seeing the excesses of speculative urbanism leaving behind acres of crumbling uninhabited concrete monuments. The urban boom then not only consumes vast amounts of land and resources in the processes of erection, but also uses up far more in the moment of dissolution.

Central to the question about the world's future resource household are thus considerations about how we continue to develop the urban realm. While the fight against injustice and destruction inflicted upon resource extraction sites is highly important, the fate of these sites is intrinsically linked to the paths taken at the sites of resource consumption. In other words, any changes in resource politics depend on changes in urbanism, on the design and production of our urban environment, as well as on the procedures and protocols sustaining these environments as hubs of creativity and communality. This does not only extend to basic resources in the construction of cities such as brick clays, sand, gravel, or crushed natural stone, but also to key elements in the supply systems that keep the urban organism running, such as food and water. Entire landscapes of resource deposits thus form a direct dependency on the rhythms of urban demands and politics as they become bound up in a single perspective of city growth.

This critique on the growth model in itself is, of course, nothing new. Since a seminal study about exponential economic and population growth with finite resource supplies, commissioned by the Club of Rome in 1972, the "limits to growth" have become a common feature of the debate about how we humans go about our life on this earth. What has added to, rather than changed, this debate is an increasingly volatile interconnectedness between different sites and forms of land use that the last decade of globalisation has brought about. Today, resource exploitation is entangled in a global web of dependencies and implications that intertwines the fate of distant places and reaches into the most remote regions as never before. The urban boom in China with a further 100 cities hitting the one million inhabitants mark in the next ten years goes

hand in hand with a dramatic demise in local subsistence farming and subsequent excessive land-grabbing by Chinese food corporations in Africa.

What gives the economic paradigm of speculative markets such a grip on contemporary society is the seemingly paradox operative logic that a scarcity of supplies—the shortage of resources, i.e. the crisis that we are experiencing in our relation to the earth as host/hostess of human life—is seen as a crucial force in fostering trade, expanding production, and enticing innovation. From these perspectives, threats to life become much appreciated mobilisers, advantageous to the establishment of new market opportunities. Exploiting crisis scenarios, speculation thrives on a politics of scarcity in which the latter serves as a valuable tool for channelling resource distribution and controlling issues of access.

In our eponymous work *World of Matter*, we pursue the entanglement of different strands of such scarcity narratives, seeking to understand how their intersections have come to shape contemporary global politics. Part of this is a multilayered wall-sized map of the world depicting global circulations as well as "choke points", which have become crucial interventions in the management of resource flows: from the naval choke points of key shipping routes and the infrastructural power exerted by the world's largest ports to the migration choke points of sealed borders that seek to keep populations and cheap labour supply in their designated places and from the oil choke points of violently fought over petroleum deposits to the rare earth choke points in the battle between monopolised new technologies.

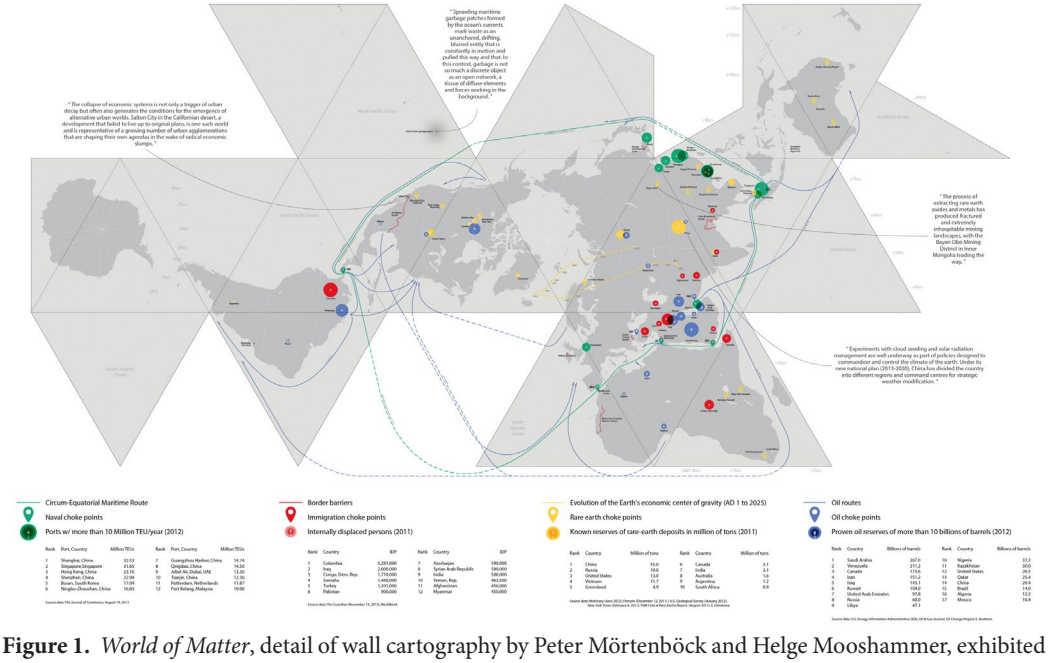


**Figure 1.** *World of Matter*, detail of wall cartography by Peter Mörtenböck and Helge Mooshammer, exhibited at HMKV Dortmund (2014), James Gallery New York (2014), and Leonard and Bina Ellen Gallery Montreal (2015). Please see the online version of this article for the colour image.

**Figure 2.** Los Laureles Creek drain culvert in the US–Mexican border fence near the Tijuana River estuary. Photograph by Peter Mörtenböck and Helge Mooshammer, 2011.

As a guiding structure of the work, cartographies like this one play an important role in many projects from which the contributions to the *World of Matter* collection of visual material draw upon. Amongst others, this includes Ursula Biemann's *Egyptian Chemistry* (2012) and her collaborative piece with Paulo Tavares, *Forest Law* (2014). Crucial to these cartographies is their linking to concrete sites, their materialities and histories. In our work *World of Matter*, we link the world map to equally globally dispersed places that have seen dramatic transformations of their landscapes such as the Salton Sea. California's largest inland body of water, which came into being when an agricultural irrigation project went wrong and caused a massive dam failure, allowed rain water to flood into a depression 80 metres below sea level in the middle of the desert. In the 1950s, new developments at the Salton Sea were promoted as an investor's dream par excellence, but record rainfalls in the 1970s flooded the shores and the expected success story of the "Salton Riviera" rapidly came to an end. While the remaining body of water is under constant threat of instant ecological collapse, many settlements around the sea have now disappeared or have sunk into the mud.[3]

Environmental disasters as they have been unfolding at the Salton Sea play a key role in forging the narrative of a threatened and threatening earth. In this situation, the scientific calculation of risks and the engineering of cost-effective solutions to mitigate the effects of deteriorating ecosystems are increasingly being deployed as a balm to salve this scarred cultural and natural landscape. So far, the experience of material crisis—of *terra infirma*—has strongly

been accentuated by growing prospects of irreversible climate change propelled by an unfettered consumption of fossil fuels and omission of carbon dioxide gases. Besides melting polar ice caps and rising sea levels, the effects of these shifts in the earth's eco-balance are commonly understood to become most apparent in changing weather patterns.

Therapeutic interventions are thus currently focussing on weather control projects as well as even more radical terraforming strategies to counter global warming. Experiments with cloud seeding and solar radiation management are well under way as part of policies designed to commandeer and control the climate of the earth. Under its new national plan (2013–2020), China has divided the country into different regions and command centres for strategic weather modification. In its own attempts to counteract "anthropogenic climate change", the US has likewise intensified its research into aerosol geo-engineering, providing multibillion dollar budgets to fund the experiments involved. Given the politico-economic advantages to be gained from such operations, weather modification is likely to become an element of many national and international security policies in the near future.

Though military or any other "hostile" use of environmental engineering was banned by a UN convention tabled in 1977,[4] support for weather modification technologies as a means of controlling the world's climate is currently on the rise. This support is being informed by environmental discourses that centre on the human capacity to "improve" environmental benefits. In the process, nature is being redeveloped in accordance with the needs of rapidly growing populations, atmospheric self-regulation is being "restored", and large sways of wasteland are being "returned" to nature. A particular cultural perspective on nature is thus being imposed upon the re-engineered territories as well as on local communities.

For many people, these developments evoke a strong feeling for action, an urge to intervene and to democratise access to resources both in actual terms and in terms of knowledge about them. This is, of course, not an easy task. The pitfalls of reaffirming the power of certain groups by asserting human implicatedness in changing the earth's ecologies have by now been well rehearsed in the critiques of the emergent Anthropocene discourse.[5] How can we then conceive of an alternative engagement with the realities of the earth that recognises the entanglement of human life without reclaiming further privileges of superiority?

For *World of Matter*, this engagement calls for a different perception of terrestrial matter, its constitution and meaning. We are interested in exploring what components engage in the formation of material agency—in and beyond human interaction. Trying to describe and represent these ecologies of matter solely in the terminologies and registers of economics, political or natural sciences has proven insufficient, given the often inherently exploitative structure of these disciplines. Instead, we have come to think that what is urgently needed is an alternative imaginary of the earth and the multifaceted roles of its matters in life. Or as Brian Holmes, in a review of a recent *World of Matter* exhibition in New York, has put it, "If we could learn to perceive other things than the objects of our desires, other beings than ourselves alone, then the radical imagination could provide the missing key to a currently unthinkable planetary democracy".[6]

To this end, *World of Matter* embraces a twofold approach. Firstly, visual material is produced concerning a wide range of sites and situations in which matter has come to play a

critical role—from the monumental (dam-building) efforts of Bangladeshi villagers to secure their land from eroding floodwaters to forest matter as evidence in violent struggles over forest exploitation in Latin America to the ecological upheavals induced by neo-colonial land grab in Africa to the wasteful consequences of failed urbanisation. Secondly, through employing the interactive possibilities of a web database (www.worldofmatter.net), the curatorial dispositif of exhibitions or other channels of publication, we search for hitherto unrecognised connections between these materials.[7] This exercise follows the thinking that a shift in the framing of human relations to the earth has to be informed by allowing other relations—between other matters—to exact influence. To facilitate these encounters, *World of Matter* is connecting material alongside a dynamic structure of keywords that emphasises the transformative potential of narration.

At the core of this structure lie suggestive pairings of terms that have also been used to structure this collaborative essay. Like the pairing placed at the beginning of these paragraphs—matter > energy—they point towards the discursive intervention that we locate in this practice of reframing. Under the matter > energy rubric, the agency of water expands from a tradable commodity and manageable resource to a force of a political dimension. The landscape along the border between San Diego in the USA and Tijuana in Mexico, for instance, has been subjected to one of the most monstrous engineering projects, realigning hills and valleys as a heavily-guarded defence line against unwanted intrusions. Yet, the natural watershed of the tiny Los Laureles creek, descending from the informal settlements of Tijuana, still breeches this bastion of concrete, steel, and military technology. The image of this forced opening in the border fortification, necessitated by the perpetual trickle of water from Mexico, has come to serve as potent reminder of both the arbitrariness and hypocrisy of border relations in neoliberal governance.[8]

In this sense, the issue of radical imagination becomes less a matter of readjusted representation and more one of activating the image as a connective tissue and appropriating it as a political tool.

## REGULATION > RIGHTS

**Paulo Tavares**

The turn to rights in international law is shedding light on the political and ethical importance of resource justice that goes beyond existing codes of regulation.

### DEADLY ENVIRONMENT

Between 2002 and 2013, the decade of the so-called "commodities super-cycle", at least 448 land rights and nature rights defenders were killed in politically-motivated crimes in Brazil, making the South American nation the world's deadliest country for environmental activists. Around 50 per cent of the cases of targeted assassinations and extrajudicial executions were located in

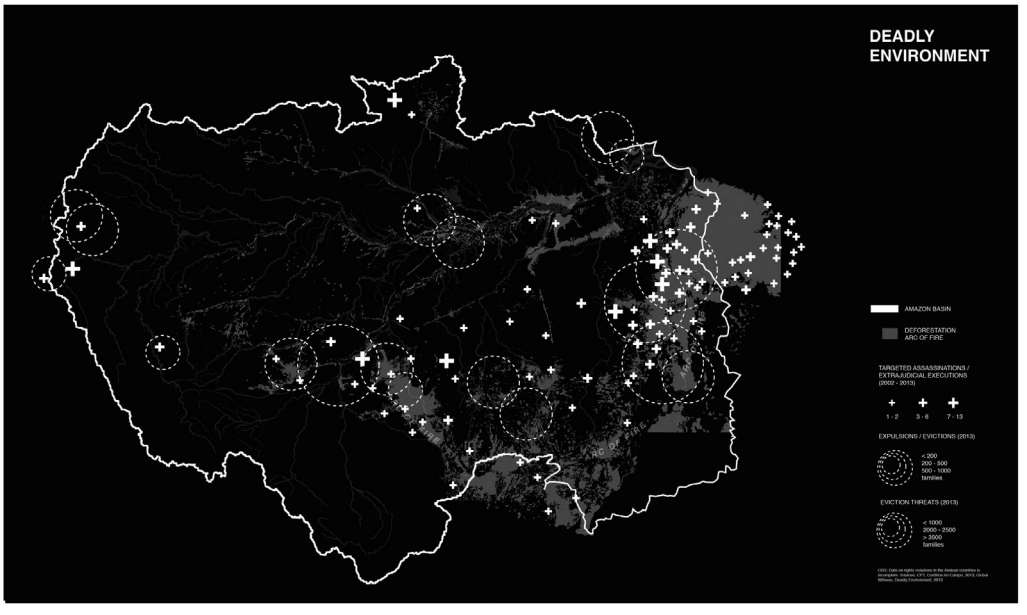


**Figure 3.** "Deadly Environment." Map of forcible displacements, targeted assassinations and human rights violations in the Amazon basin, Paulo Tavares, 2014.

Amazonia and most of the victims were common people who live from the forest and its rivers, particularly indigenous peoples, who are being massacred because of their opposition to neo-colonial land and water grabs.

As this cartography illustrates, plotted over a map of the Amazon basin, the geography of political violence overlaps with the region known as the Arc of Fire, where deforestation is massive and the forest environment is currently undergoing a process of "savannization". Hundreds of blood stains are marked at the edges between forests and logging areas, cattle farms and plantations, thereby indicating that, in the deep frontiers of Amazonia, human rights violations and ecological devastation are intimately, indeed structurally, articulated, consisting of entangled dimensions of a violent political order.

## LOCATION > GEOGRAPHIES

### Uwe H. Martin and Frauke Huber

The complex trajectories of resource circulations indicate a shift from the supremacy of location to global movements across a wide spread of geographies.

**Figure 4.** Construction of resettlement houses in Ibago, Ethiopia. *The Farm*, 2012, part of the ongoing research project *LandRush* by Frauke Huber and Uwe H. Martin.


**Figure 5.** Building water channels for irrigation on the 100,000 hectare farm of indian investor Ram Karuturi in Gambela, Ethiopia. *The Farm*, 2012, part of the ongoing research project *LandRush* by Frauke Huber and Uwe H. Martin.

**Figure 6.** Water sampling in the Nile Delta. Video still from *Egyptian Chemistry* by Ursula Biemann, 2012, Neuer Berliner Kunstverein n.b.k., 2013.

### *LANDRUSH*—THE FARM

GPS-controlled tractors are replacing wooden ploughs and machetes. In the remote region of Gambela, plans by the Ethiopian government foresee the lease of 42 per cent of surface land to foreign investors. A forced resettlement program clusters dispersed farmers and pastoralists in villages, clearing the way for large-scale plantation agriculture.

The actions of the Ethiopian government are not driven only by the promise of foreign exchange earnings, job creation, agricultural development, and technology transfer. At least as important is the prospect of securing the borders by "colonizing the periphery itself and transforming it into a fully governed fiscally fertile zone".[9]

These processes of enclosure gained traction in the wake of South Sudan's independence movement and state creation. Enlisting foreign investors to clear lands for sedentary agriculture, draining the swamps, damming the rivers, and building infrastructure of control such as roads seems a logical step for a government absorbed with policing its population.

## METHODOLOGY > ENGAGEMENTS

### Ursula BIEMANN

To understand contemporary resource politics is less a question of following disciplinary guidelines and canonical framings than a question of active engagement and experiential exposure.

**Figure 7.** Earth forensics. Video still from *Forest Law* by Ursula Biemann and Paulo Tavares, 2014, Broad Art Museum, Michigan State University, 2014.

## FIELDWORK: A PROCESS OF WORLD-MAKING

Fieldwork and the engagement with local communities are major sites of knowledge production in *World of Matter*. In my video work, which focuses on the human–earth relationship, there is a constant linking of local ecologies and the larger biospheric or planetary dimension. Hence, fieldwork, where I physically engage with the various materials of the earth, has taken on new importance. Rather than being an investigative practice for gaining greater understanding of geopolitical relations, as in my previous works, fieldwork has increasingly become an inquiry into how reality comes into being, how the world matters.[10] Fieldwork has been repurposed in this new scheme. It is a tool for the investigation of the mattering process and of the role of art in it. Through fieldwork, I address the fundamental question of how artistic practice becomes part of reality-making and world-making.

This whole question of how things materialise is tremendously important if one aspires to have any sort of effect in the world. Reality, for quantum theorists and art theorists alike, is not something pre-existing, rather it comes into being through an attempt at defining boundaries and properties. Scientists call it measuring, while artists would rather speak of it as framing. *Egyptian Chemistry* (2012) is a video project that examines this process by entering Egypt on a molecular level, probing the transformations set in motion by environmental and water engineering—the dynamic processes of water and soil chemistry that are recomposing the physics of the territory from within.

In my fieldwork, I travelled along the course of the river Nile, looking at how its changing waters have become entangled in different states of the region's imagination. How do we encounter the water of this mighty river when it is captured as a force of energy, a source of transformation—as in the science-led projects of modernisation from the Nasser era? In more recent years, how do bodies of Nile water give form to an aggressive speculation-driven

exploitation of the country—as in the big artificial agro-scapes of the New Valley or Toshka, a colossal development project drawing water from Lake Nasser into a desert depression? Water enters every fibre of Egyptian life as it encroaches upon land-use politics, crop cycles, nitrate industries, soil composition, farmers' collectives, oxidants, irrigation technologies, and hydropower. Together, these entities constitute a significant part of Egyptian reality, shaping the physical, but eventually also the social and political conditions. In *Egyptian Chemistry,* I organise them into hybrid ecologies equipped with agency, in which giant desert developers and tiny water pollutants unfold equally effective actions. I see the agency of image-making not so much located in the intentionality of the filmmaker who sets out to represent a situation this way or another. This project is not primarily one of knowledge production. Rather, this agency is found within a filmmaker's process and her direct contribution to changing the configuration of materials, politics, and knowledge. Art is used as an organising force in the world.

In *Forest Law* (2014), a recent collaboration with Paulo Tavares, fieldwork establishes a different relationship with the earth. The project covers several important court cases currently unfolding in Ecuador where forests are a key protagonist. One of them is the ground-breaking Sarayaku trial, where an Amazonian forest community sued the state of Ecuador for allowing foreign oil corporations to enter their territory and conduct seismic prospecting for fossil resources. From their testimonies at the Inter-American Court of Human Rights emerges an indigenous imagination that experiences itself as inseparable from the environment and all other species that give it form, life, and meaning. How can fieldwork engage with such deep fissures in perception between one that is intimately living with vital matter and a utilitarian view where any material simply represents a potential market value? The actual handling of the soil in the field brought this difference to light.

I travelled to another site in northern Ecuador, site of an unresolved case that lingers as the haunting memory of a large-scale contamination of soil and water caused by Texaco in the 1970s in a remote corner of the rainforest. No longer passive backdrops to human history, the landscape, nature, and matter themselves return to the forefront and become the subject of aesthetic scrutiny—the toxic drilling mud, for instance, that is spilled out after extraction and remains a jarring presence in the equatorial forest 30 years later. In *Forest Law*, the act of soil sampling is carried out as the mute forensic performance of handling the samplers, shovels, and giant pipettes of the eco-chemists resonating throughout the film. The activist-performer is enacting a scientific gesture, not in search for data, this time, not a useful gesture, but one that enables matter to become expressive and deranging, acutely intensifying the provocation posed by the misplaced oily mud. The murky evidence brought to the surface speaks of the perishing of life-worlds with whom the law has no relationship; it speaks of an active materiality with which we want to reconnect. Artistic fieldwork of this performative kind sets out to activate the properties of each of these specific human–earth relations and turns them into sensations that can be experienced later, at the moment of the videos' exhibition.

**About the Authors**: *Ursula Biemann* is an artist, writer, and video essayist based in Zurich, Switzerland. Her artistic practice is strongly research oriented and involves fieldwork in remote locations where she investigates the ecologies of oil and water—most recently for *Forest Law* in Amazonia. She is part of the collective art and media project *World of Matter*. Biemann's video installations are exhibited at international art biennials and museums worldwide. She is a publisher of several books, including *Geography and the Politics of Mobility*, *The Maghreb Connection*, and several monographs. In 2009, Biemann received the Prix Meret Oppenheim, the Swiss national art award (http://www.geobodies.org).

*Peter Mörtenböck* is Professor of Visual Culture at the Vienna University of Technology and visiting researcher at Goldsmiths College, University of London, where he has initiated the Networked Cultures project (www.networkedcultures.org), a platform for global research on collaborative art and architecture practices.

*Helge Mooshammer* is director of the international research projects Relational Architecture and Other Markets (www.othermarkets.org) at the School of Architecture and Planning, Vienna University of Technology. He is currently a Research Fellow in the Department of Visual Cultures at Goldsmiths College, University of London.

Mörtenböck and Mooshammer's research is concerned with changing forms of urban sociality arising from processes of transnationalisation, capital movements, informal economies, and newly emerging regimes of governance. They have published numerous essays on contemporary art, bottom-up urbanism, and collaborative forms of spatial production in *Grey Room*, *Architectural Research Quarterly*, and *Third Text*. Venues where their research and curatorial work has been presented include the Whitechapel Gallery, London; the Netherlands Architecture Institute, Rotterdam; Storefront for Art and Architecture, New York; Proekt Fabrika, Moscow; Santral, Istanbul; and the Venice Architecture Biennale. Their most recent books include *Visual Cultures as Opportunity* (2015) and *Informal Market Worlds: The Architecture of Economic Pressure—Atlas & Reader* (2015) (www.thinkarchitecture.net).

*Frauke Huber* and *Uwe H. Martin* are visual storytellers working on long-term, in-depth, documentary projects around the world that combine photography with documentary film, text, and sound. Currently, they are working on a set of multimedia documentaries about the global commons, water, seed, and land—*White Gold* investigates the social and environmental effects of global cotton production. Their new visual research project *LandRush* explores the impact of large-scale agro investments on rural economies and land rights, the boom of renewable fuels, the reallocation of land, and the future of agriculture around the world.

*Paulo Tavares* is an architect and urbanist based in Quito/São Paulo. Tavares teaches Design and Spatial Theory at the School of Architecture, Design and Arts of the Pontificia Universidad Católica del Ecuador in Quito. His work has been exhibited in Insert2014 (New Delhi), Animism (Beirut, 2013), Taipei Biennial (2012), among other international exhibitions, and he has lectured at different contexts and locations, including the Ireland Biennale, Mercosul Biennale, and São Paulo Biennale.

**Disclosure Statement:** No potential conflict of interest was reported by the authors.

NOTES

1. During the boom years of speculative urbanisation in Spain between 2000 and 2008, for instance, over five million new housing units were constructed, of which an estimated 3.4 million are now sitting vacant. Often encroaching on formally protected nature reserves, these ghost towns have dramatically changed the ecological situation along the country's coastline.
2. C. Reichl, M. Schatz, G. Zsak, *World Mining Data, Vol. 28*, Vienna: BMWFI/International Organizing Committee for the World Mining Congresses, 2013.
3. See Helge Mooshammer, "The Rise and Sink of a Desert Dream", *World of Matter* online platform, 2013, http://www.worldofmatter.net/geo-engineering-climates-control#path=rise-and-sink-desert-dream (accessed 16 October 2015).
4. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, opened for signature at Geneva on 18 May 1977.
5. See, for instance, Bruno Latour,"Agency at the Time of the Anthropocene", *New Literary History,* Vol. 45, 2014, 1–18.
6. http://events.worldofmatter.net/something-that-has-to-do-with-life-itselfworld-of-matter-and-the-radical-imaginary/ (accessed 16 October 2015).
7. *World of Matter* has been exhibited at HMKV Dortmund (1 March–22 June 2014), the James Gallery, CUNY, New York (10 September–1 November 2014), and at the Leonard and Bina Ellen Gallery, Concordia University, Montreal (20 February–18 April 2015).
8. The material and symbolic potentiality of this site has been taken up by the Political Equator project, which staged their "Border Crossing Performance"—an unconventional border crossing through the culvert of the Los Laureles Creek—during the Political Equator III meeting in June 2011.
9. James C. Scott, *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia*, New Haven, CT, and London: Yale University Press, 2010, 10.
10. Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Durham, NC: Duke University Press, 2007.