
RADICAL CONSERVATION: THE MUSEUM OF OIL

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WE SHALL NEED TO KEEP OIL in the ground. This is the simple gesture, the simple intimation that a growing and expanding knowledge event, the difficult understanding of the human impacts on the earth system, leads to. The mountainous efforts, the divisive politics, the reconceptualization of the separation (or lack of) lines between politics and science, the complicated efforts to make the earth system work as an analytical entity (NASA Advisory Council), the harsh historical mouldings of colonialism, imperialism, and industrialization, the inequalities of contemporary capitalism, the complex debates on the making of global circulation models and their supercomputers and national budgets, the contested legacy of the twentieth century, the work of the IPCC (Intergovernmental Panel on Climate Change), the UNFCCC (United Nations Framework Convention on Climate Change), all lead to a single action, or rather inaction. Keep oil in the ground, where it has been for millennia. Of course, this intimation seems to many unattainable. Firstly, who should keep it in the ground? We, or why not them?

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CONSERVATION IS TO GUARD beforehand: the main activity of museums is a complex set of procedures to maintain and protect elements of specific interest, and to warn about their value and the consequences of their loss. It is an activity radically engaged with the future: it constantly reminds us of the possibility of future corruption, dismemberment, and collapse. It is in many ways a territorial practice: to warn off, to establish demarcations, and to deter. *Terrere*: territory is a concept enveloped in notions of terror and fright, where the procedures to hold onto the elements that we value and that sustain our lives are made explicit (*terrere* in Latin is to scare). Here conservation and

territory are looked at as procedures of investigation into what is to be maintained, and as objects of study. The inquiries of the *Museum of Oil* outlined here are all attempts to keep hold of, to outline, and to observe in detail the often violent elements of oil being exploited or being left in the ground.

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TERRITORIAL transformations are complex knowledge events which unfold over long periods of time and across wide spaces. They are knowledge events insofar as they involve learning the location, extent, intensity, and articulations of the pressures and forces encumbering our activities, the material and the energy flows that need to be kept open. They are a constructive process, where knowledge is produced and links between politics and material processes are reestablished, reevaluated, cut across, and torn apart, in order for a new semi-stable set of relations to emerge.

New procedures to steady, albeit temporarily, the vast dynamics that unsettle relations between the forms of institutional cohabitation, and their spaces of operation are queried, a rush to scour and order what appears to be upset, is what seems to be the main character of territorial changes. They are events which rearticulate figures and grounds, long processes of hard work to establish connections and delineations, where things are rearranged, recomposed, and politics are reassembled, compacted, and redistributed. Territories are conservation structures: they maintain and sustain relations to material and information processes that shape our lives.

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THE *Museum of Oil* is a new institution in the making. It is set amidst the making of the major knowledge event of our time, the difficult and unfolding capacity to understand the transformations of the

earth, and it is amidst the making of a new field of work, research, projects, and activism. The two unfolding fields ahead of us are largely unknown in their connections, intersections, and interactions: the new institution sits on shaky grounds and is open to constant revisions, it needs to balance its proceedings against a growing number of institutions and fact-checking protocols. It is both frightening and reassuring that the object of study is equally fragile and unstable.

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THE *Museum of Oil's* aims are, on the other hand, rather solid: to put the oil industry into the museum. To make it a thing of the past. To make sure that oil is kept in the ground, the *Museum of Oil* sets out to register and outline how the oil industry has stretched itself so far that its territories have become fragile and untenable. The industry of oil is a specific one: oil power is not only an issue of energy sourcing, it infiltrates almost all realms of public knowledge and operations. Oil is power both in physics and in politics. Against such a powerful entity, the *Museum of Oil* works to indicate the specific procedures, the precise elements and protocols that guarantee entry into its rooms, the specific financial and technical risks that it has embarked on in its desperate attempt to remain powerful, the specific moments of infiltration and attempts to frame public debates on the environmental catastrophes, the unaccounted environmental and social costs it entails.

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THE *Museum of Oil* collects information, items, objects, and data about the different ways through which we have come closer to the decisions (it will have to be many) to keep oil in the ground, halting

its combustive so-called development sprees. It preserves this information and makes it available to the public through specific displays, and across detailed analysis of the fragile and dangerous territories that the oil industry, in all its ramifications, has carved out and cut across from pre-existing ones. While the amount of data and information is almost unmanageable, it is the very aim of the *Museum of Oil* to start a path across it, sorting things out and making them emerge from a muddy and obfuscating envelope that links oil to images of progress and wealth. Muck and oil, set against crude data: what is at stake is the establishment of new avenues of agency, of new sets of negotiating tools towards keeping oil in the ground.

0007

PETROLEUM is usually defined in a very simple way, as a mixture of different hydrocarbon molecules that have originated in high-temperature and pressure and low-oxygen geological processes of decomposition. It exists as a liquid in the form of crude oil and as a vapour: natural gas. This simple definition is expanded by oil being a source of power, physical and political, and wealth. Oil represents liquid wealth, both literally and economically: it enables and expands industry, transport, energy systems, and it sustains and articulates enormous sources of financial transactions. Petroleum is a connector, a dynamic vector that links the earth system to the world-system (Wallerstein). A vector of diffused and accumulated power, with leverage in both day-to-day activities of the world-economy and in the political circuits of many nation states (Wallerstein).

The specific ways through which petroleum operates as a liquid form of power have accelerated its disconnection from what is underfoot: the precise relations to forms of inhabitation, the long-term investments in organizing life and material flows. Oil has managed to become far more than

liquid, it has become ubiquitous. And it is exactly in this process to deterritorialization (Deleuze and Guattari) that it has become extremely successful, dominating narratives of progressive development, access to work and to the future.

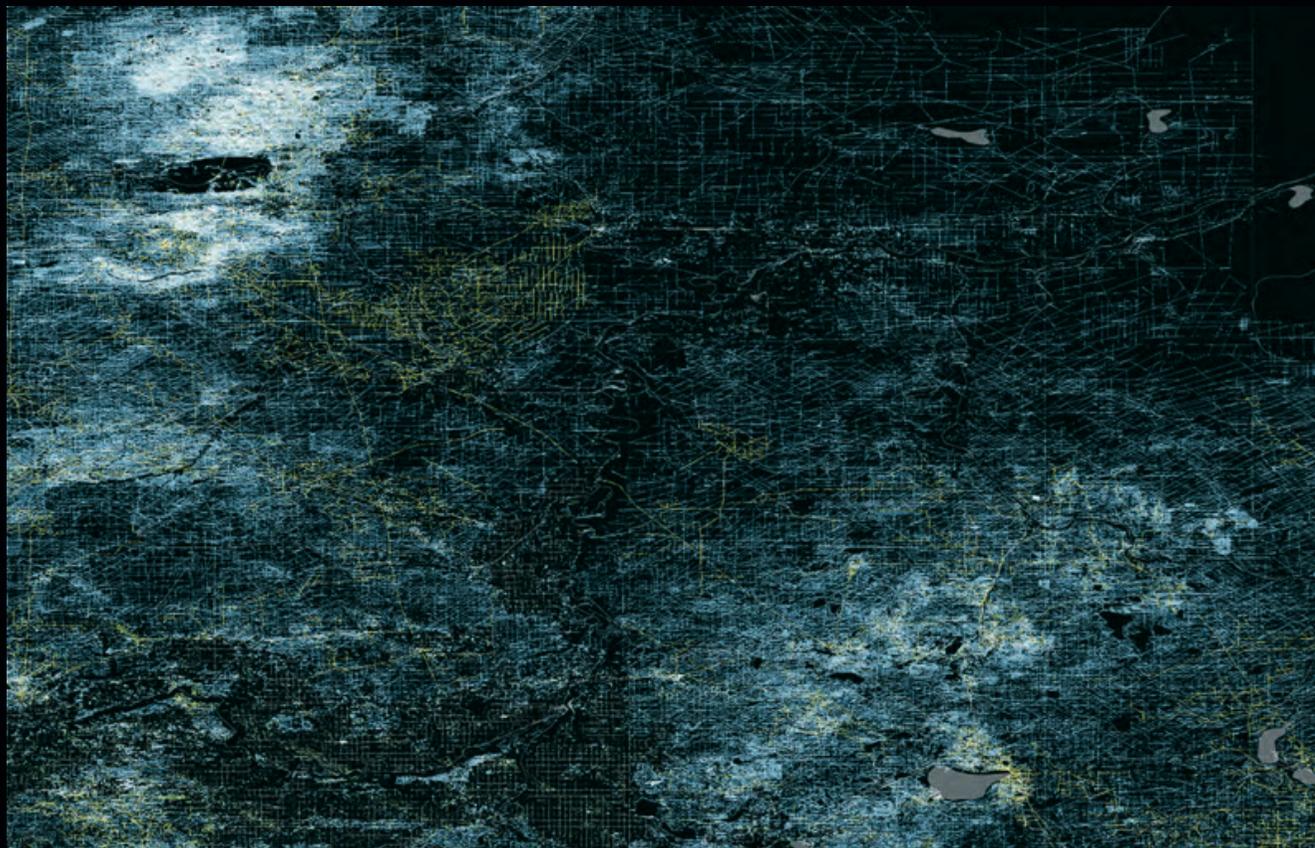
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BROUGHT DOWN TO EARTH, literally in the ground, oil becomes a figure against a complex and noncontiguous background. Its coherence, what keeps it together, is registered and measured both geologically and in its multiple streams of influence. Oil marks in the ground are not only the results of spillages, extraction, pollution, and environmental catastrophe. Oil is registered in ways that far exceed its murky and black direct physical impact. It is registered in the absence of its name from any international negotiation document on climate change, it is marked in the growing influence of oil companies on the global financial markets, it is registered in the direct access to policy makers, it is in the missing and banned photographs of the impact of the BP Deepwater Horizon disaster in the Gulf of Mexico, and its traces are increasingly linked to the research on its consequences. It is in the civic enthusiasms of modern architecture and its development goals. It is in the rapid urbanization processes and it is in the growing corruption and violence that its extraction entails and facilitates (Amunwa; "Corporations"), it is in the militarization of global sea supply lines and choke points (Emmerson and Stevens), it is even registered directly in international law, with the extension of sovereign rights to mineral resources in submarine areas of the continental shelf (Anthropocene Observatory). The meter of this coherence needs to be assessed and reevaluated in relation to the emerging knowledge event of climate change and the Anthropocene. It is a complicated and double venture of conservation: the work of the *Museum of Oil* is both to outline the specific

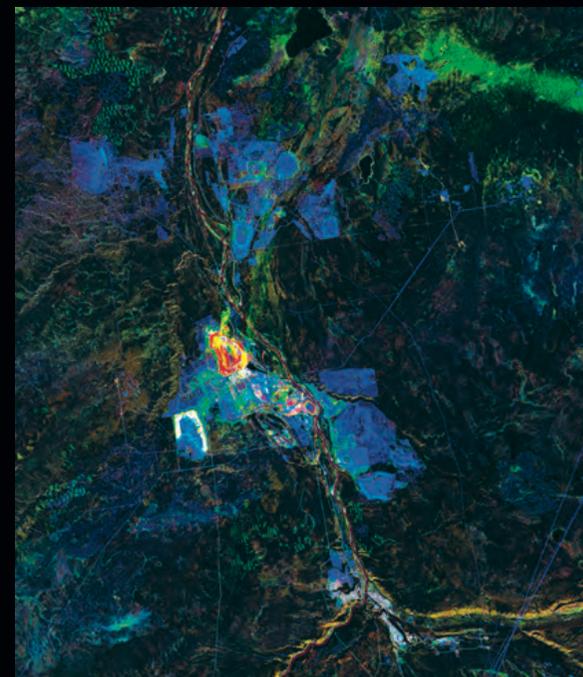
1 Aerial photography of oil producing regions in the Permian Basin, south of Odessa, and Midland, Texas, USA, 2014. United States Department of Agriculture, NAIP National Agriculture Imagery Program.



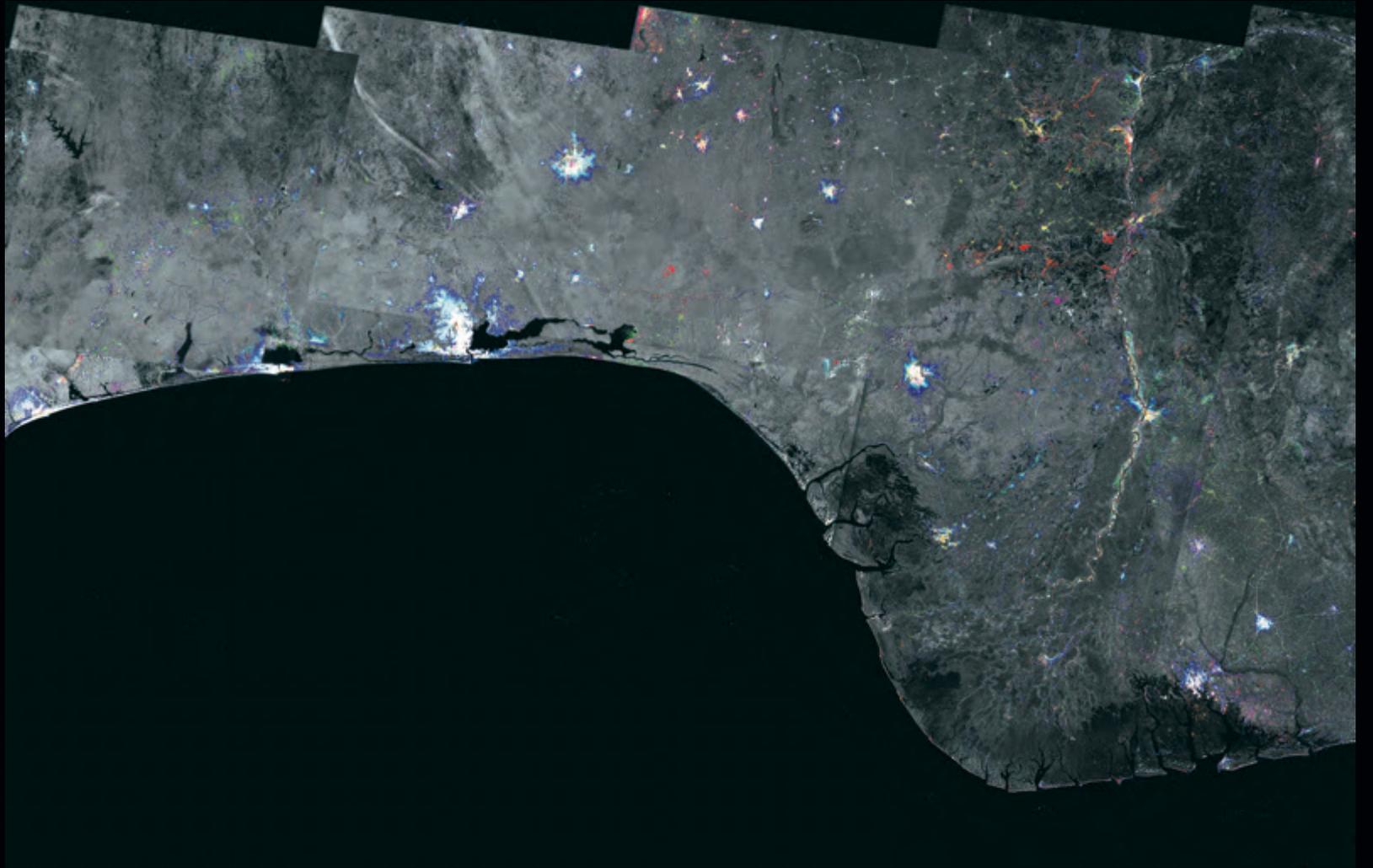
2 Vertical and horizontal oil and gas drills in North Dakota, USA, 2015. Data from: North Dakota Industrial Commission, Oil and Gas Division, Oil and gas wells database; elaborated by Territorial Agency.



3 Seismic lines, drilling pads, and pipelines cutting through the boreal forest in Northern Alberta, Canada. GIS data elaborated by Territorial Agency / Graham K. Smith.



4 Multiyear multispectral analysis of the transformations of impervious surfaces at the Athabasca Oil Sands, Northern Alberta, Canada. Blue indicates transformations in the last ten years. Landsat data elaborated by Territorial Agency.



5 Multiyear multispectral analysis of the transformations of impervious surfaces in the Niger Delta region, West Africa. The bright blue areas indicate the rapid expansion of urbanization. The oil areas are in the delta and offshore, removed from the cities. Landsat data elaborated by Territorial Agency.



6 Bodo, Nigeria. Oil spills in the delta are a “catalogue of malpractice, obfuscation and misinformation” by Shell. Visible in this radar interferometry image are pipelines responsible for leakages and damage to mangrove forest. ESA Sentinel-1 data elaborated by Territorial Agency.

territories, the specific groups and networks that the oil industry has shaped and cut across, and to indicate how they have become fragile and dangerously unstable on all sides. Conservation and territorial analysis are both the method to establish the elements of risk linked to oil, and the outline of the forms of life and cohabitation that need to be safeguarded from it. They are the preliminary elements of a plan to disentangle us from oil dependency.

0009

ENERGY TRANSITIONS are rare: they tend to last several decades and they are marked by one intensive use of a single energy source overlapping with a new one. In their historical succession, they have developed in parallel with modern institutions and their territorial forms. The exit from an energy system mainly dominated by agricultural work and draft animal power, which has lasted for the majority of the Holocene epoch, coincided with the formation process that led to the rise of city states and small republics in Western Europe between the thirteenth and fifteenth centuries (Global Energy Assessment). The exhaustion of wood energy led to the complex rearticulations of divisions of labor during the Industrial Revolution, linked to the complex rearticulation of city states dominating large world economies into colonial national parliamentary economies, bounded by new forms of representation, political, artistic, and scientific. The rapid rise of petroleum from being an exotic form of energy to the world’s primary source of energy coincides largely with the demise of colonial empires and with the two World Wars. What emerges is the international: a vast new set of institutions to regulate, modulate, and govern a new set of energy flows, atomic and oil. The United Nations, IMF (International Monetary Fund), the OECD (Organisation for Economic Co-operation and Development), the European Union, NATO, the USSR, the African Union, OPEC (Organization

of the Petroleum Exporting Countries), the Non-Aligned Movement: a new space of utilitarian negotiations geared towards governing an increasingly volatile and deterritorializing form of economy and energy. Each transition is linked to an expansion and extension of energy use, going from the 10–20 GJ per capita of early agricultural societies to the 100 GJ per year per capita during the industrial revolution in the UK and USA (levels still well beyond the current per capita rate), to the staggering current global energy use of more than 600 GJ, several orders of magnitude larger than at the outset of industrialization (Grubler et al.).

0010

RESERVE-REPLACEMENT RATIO (RRR) is the technical definition of a fundamental element of the oil economy: as resources of a specific oil company get extracted and start depleting, new assets need to be established in order to conserve and even augment investment flows. This leads to constant expansion of the material base of the oil industry, always geared to replacing the reserves that it has recently established, in a sort of explosive dynamic. Once a large part of these possible resources have been nationalized, as in the case of Nigeria and Brazil, it becomes more difficult to maintain the RRR at the necessary levels. This triggers the rush to ever more complicated, dangerous, and risky projects to secure new reserves: pre-salt explorations off the coast of West Africa and Brazil; in the Arctic Ocean extremely dangerous (Kronick) operations in Russia, Norway, and the USA; shale gas investments in the USA – investments in exploration for new fields has escalated in the last decade. The post-financial crisis low interest rates have engendered a growing search for financial yield, which has tended to focus on a large variety of funds specializing in high-yield corporate debt (International Energy Agency, Medium-Term Oil Market Report 2013).

0011

THE RECENT American shale boom is a direct transformation of an entire material landscape, both above and below ground, as well as a human landscape directly linked to the 350 billion USD investments over the past six years. A rapid burst in activities, or rather a bubble of unprecedented impulse and dimensions. A Standard & Poor's analysis in late September 2015 indicates that half of the US energy junk bonds are at risk of default, resonating with the events of 2008, which triggered the biggest financial crisis in history. RRR is a triplet that indicates how the oil industry is a major risk; not only in terms of its impact on the earth system, but primarily because of its deep and ramified connections to the global financial system with a dangerous proportion of its transactions related directly to oil-linked investments and funds. The risks of oil to the world-system seem to equal those to the earth system. In the collection of the *Museum of Oil* are a series of detailed analysis of which fields are financially overexposed, which companies have operated them, and what is their publicized break-even point. Since the project started in spring 2014, the price of oil has plummeted, leaving most of these new developments exposed. The work of precise and articulated description of the material and immaterial impacts of the oil industry conducted for the *Museum of Oil* is one of conservation: to maintain the viability of our economies and ecologies, there needs to be experimentation with new tools and new forms of representation.

0012

A FUNDAMENTAL element of the work is to separate, to carefully reallocate, to scale down, and to redistribute the material and immaterial elements of the oil economy that have been bracketed

together and globalized. The Museum alerts us to the imperial growls of overview and control and modulation: it operates through border analysis, investigating the modes through which barriers are trespassed, reinforced, and reshaped. The tipping points of past energy transitions all reverberated through an expanding frontier line.^[1] The energy transition equated a transition into a space where possibilities were augmented, including the possibility of destroying what was in the way: forms of life, environments, cultures, landscapes, economies. The new was always and systematically narrated as being better, larger, faster. The current energy transition, characterized by the shards of the spaces left behind from the previous impact waves of energy tipping points, is no longer a single and univocal vector of development and synchronized steps of connecting the world into a gigantic supply chain. The waves of this energy tipping point oscillate and multiply differences, they refract and brake: the waves of carbon fossil intensification, after having travelled around the deep surface of the earth, are now showing impetus that is coming back at us from all sides. The Anthropocene is a border condition, delineating differential strata, and demarcating multiple and overlapping flows and sedimentations, accelerations, and slow decays.

0013

THE CURRENT decarbonization rate of the energy system is slower than global energy consumption growth. The energy transition out of oil and fossil fuels needs to be different from the modern tipping points that preceded it, all linked to the thirsty quest for further energy. It could be the first one where energy sources are changed because of a growing awareness of the negative effects of growth, rather than for furthering the expansions and ambitions linked to the increased

capacity. Natural gases, renewables, and more efficient end-user technology and distribution technologies only account for 0.3% decarbonization rate, against 2% increase in global energy use annually (Global Energy Assessment). While the United Nations Climate Change Conference (COP21) Paris agreement is a fantastic new framework of reference for all working to keep oil in the ground because it provides for an unprecedented ethical push, new and sustained focus is required. The *Museum of Oil* operates along these lines; its focus is to narrate and make visible how oil is giving way to vast, complex, and systematically integrated and highly fragile human and material spaces: in order to better understand how to move beyond the dependency on oil, it is necessary to analyze and illustrate carefully the overarching structures it has built, the vast scale of the environmental, ethical, and economic devastation it has generated.

0014

THE CHALLENGES of climate change and the transition to a carbon-neutral economy require a rethink of the scale and dynamics of human activities on the planet. They require new forms of representation and new forms of government. The works of the *Museum* are aimed at linking the structures and forms of the oil industry and economy, with its many ramifications in political structures, institutional life, and society, to the structures and forms of the material spaces that it shapes.

The boundaries of the social, economic, and political spaces that the oil industry forms, the rules of legitimation, the members, the coherence of the human spaces it shapes are connected to the material and geographic structures, to the boundaries, urban and regional material flows and processes, to the procedures and ecologies that the oil industry encompasses at a global level. It identifies and makes visible and available to the wider public and specialized researchers the key elements of the vast

spaces that oil is shaping in our world. They are so extended that they have become risky and vulnerable.

The *Museum* is both a platform for the public display and debate of the elements that constitute the contemporary hard relationships between oil, politics, and economy, as well as a research platform that investigates in the unfolding environmental impacts of oil and produces elements for alternative narratives, representations, and forms of engagement with oil.

0015

AT THE Saint Petersburg G20 summit of September 2013, the then Prime Minister of Canada Stephen Harper and the then President of the European Commission José Manuel Barroso met to further discuss CETA (Comprehensive Economic and Trade Agreement), the trade agreement between the European Union and Canada. The meeting was at the height of the Syria civil war crisis, and passed largely unnoticed. Also largely unnoticed are the ways through which it has reshaped a space of law and intellectual property (IP). Integrating into a unified space the procedures for securing rights for exclusive economic usage of IP, the agreement is one of the major events in territorial transformation of the new century. At first sight CETA seems to be a purely administrative and juridical tool, acting upon an already intense and integrated economic space, yet its implications are far reaching and connected to resources extractions in the Canadian North.

Part of the integration and trade agreement is the dislocation of jurisdiction over IP and corporate activities, which results in a large removal of direct control over environmental impacts of industries from administrations directly affected territorially. CETA is an extremely sophisticated work of jurisdiction, a culmination of thousands of smaller negotiations and deployment of partial instruments. The shadow of the agreement is the

[1] For the activities of Anthropocene Observatory (Territorial Agency, Armin Linke, and Anselm Franke), see for example the exhibition #4 *The Dark Abyss of Time* at the HKW Haus der Kulturen der Welt, Berlin, 17 Oct. – 8 Dec. 2014.

possibility of distribution of responsibility over environmental data, from environmental protection agencies to economic development agencies, de facto opening the way for an intensification of petrochemical operations across the continental forests of Canada.

Here, to conserve is to make visible what is unseen, to reveal structures and patterns of coherence, to highlight what has been disjoined, and to reassign agency to the levels of magnification it requires. While the Athabasca oil sands in Alberta are the largest single industrial operation on the planet, they are only the most evident and immediate element of the vast pattern of destruction that is linked to the oil industry in Canada. Thousands of miles of lines are cut across the boreal forest to expose the ground to direct surveys in the search for oil and gas: seismic soundings that create complex reverberation maps, extracted from the public realm through the complex intercontinental IP agreements, and severed from activists and researchers. The small width, large-scale continental grid of contemporary Canada is no longer a system of interconnection and links: it is a complicated and obscure system of invisibility and severance. What might an activist practice be in this fine network of dislocated and removed agency?

0016

MUSEUMS ARE repositories of both cultural heritage – native and foreign, indigenous and pilaged, as well as repositories of power and a projection of political and cultural intent. Oil and museums both “signify” – the words carry meaning and power beyond their definitions. In the context of climate change, oil is critical: it is responsible for 36% of global emissions from fossil fuel combustion (International Energy Agency, *World Energy Outlook 2013*) – but just as significant is its central role in both the global and national economy. Shell is the single biggest dividend payer in

the UK; Exxon-Mobil is “the world’s largest publicly traded international oil and gas company” – and until 2012 was the most valuable company in the world, now it has slipped to number three behind Apple and Google. In addition, oil companies occupy crucial cultural and political space – their relationships with key cultural institutions (The Tate Galleries, the Royal Opera at Covent Garden, the Science Museum, the National Portrait Gallery, the British Museum) as well as the political establishment (the Foreign Office, the Treasury and the Department of Business, as well as the No. 10 policy unit are some British examples) increase the leverage of the oil industry over the political actors that determine the outcomes of the multilateral political process driving (or not) the reduction of carbon emissions (UNFCCC, “Six Oil Majors”).

Meanwhile museums aren’t passive, if grand, high culture warehouses. They don’t merely provide a platform for our collective cultural goods – they locate power as well as artefacts. They can retrospectively “retell” key stories, their conservation priorities subtly shading that narrative to suit the key commercial, financial sponsors as well as political champions of a given institution.

0017

THE OIL ECONOMY cuts through and wrests away territories and rearticulates social, industrial, and environmental relations. These transformations often move in slow-motion, at other times they flare up to reveal the extent of the damage all at once. Multiple lines of inquiry are necessary to counter the slow violence of environmental destruction, as Rob Nixon calls it. Inattention, neglect and negligence are difficult to counter and to outline, yet they are a fundamental element of the design and architecture of the territories of oil (Greenpeace). To sustain attention, to be able to conserve the drive to protect and preserve environments and not fall prey to the exhausted lines

of diffused violence, the *Museum of Oil* mobilizes technologies that have a dual origin. Landsat and other earth observation and monitoring systems have developed out of a common ground shared by the military and environmental practices.

0018

THE LONG-TERM changes sensed by the orbiting array of multispectral scanners reveal in a series of multi-year analyses the images of the grip of oil on vast parts of the planet. From the deforestation in Brazil and Peru to the constant oil spillage along the crumbling and rusty pipelines of Siberia; from the encrusted decades-long enormous spillage and pillaging of the Nigeria delta lands to the reshaping of migratory routes in Sub-Saharan Africa; from the reshaping of urbanization processes between the geologically symmetrical coasts of Brazil and Angola to the damage in the Arctic, remote sensing technologies reveal the transition at differentiated and syncopated rhythm of oil territories.

0019

A TWOFOLD movement: the atmosphere is getting older and also younger. In June 2015, Heather D. Graven, of the Department of Physics and Grantham Institute at Imperial College, London, published a surprising article in *PNAS*, the *Proceedings of the National Academy of Sciences of the United States of America*. She announced that strong practical implications were to be expected from her work on the impact of fossil fuel emissions on global carbon cycles, and in particular on atmospheric radiocarbon. Radiocarbon is widely used to date organic material, and many applications are sensitive to ¹⁴C in the atmosphere. The CO₂ produced by burning fossil fuels in the coming century will contain no ¹⁴C because of a million years of radioactive decay. The amounts of CO₂ emissions

will substantially impact the levels of ¹⁴C in the atmosphere: by 2050 fresh organic material could have the same ratio of ¹⁴C/¹²C as samples from 1050, thus making new and ancient organic materials no longer distinguishable. In other words, the atmosphere will be getting older faster, and simultaneously we will not be able to date organic samples: one thousand years of ageing in less than a century. Surprisingly, the dismantlement of the oil industry might even be faster than that.

0020

OFFBEAT, asynchronous, and divergent change is mirrored in the differentiated speed and discontinuous understanding of the Anthropocene and its direct connections to oil, both in the form of carbon cycle modifications caused by combustion engines and in the nitrogen cycle perturbations caused by the Haber-Bosch process. The new intensifications reveal the reconnection of the earth system of multiple interactions, and the world-systems of dirty cosmopolitanization processes, across what Paul N. Edwards calls the vast machine of planetary sensors, climate models, and supercomputers. It is an event of complex making, the construction of which implies mountainous scientific achievements, multiple sources of development, and myriads of public debates and political negotiations in many different circuits and in different publics. Knowledge is an event of difficult making, and it seems that climate change knowledge and the Anthropocene are events unfolding along treacherous fronts, where time itself gets warped. We shall need to keep oil in the ground in order to stay alive on the planet, yet if we do our economies shall be mortally wounded. The oil industry is in this sense both a treath to the earth system and to the world-system. A radical conservation project is needed, to reshape the future connections between polities and material spaces and to negotiate our way out of these risky times, and make oil a thing of the past.

The *Museum of Oil* is a project by Territorial Agency and Greenpeace. An excerpt of the *Museum of Oil* is exhibited at ZKM | Karlsruhe from 15 Apr. to 4 Sept. 2016.

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