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Editorial: The Unbearable Toxic Cost

Cynthia Wang, Research Fellow, Department of Sociology, University of Warwick

What you do with your money is your business, but when you begin to spend your money in my territory, that disrupts and destroys our way of life, our civilization, then that becomes my business. My investors, the water, the air, the medicine of the plants, the four legged, the buffalo, have invested in our civilization for thousands and thousands of years. Fundamentally, I think your nation is rich in protecting the environment, and you need to practice the ethical reality where the tar sands are.

Dene Elder Francois Paulette, addressing Norwegian investors on Alberta tar sands business (Source: Tipping Point: Age of the Oil Sands.)

Our modern society depends on exploitation of natural resources offered to us by our finite planet. Every day we excavate minerals, oil, coal and other reserves, from Alberta to Tibet, from Siberia to Tasmania, and in many other places around the world. This has caused devastating effects upon the environment and people’s health.

Oil sands in Alberta, Canada, Photo credit: CBC-TV

In uncountable places where mining activities occur, there is neither blue sky nor white clouds, the air is filled with dust and toxic gas, the land and water are
contaminated with hazardous pollutants, and people get sick or even become ecological refugees.

However, exploration and excavation is just the first step of our unlimited exploitation of the Earth. The excavated natural resources are then transported to gigantic modern industrial complexes or small scale factories. In these places, production is accompanied by creation of waste gas, waste water or solid waste; and industrial pollution occurs again. But through this process, the raw materials transform into all kinds of products that we depend on¾ oil and coal to provide energy, steel to build skyscrapers and cars, and plastic to make computers, keyboards, packages and bottles… Yet, like leaves falling from trees in autumn, nothing lasts for ever. Ultimately, fossil fuels are burned and emit more greenhouse gases that contribute to climate change; old buildings are abandoned or demolished, cars become scrap metal, and packages and bottles are cast away. Some are recycled and reused; others become wastes that are dumped, buried, or incinerated and returned back to the Earth, gradually turning it into a wasteland.

Moreover, in both processes of production and consumption, the exploitation of natural resources, particularly fossil fuels, has been a great contributor to global warming and climate change. Burning fossil fuels, including coal, natural gas and oil, for energy, transportation and industry is a major source of CO2 emission. During their excavation process, both coal mining and oil fracking produce methane, which is less prevalent in the atmosphere than CO2, but 20 times as powerful as a greenhouse gas. Studying 14 of the largest energy projects planned around the world, from “massive expansion of coal mining in China, to large-scale expansion of coal exports from Australia, the US and Indonesia, to the development of risky unconventional sources of oil in the tar sands of Canada, in the Arctic, in the ocean off the coast of Brazil, in Iraq, in the Gulf of Mexico and in Kazakhstan, and to gas production in Africa and the Caspian Sea”, a report Point of No Return published by Greenpeace in 2013 warns that if the 14 planned projects were all to go ahead, they “would raise global CO2 emissions from fossil fuels by 20% and keep the world on a path towards 5 to 6°C of warming.” If this were to happen, large parts of the planet Earth would become uninhabitable.
Human excavation and usage of natural recourses, especially non-renewable ones such as oil, coal, and minerals, is a vicious cycle of unlimited and endless exploitation. In each stage of this cycle, as long as the profit seeking logic of business strengthens, and governments prioritize economic growth while neglecting, ignoring or even manipulating the idea of sustainable development, it is the Earth that suffers. It is the most vulnerable, defenseless and underprivileged people – miners, aboriginal peoples, villagers, town dwellers, even polar bears and Antarctic penguins – that become the most victimized in the process and bear the most of the toxic cost.

In this issue of Toxic News, four authors address the toxic cycle involving natural resources and their devastating impact upon the environment and people’s lives in different geographical regions. In “Coal Mining, Ecological and Environmental Disasters in China”, Zhang Yulin uses statistics to illustrate the severe ecological disasters caused by coal mining in Shanxi Province and villagers’ suffering of living in fear in houses on top of hollowed and sinking land that might collapse at any minute. On the other side of the Earth, in La Oroya in Peru, social and economic crisis have been accompanying the opening and closing of lead factories. In “Lead, Politics and Community”, Pamela Neumann illustrates how the Peruvian town was transformed from a small community to a major metal factory that resulted in dangerously high
levels of lead and sulfur dioxide exposure among its inhabitants, particularly children. She presents the dilemma of living on contaminated land and the fear of losing place-identity if the inhabitants were to move away. In “Into a Frozen Inferno: Personal and Historical Trajectories in Monchegorsk”, Andy Bruno draws upon his new book ‘The Nature of Soviet Power’, and tells his personal experience of travelling and researching the sordid history of industrial pollution on the Kola Peninsula in the post-Soviet north. The fourth article, “Toxic Canals” by Simona Grano, takes us to southern Europe, to Venice, the picturesque canal city, not to understand its grand history, culture and civilization, but its comparatively invisible toxic canals surrounded by chemical plants with flare towers standing tall.

In this issue, we also have articles relating to issues of climate change, green labelling, electronic waste, and nuclear testing. In “Climate Change, Eco-Labeling, Corporate and Consumer Responsibility”, India Holme leads us to a journey starting from the (non)recycling of pizza boxes and the sustainability life cycle of a plastic water bottle to our daily consumption, its relation to climate change and its impact upon the global south, and to government regulation, business obligation of informative labeling, and consumer responsibility. Yvan Schulz makes thoughtful analysis in “Toxic E-Waste, Oriented Science” about electronic waste recycle factories in southern China and the limit of science in understanding environmental pollution and toxicity. Lastly but by no means least, in “Grapple Slings and Moonshine: Conversations with the men who tested atomic weapons on Christmas Island”, Becky Alexis-Martin draws upon her ongoing research about the lives and experiences of the families of British nuclear test veterans. She tells vivid stories of two soldiers who travelled far from their families and homes to test nuclear bombs during the Cold War.
Coal Mining: Ecological and Environmental Disasters in China

ZHANG Yulin, Department of Sociology, Nanjing University

As the ‘World Factory of 21st century’, China uses coal for 2/3 of its energy consumption. Large scale coal mine excavation—which constituted 3.97 billion tons in 2013—has caused serious ecological damage in rural China, with the most severe situation occurring in Shanxi Province.

Abandoned village due to coal mining in Datong, Shanxi, China. Credit: Zhang Yulin

The recovery deposits and the produced quantity of coal in Shanxi Province amounts to a fifth and a quarter respectively of the national total amount. The total land area of Shanxi is 156,000km², of which a total of 62,000km² contains coal deposits. Furthermore, of the 119 county-level administrative regions in Shanxi, 84 undertake coal production. Large scale mining started by the early 20th century. Until 1952, the annual product was still less than 10 million tons, and by 1978, less than 100 million tons. Following China’s opening and reform policy, the establishment of “national energy base” and surging industrial development have stimulated the rapid increase of coal production in Shanxi. Between 1979 and 2000, total production reached 5.4 billion tons (there were more than 10,000 mines at peak time). Between 2001 and 2015, the production was 10 billion tons. In the last five years, the annual excavation is more than 900 million tons, which equals the production in America and more than the total produce in the world at the peak of the industrial revolution in year 1900.

Intensive excavation has been accompanied by multiple disasters. Besides the anxious profit-seeking of the mining companies and lack of monitoring causing repeated safety accidents. The death-toll from mining is staggering; between 1980 and 2004 more than 17,000 miners died from mining accidents, excluding unreported deaths.
But perhaps the most serious consequence is the ecological damage, referred to as the “mining geological disaster”. Till 2005, the mine’s total acreage reached 5115km², among which land sinking happened across 2978km², involving more than 1,900 villages and 2.2 million people. According to incomplete statistics, in the last ten years, more than 500 people were killed or wounded due to land sinking and house collapse. Furthermore, water resources were damaged in an area as wide as 20,352km², and more than 3,000 wells and springs dried out, causing 4.97 million people in 8503 villages to encounter difficult access to drinking water. About 200 coal seams self-ignited and emitted large amount of toxic gas, and coal gangue self-ignition caused 35.8 billion m³ of waste gas each year. Coal related industry (coke production of Shanxi amounts to 40% or 50% of the total national production) also discharge smog, dust and sulphur with an average of around 10 tons/km². As to the twenty main rivers in the province, between 60% and 70% of the river sections belong to the category of ‘Level 5’ worst water quality, to the extent that it does not have water use function any more.

Looking back at the environmental history accompanied with two hundred years’ of industrialization, the “mining geological disaster” of Shanxi has been unprecedented in both scale and severity. Although the environmental disaster was already occurring in the 1990s, and evolved into survival crisis for farmers with many social issues, systematic control and remedy plans only started by the year of 2005. However, after ten years’ management, many sinking villages are still waiting to be rescued.

Taking an example of the state owned key mining sinking area (about 1,000km²), till 2011 when the remedial plan was declared completed, the number of relocated victims is less than 75% of the planned number (600,000 people); the management of 676 “mining permit abridged” villages in local mining sinking area initiated in 2007 completed two years later only solved housing and drinking water problems for 305 villages, among which were some with the condition of county or township government acquiesced in the contractors’ excavation of the coal mines, resulting in the originally intact lands turning into open-air coal mine sites. As to the already “remedied” villages, my August 2015 investigation of four villages shows absurd results: Shifoyan Village was planned to be relocated already in 2002, but no destined location was selected; Baijiagou Village was incorporated into the management plan in 2006, however the 24-floor apartment building was turned to be private coal mine companies’ “employee residency”. Haojiazhai Village was relocated three times in the past thirty years to new villages still in sinking areas, and new houses soon become dangerous houses, and most of the latest housing quota allocated to the village were resold. Nanzhuanggou Village was incorporated into the relocation plan in 2005, but with no real action for a long time. When villagers petitioned, they got the reply that
“our report shows that your village was already relocated” villagers speculated that the houses allocated to them were taken by others instead.

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The situation is indeed a “crisis of administration”. Empirically, the main cause is the lack of finance and repeated change of government officials resulting in a lack of continuity in management and control, the root cause is the distorted political and economic relationship of “government-coal complicity”. Moreover, the internal split in the village and the lack of connection among villages, also rendered victims unable to protect their own rights and interests. When the cadres of sinking villages moved to cities, young people also left. The left-over minority of old, weak, sick or disabled lack the capacity to resist and rebuild their villages. This social structure has made the force of causing disasters more powerful, and also made it difficult for an efficient disaster relief system to take shape.

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In 2014, when Shanxi province got its new government leadership, a new cycle of relief plan was published: by 2017, 1.7 million farmers of the coal mining sinking areas will live in safe houses. Although the present plan still can not cover all the population affected, with no new power structure, plus the economic crisis caused by looming coal market—90% county and district governments are not able to pay their civil servants and mining company employees on time—the new cycle of government management will still be an obstacle. As to when this typical “resource curse” of human history will end, it is still unpredictable and ultimately unanswerable.

Professor ZHANG Yulin works in the Department of Sociology of Nanjing University in China. He is also a guest Professor at Kyoto University and Chukyo University etc. Professor Zhang’s main research area is rural society and environmental issues in China. He has a wide publication on rural society during China’s transition, environmental problems, and mining problems in Shanxi.
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Abandoned village due to coal mining in Datong, Shanxi, China. Credit: Zhang Yulin

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Lead, Politics, and Community: Notes from La Oroya, Peru

Pamela Neumann, Post-Doctoral Fellow, Stone Center for Latin American Studies, Tulane University

Lead is a controversial subject in the Peruvian town of La Oroya (population 30,000), which has the dubious distinction of being ranked one of the top ten most contaminated places in the world. Looking out at its scarred white hills today, it’s hard to imagine that a century ago, La Oroya was home to just a handful of subsistence farmers. Everything changed, however, when the U.S.-owned Cerro de Pasco Copper Corporation began processing metal concentrates (lead, copper, and zinc) in 1922. People migrated to La Oroya in droves, and by the end of World War II, Cerro de Pasco had become the second largest employer in the country.

In 1979, the metallurgical complex was nationalized and renamed Centromín. However, Centromín began to lose money and was eventually privatized by then-President Alberto Fujimori in 1997, at which point it was acquired by Doe Run Peru (DRP), a subsidiary of the U.S.-based Renco Group. It wasn’t long after this transition that the first official studies of lead exposure were conducted in La Oroya—first by the government’s Director General of Environmental Health (1999) and then by DRP (2001). Both studies confirmed dangerously high levels of lead and sulfur dioxide exposure among La Oroya inhabitants, particularly children. Yet DRP repeatedly denied that the environmental contamination had any effect on children’s intellectual development.
In 2002 a small group of local residents known as MOSAO (Movement for the Health of La Oroya) organized to demand state action against DRP. One of their main concerns was that DRP had failed to build a new plant to reduce sulfuric dioxide emissions. Members of MOSAO experienced firsthand the fierce and sometimes violent opposition from the company workers’ union.

Tensions escalated in 2003 when Peru’s Ministry of Energy and Mines (MINEM) ordered an audit of DRP’s operations. In response, DRP requested an extension for the completion of the required sulfuric acid plant, and threatened to suspend operations if their request was not granted. This news sparked a series of protests and blockades organized by the workers’ union until MINEM officially approved DRP’s request in May 2006.

Undaunted by this setback, MOSAO took their case to the Peruvian Supreme Court, which ultimately ruled in MOSAO’s favor and declared a state of emergency in La Oroya in 2006. That same year, the Inter-American Commission on Human Rights ordered the government to provide treatment for residents with lead-related illnesses. Subsequently, Doe Run and the Peruvian Health Department established an agreement under which the company would fund treatment for the most severely affected children in the community. Then, in 2009, the company suddenly announced that it would be temporarily ceasing operations due to severe financial difficulties. The government offered DRP a one-year extension but when the deadline passed without resolution, DRP declared bankruptcy and officially suspended operations in 2010.

DRP’s decision was devastating for La Oroya. Small businesses were forced to close, and families were geographically divided, as many women and children moved away to live with relatives or friends. When I visited in 2011, educators I spoke with described how maintaining their schools’ infrastructure and services to students (e.g. showers, breakfast and/or lunch) had become increasingly difficult without DRP’s support. One 10th grade girl told me, “All of La Oroya’s problems would be solved if the company reopened.”

_Tania, a local schoolteacher told me, “In the media there are these ideas that we are nothing but a bunch of slow, sick, contaminated people, but they don’t pay any attention to how some students are very high performing.”_

The social and economic crisis in La Oroya drew extensive attention from the media—but not the kind that some residents appreciated. Tania, a local schoolteacher told me, “In the media there are these ideas that we are nothing but a bunch of slow, sick, contaminated people, but they don’t pay any attention to how some students are very...
high performing.” Elena, a 45-year old shop owner, agreed, saying: “Of course there are sick children everywhere, slow children, just like in your country [referring to the United States]. But we have children who are doing well, we have professionals, professors.”

School teachers and principals took pride in the achievements of their students, which they felt were ignored in the rush to paint La Oroya as nothing more than a town full of “mongolicos” (a local term for people with Down’s syndrome/disabled). In seeking to defend their town’s identity against a barrage of negative media coverage, some residents denied the contamination was a problem at all. “Look at all the awards we’ve won,” one principal told me, pointing to a row of trophies on the wall. “We couldn’t have done this if the contamination was really a problem.”

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Scholarship on community responses to environmental contamination often explains residents’ lack of mobilization against pollution in terms of a “jobs vs health” tradeoff. However, months of living in La Oroya convinced me that some residents’ apparent denial of the effects of contamination was not only about fear or loyalty to the company, however. It was also about the identity and continued existence of their embattled but proud community (see Neumann, forthcoming).

In late 2012, DRP partially re-initiated its operations in La Oroya under new management, with a significantly reduced workforce. Since then, the town has undergone something of an economic rebirth, thanks to an explosion of new mining activity in the surrounding area. Having survived the crisis, La Oroya sought to remake its image. For example, a local NGO launched a new campaign marketing the town as an eco-tourism destination: “Rediscover La Oroya” proclaimed several posters around town, featuring attractive photos of local landscapes and ancient ruins.

In December 2015, the management of the smelter in La Oroya changed hands yet again. A severe drop in the world price of heavy metals led the new owners to suspend copper production and announced plans to liquidate the company entirely—and an August 27th deadline to do so is now imminent. Peru’s incoming President Pedro Pablo Kuczynski has promised to try to extend this deadline, but the outcome remains uncertain. The future of this gritty mining community once again hangs in the balance.
Featured image: credit Pamela Neumann

Reference:


Pamela Neumann is currently the Zemurray- Stone Post- Doctoral Fellow at the Stone Center for Latin American Studies at Tulane University. Her research interests include gender, social movements, the state, and environmental politics in Latin America. She is a co-author of Invisible in Austin: Life and Labor in an American City. Her most recent article on community perceptions of environmental contamination and collective action in Peru can be found here. She tweets about gender, politics, and the curiosities of life in New Orleans at @nicapamela.
Into a Frozen Inferno: Personal and Historical Trajectories in Monchegorsk

Andy Bruno, Assistant Professor, Northern Illinois University

Through a foggy bus window I began to make out the town amid the meager taiga landscape. It’d be fitting if the translucent layer of film distorting my view came from the plant’s pollution, but I doubt that was the case. As we rolled past a familiar scene of dilapidated Soviet-era buildings and antiquated monuments, something caught my eye. Graffitied on the side of a building near the bus station were the unexpected words: “Welcome to Detroit.”

My fiancée, who was travelling with me, and I looked at each other startled and laughed. I was in the middle of researching the environmental history of industry in the Soviet north, while she was writing her own dissertation on the history of public transportation in Detroit. Monchegorsk, the company town on the Kola Peninsula we had just entered, shared a dystopian reputation with the motor city. But otherwise these two places were worlds apart, connected only idiosyncratically by our personal backgrounds and some Monchegorsk resident’s apparent enthusiasm for rapper Eminem.

Blackened earth and dying shrubs went on for kilometers south of the plant. These visible results of the heavy loads of sulfur dioxide and metals released by the plant prompted the tourist guide Lonely Planet to snarkily remark, “If you’ve ever had the notion to visit Hell, Monchegorsk is pretty close.”

The extreme character of environmental degradation from the Severonikel’ smelter’s toxic emissions had initially attracted me there. Blackened earth and dying shrubs
went on for kilometers south of the plant. These visible results of the heavy loads of sulfur dioxide and metals released by the plant prompted the tourist guide *Lonely Planet* to snarkily remark, “If you’ve ever had the notion to visit Hell, Monchegorsk is pretty close.” I had to go, of course. Why, I wanted to know, had the Soviet Union built such a dirty plant at the far end of the earth? What was it like there? Might it recover?

My first venture to the site occurred in 2004, while I was still a master’s student. After attending a conference in the larger city of Murmansk on the Arctic Ocean, I traveled down to Monchegorsk by myself. It turned out to be an adventurous trip. I was taken by the quaintness of the place and the attractive trees in the central park as I wandered around during the day, stopping by museums and approaching the gates of the factory. When I returned to my hotel, the receptionist ominously informed me: “There was a problem with your passport registration. Go to your room and some men will come and see you.”

They, the policemen, took me into the station. As they processed me one of the officers joked that he could be my president one day since he had been born in the U.S. Then, as I entered the questioning room, I clumsily bumped into a young guard holding an AK-47, muttering an *izvinite* (excuse me). A Ukrainian Orthodox priest without his papers and Sasha, a local juvenile delinquent, joined me for the interrogation, waiting their own turns. Both the tired questioning officer and my exasperated *advokat* (defense attorney) tried to explain my infraction, while I insisted that my student visa allowed me to visit Monchegorsk. Through a combination of sheer obstinacy and tone-deafness to what probably could have been resolved by a simple bribe, I managed to convince the police to relent.

As I was leaving another officer approached me and asked if I could help with his English assignment. Reluctantly, I agreed and while we were discussing electrician vocabulary that was beyond me in my native tongue, the boss stopped by and demanded that they charge me a fine. Though my impromptu pupil rose to my defense, I left the station with a court date for the next day and the advice to skip town and “just don’t come back.”

Four years later I came back. After being reminded of my travel companion’s hometown, I again glimpsed the belching smokestacks. Reading in archives and libraries had informed me about much of the plant’s history by this point: how it was an outgrowth of phosphate mines in the Khibiny Mountains; how Gulag prisoners built much of the initial infrastructure; how tensions with the nearby Lapland nature reserve extended back to the founding of the nickel works; how production and pollution varied throughout the decades; and how enterprise leaders had sought to deal with industrial wastes at different phases of its history. Yet as an observer of a
panorama of Severonikel’, I was more reminded of my family’s trips past the smokestacks of Gary, Indiana as we returned from Grandma’s house than all of the history I had learned.

The Severonikel plant in 2008. Credit: Andy Bruno

Construction of the Severonikel plant in 1940. Credit: Wikimedia Commons
I didn’t stay in Monchegorsk long this time. Instead, we took a tour of the picturesque Lapland nature reserve. With refreshing streams, healthy forest, and a snow-covered lake, it felt far removed from its threatening neighbor. Except, of course, the logo of Norilsk Nickel—the owner of the Severonikel’ plant and contributor to the nature reserve’s tourism infrastructure—was plastered around here and there. Industry and conservation, thriving taiga and mangled moonscape were deeply interwoven in this region. Indeed, as I had discovered, the same expedition that charted out the original borders of the nature reserve had revealed the first traces of nickel deposits in the area.

The pollution that denuded large swaths of surrounding vegetation grew in part from a refusal to acknowledge that industrial output and nature protection usually remain at odds. Nickel smelting is an inherently dirty business, but the Soviet experience with it was environmentally unremarkable until the Brezhnev era. Sulfur emissions at Severonikel’ even began to stabilize in the end of the 1960s. At the time an observer would certainly have had to conclude that the Sudbury nickel mines in Canada were much more destructive to the landscape than those in northwest Russia.

What happened next, though, made the USSR earn its reputation for ecocide. With local deposits exhausted, Severonikel’ switched to processing ore shipped from elsewhere in the country (in particular Norilsk and the nearby Pechenga region). This ore tended to have significantly higher sulfur content than local materials, quickly outflanking the reprocessing efforts at the plant. Engineers at the firm recognized by this point that “the products of metallurgical manufacturing—the dusts of sulfides
and the oxides of nickel and copper, carbon monoxide, sulfur gas, and nickel solutions—are to varying degrees toxic.” Yet metallurgical manufacturing skyrocketed during the 1970s and 1980s, leading to a more than doubling of sulfur dioxide emissions. Crossing critical thresholds, the environmental damage from this pollution rapidly accelerated until the de-industrialization of the 1990s brought reprieve to the landscape and poverty to the population.

It was not simply the Prometheanism of the Soviet regime or inefficiencies of the communist command economy that generated extreme environmental damage. In the late twentieth century awareness of pollution problems clashed with the continuation of an economic model based primarily on increasing output. As political leaders signed international agreements to cut emissions, the plants continued to produce more metals. The USSR should rightly be held accountable for the resultant environmental failures. But this calamity belonged primarily to late socialism, not to Stalinism.

Appreciating the temporal dimension of Arctic pollution makes this toxic place feel closer to home. Though Severonikel’ dwarfed it in scale, the aluminum caster down the street from me has its own sordid history of pollution. If the nickel industry in the Soviet north offers a story of hell, then perhaps it is only one circle of it. Much of what the country did to degrade the taiga mirrors the actions of extractive industries elsewhere.

*Andy Bruno* is Assistant Professor of History and Faculty Associate in Environmental Studies at Northern Illinois University. He is the author of *The Nature of Soviet Power: An Arctic Environmental History.*
Toxic Canals

Simona Grano, Department of Sinology, University of Zürich.

In my professional capacity as academic, I work on industrial pollution issues in China and Taiwan (Grano, 2016/2015). I am so absorbed by the need to keep up with what happens in these two places, that I rarely pause to think about what has gotten me interested in such issues in the first place; more specifically, how my personal background has spurred my academic interests.

I grew up in the city of Venice, famous all over the world for its majestic beauty, its canals and the feeling of magnificence that its alleys and palaces still exude; however, Venice has a much darker side, which is rarely talked about and remains unknown to most of its visitors, despite it being highly visible from incoming planes.

Venice is in fact one of the few places in Italy (together with Ferrara, Ravenna, Mantova and a handful more) that host a vast industrial park primarily focused on the petrochemical sector: Porto Marghera.

To avoid negatively impacting the historical city and tourism “by 1917 the Italian government had decided to develop an industrial zone and state of the art port at Marghera on the mainland opposite Venice” (Madden, 2012). The area, which back in the 1940s already employed over 17,000 workers scattered among some 100 facilities (Fabbri, 2003: 27) grew exponentially throughout the years and underwent two big expansions with a second and a third industrial zone being built in the 50s and 60s, reaching a total area of 13,000 square meters by the end of the decade; by the late 1960s Porto Marghera employed 7,800 workers in the chemical sector alone (Ibidem: 29). A variety of toxic gases and substances produced here were used for nefarious scopes such as sulfur in the 30s, which was utilized to prepare Sulfur mustard[1], a
toxic gas used in the Ethiopia war in 1936 (Ibidem: 27). So it is that the Northeast became one of the most important industrial areas as well as one of the most polluted places in Italy; a fact that many unaware tourists, who bathe in the Lido’s waters, still ignore (as do many of its inhabitants, for that matter).

From the beautiful island of Lido, famous for hosting the Venice International Film Festival every September as well as for its pretty beaches and lavish hotels, directly facing Marghera it is possible to observe the industrial park’s chimneys; spewing out gases and churning flames that are especially visible at night, they form a surreal contrast with the surrounding tranquility of the laguna and the beauty of Venice and its grandiose palaces.

Incidentally, the Lido is also where I grew up, where I played and swam for various summers and where, later, I spent innumerable nights drinking wine and chatting with friends in bars located alongside the laguna, opposite the industrial-jungle landscape of Marghera.

Throughout the years the industrial park has been marred by a series of incidents and its reputation has been tainted by a big scandal regarding the safety of its workers, which later became a legal dispute.\[2\]

I remember in 2001 when a toxic gas release prompted the local authorities to declare an emergency situation and alerted the nearby areas of Malcontenta, Mestre and Venice (La Repubblica, 2001). I was at a friend’s house at that time and we were about to head home when his mother turned on the news. She then gave us two handkerchiefs to cover our mouths with and sent us on our way. I doubt that such a
countermeasure indeed helped but I do remember the strange feeling of walking in the eerily empty alleys, clutching the tissue in front of my mouth and nose as if my life depended on it.

_Truth be told, we might have been overreacting a little but then maybe not. The problem in fact, is that this kind of pollution is invisible thus altering people’s perception of a real danger. We trick ourselves into believing that if something is not visible then it does not exist._

Judging from similar “unseen” pollution incidents, such as Fukushima and Chernobyl, we should know better.

_Perce I am not against development. I actually think that progress, science and technology, if used wisely, can (and have – just look at the advances we have made in the medical field) make our lives better._

_I see a common thread of human corruption; men are capable of concealing crucial facts, which would benefit factories’ workers safety, just to increase profits._

What worries me though, is that no matter whether I do research on Taiwan or on China or whether I look at my own backyard, I see a common thread of human corruption; men are capable of concealing crucial facts, which would benefit factories’ workers safety, just to increase profits.

Countless lives have been lost in similar cases all over the world: Taiwan and the RCA case[3], China and its widespread industrial pollution issues and cancer villages, Italy and Porto Marghera and many more.

So the thing we need to fight against is corruption. We need to make sure that we can develop a technological progress, which does not wreak havoc on the surrounding natural resources and nearby fauna and is respectful of workers. To achieve this environmental activists and eco-friendly citizens also need to learn that being _a priori_ against development is not the best solution. We need to fight for more transparency, more respect for industrial plants’ workers and in the direction of trying to diminish corruption and clientele networks existing among some developers, who still place profit ahead of public safety. If we can achieve this we shall be able to create a development that can actually improve our quality of life rather than shattering it.

All featured images: credit Simona Grano
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Simona Grano is Teaching and Research Fellow at the Department of Sinology, University of Zürich. Her research interests include Chinese contemporary society, environmental law and legal awareness, environmental issues in China and Taiwan, and green social movements.

[Featured images credit Simona Grano]

[1] Despite its seemingly harmless name Sulfur mustard, commonly known as “mustard gas”, is a cytotoxic and vesicant chemical warfare agent with the ability to form large blisters on the exposed skin and in the lungs.

[2] The Company Montedison, located in the industrial park, has been brought to court and accused of having neglected to protect its workers for years, knowingly allowing them to work in unsafe conditions, getting them exposed to toxic gases such as vinyl chloride monomer, used to produce PVC; 157 workers died and 103 got sick. In 1998 a public prosecutor named Felice Casson decided to bring to court the management of Montedison, Enichem and Enimont (Gaia Italia, 2001). In 2001, 28 indicted individuals were acquitted; however, a second appeal overturned the first verdict and handed
down convictions for 5 of the top managers. In reality though, the sentence remained purely symbolical given the statute of limitation. An oral history of the workers and families of those whose life got shattered by the petrochemical plant ensued (Bettin, 1998).

[3] Radio Corp of America (RCA) operated in Taiwan from 1970 to 1992, with plants in Taoyuan County, Hsinchu County, and Yilan County, employing tens of thousands of people in the production of color TVs and other electronics products; using up to 31 types of organic solvent, including trichloroethylene and tetrachloroethene, exposure to which increases the risk of cancer. Furthermore, in 1998 the Environmental Protection Administration (EPA) discovered that the company had illegally dug wells to discharge the toxic waste. Doing so, it contaminated tap water used by its workers and nearby residents. The site has been defined as one of “permanent contamination” by the very same EPA and eventually more than 1,300 former workers contracted various types of cancer (Taipei Times, 2015).
Climate Change, Eco-Labelling, Corporate and Consumer Responsibility

India Holme, Department of Sociology, University of Warwick

“When it comes to sustainability, 2016 will be a year of distraction, fear and disruption. Around the world, a host of economic and political threats – including the refugee crisis, terrorism and teetering markets in Europe and China – will continue to crowd headlines... long term environmental destruction is likely to get pushed to the back burner of global consciousness. When people feel threatened and insecure, they generally turn to shorter term thinking and deprioritize pro-social behaviour. For consumers, this means corporate social responsibility (CSR) will simply not continue to drive buying decisions at the same level that it has in previous years.” (Jonah Sachs, the Guardian, 23rd December 2015)

With terrorist attacks, Brexit, the inquiry into the Iraq War and a plethora of other ‘big’ news causing concerns for citizens world-wide; I share Jonah’s fear that the collective ‘we’ of 2016 and the ‘we’ of the future are just too preoccupied with more immediate and terrifying threats than whether or not our pizza box can be recycled[1] and the sustainability life-cycle of our plastic water bottles.

Image credit: Prylara, Poxabay

I too have been wrapped up in Brexit and the fall out that has followed, with concerns for migrants, society, the British economy and the environment. But persistently, no matter the headlines, I now consider the consumer waste we create in a new light.

Image credit: Matthew Gollop, Pixabay

However, this light doesn't fill me with a warm, fuzzy glow – it fills me with questions and concerns. Take the plastic water bottle, a long-term sustainability ‘baddie’ but one
that I do sometimes use and recycle. I want the bottle to be recycled, but I, like many of us, rarely check that it can in fact be recycled. If it can’t be recycled, then how long does it take to decompose in landfill? And if it doesn’t go to landfill then where does it go? If it’s going to be incinerated then how damaging is this item, I am purchasing, to the environment? And to human health?

These questions now flood my mind on a daily basis. I have re-usable drinks flasks and spend ages scrubbing remnants of food from jars and shampoo dregs from bottles. But what if I could easily and affordably purchase greener items in the first place. A plastic tomato ketchup bottle that will one day form part of a children’s play area? A tin can that has been formed by tin cans and will form other tin cans forever more? This is where I feel frustrated. I want to be a responsible consumer, I would like to be part of a green economy and I agree that a circular economy is better for the environment; but I also feel ‘we’ as consumers are somewhat left in the dark when it comes to making more sustainable purchases and decisions.

I believe that if we made the process of selecting more environmentally friendly products as easy as possible, whilst ensuring people are aware of the earth’s future peril, that many more people would become proactive in the fight against climate change, even if this everyday ‘activism’ is popping alternative choices into their shopping trolleys, wasting less and recycling more.

If we continue to consume carbon at the rate that we are, by 2100 the world would be a completely different place.

For many people not well versed in the consequences of climate change or as I sing in my head... ‘It’s the end of the world as we know it...’ this ‘climate change theme tune’ may appear dramatic. But the situation is dire. If we continue to consume carbon at the rate that we are, by 2100 the world would be a completely different place.
this problem since they nearly all depend upon carbon. Arguably we are already feeling the consequences of these rising temperatures and things are only going to get worse. It is the poorest regions of our beautiful planet that will be hit the hardest, despite the residents of these afflicted areas having contributed far less to global carbon levels.[iii] The tonnes of annual carbon consumed (from goods and services) per person in developed countries can be high as 16.6 in the USA and 14.7 in Australia yet as low as 0.4 in developing countries like Bangladesh. The below fantastic interactive map simplistically shows a wealth of information regarding climate change, emissions, poverty and risk etc.

Image credit: The Guardian website

If climate change isn’t the most glaring example of environmental injustice, then I don’t know what is.

“The challenge of climate change is the management of potentially great risk to the lives and livelihoods of humankind over the coming century and beyond, whilst at the same time overcoming deep poverty, in all its dimensions, in the next two or three decades.” (Stern, 2015)

I wholeheartedly agree with Naomi Klein when she says we need to get proactive ‘as the door to reach two degrees is about to close. In 2017 it will be closed forever.’[v] The climate change situation is extreme. So given the extreme situation we are in; why am I banging on about eco-labels and product information? Clearly this isn’t going to 'save the world', but the fight against climate change needs a vast arsenal of weapons. One of these weapons can be reducing the number of products we consume that have
carbon footprints on the higher end of the scale whilst increasing the number of sustainable products we purchase AND re-using and recycling far greater percentages of these products than we currently are doing.

So given the extreme situation we are in; why am I banging on about eco-labels and product information? Clearly this isn't going to ‘save the world’, but the fight against climate change needs a vast arsenal of weapons.

The Sustainability Consortium (TSC), has recently published its first impact report on ‘Greening Global Supply Chains; From Blind Spots to Hot Spots for Action’. The Executive Summary states:

‘Global production and use of consumer goods accounts for more than 60 percent of all greenhouse gas emissions, 80 percent of water usage, and two-thirds of tropical forest loss globally. With 2.5 billion more people joining the consuming class in the next few decades, we must address the production, use, and disposal of consumer goods: a sustainable world requires sustainable production and consumption.’

There are many elements involved in the production of consumer goods, upstream supply chains at the initial stages of the products life-cycle, manufacturing, transportation etc. all the way to downstream chains, where it reaches the shelf, the consumer and then exits the consumer’s life and goes off to landfill, incineration, recycling plants and so on. Packaging is just one element of this and as TSC notes:

‘Reduction in packaging represents cost saving and a reduction in environmental impact visible to customers, which may explain why we see greater awareness and action around sustainable packaging opportunities than other impact areas.’ (2016 Impact report, p. 37)

As packaging faces the consumer, this is the ideal place to tell consumers that sustainability matters. If whilst shopping we are surrounded by packaging clearly telling us about its environmental sustainability, alongside our exposure to huge national government/NGO campaigns informing us of the effects of climate change and the need to behave and shop more sustainably then hopefully we will listen.
Sustainable packaging and recycling will make a difference to climate change. Recycling saves energy (energy produced by burning fossil fuels) because the manufacturer doesn’t have to produce something new from raw materials, it reduces landfills, it is good for economy because recycling and purchasing recycled products creates a greater demand for these products which use less water, create less pollution and use less energy.

If we are going to keep consuming then let’s at least consume products that can form part of a green circular economy.

When it comes to the issues of recycling and sustainable products that the efforts to create a better world need to come from ‘above’ and ‘below’ … ‘at all societal levels’, from government intervention and regulation, corporate responsibility and consumer demand. If we are going to keep consuming then let’s at least consume products that can form part of a green circular economy. We need to demand more products like this and much clearer information so that we can (very) easily make more sustainable choices.

Yet, when it comes to packaging a recent study found the majority of 1500 respondents from India, Sweden and the US ‘see major problems with society’s consumption of packaging’. Frustratingly, companies are still claiming that in many instances:

‘Encouraging customers to make sustainable choices is proving to be one of the most difficult environmental challenges for businesses in the twenty-first century.’ (Carbon Trust, November 2014)

Image credit: National Archives of the Food Standards Agency

This could partly be due to the reason that ‘while nutrition information is relatively standardised, sustainability information comes in a plethora of different forms with more than 100 different schemes available in the EU alone.’ (Peter Burgess, Head of Consumer and Sensory Sciences, Campden BRI, November 2015). As to the standardised nutritional information Berguess refers to, I love the traffic light system on food; red, amber, green, fat, sugar, salt – easy-peasy. Even with a screaming toddler and a mardy five year old I can glance at that and see that sauce ‘A’ is all red and ‘B’ is mostly green and amber; so in goes the latter and the former sits waiting for a less
scrutinising shopper. But what about the jar itself? Is it glass? Well that should be ok… shouldn’t it? They can smash that up and make some new jars. Or perhaps its plastic… is it ‘good’ plastic or ‘bad’ plastic? Too much to consider in the blink of an eye on a mad shopping dash. So I consider it at the end point, as it exits my house and then I am filled with consumer guilt, is this going to wash up in pieces on the coast? Be burnt and pollute the air? Or sit in a hole for 500 years…?

Image credit: HQ Organics

Is there in fact some simple symbol I can look for on products that is related to the products lifecycle but I just don’t know about it? No, there isn’t. There are many symbols as Burgess mentioned, they are complicated and small and often quite hard to find. Unless you can memorise the meaning of each of them, I don’t believe they are that much use at all. TSC’s Impact Report also highlights the abundance and complexity of eco-labels: over 450 with over 200 different ecological, ethical, or sustainability attributes for food, and over 30 symbols and labels just for the natural and organic cosmetic products alone (2016 Impact Report, p. 20). The main reason for this is that ‘they have been developed relatively independently of one another and thus are not aligned around materiality or measurement standards’ (2016 Impact Report, p20).

Image credit: Geralt, Pixabay

As a good ‘millennial’ I decided to consult a couple of community groups on Facebook and ask people’s views on packaging and sustainability with reference to the traffic light system. Some people commented that a very clear system would ‘make them think twice about purchasing things’; would ‘tempt’ them ‘to buy the environmentally friendly product… (as they) always make choices based on advice on packaging i.e. eggs (free range) tuna (how fished) etc.’. The overall consensus was that it would ‘influence’ people when shopping. Others commented that ‘until manufacturers are made to pay we have little chance on making the big impact required’ and ‘it would just be better if it were
enforced for all companies to use the packaging with the least time to biodegrade’, whilst a couple of people suggested huge reductions in packaging/no packaging. This led to some interesting ‘Googling’ of my own and whilst it isn’t something I can cover here there are some great articles about package free shops.[vi] However, people’s comments did reassure me that this is something (some) people care about and that it could hopefully change consumer habits, and as some people highlighted it could then change manufacturing ‘habits’.

The Carbon Trust argues that ‘companies need to use the full marketing and advertising arsenal at their disposal to encourage consumer uptake of sustainable products. Branding, packaging, promotion, and placement all have to be effectively deployed. These are well-proven techniques that are known to work.’ (November 2015, accessed 06/07/2016).

Image credit: Graham CC9, Flikr

Clearly we like to buy ‘stuff’, so let’s start buying environmentally and socially ‘better stuff’. [vii] I agree with Andy Ridley, the founder of WWF’s Earth Hour, that ‘a longstanding problem for the sustainability movement is that it’s tended to demand we stop this or that rather than offer attractive alternatives’. The circular economy, however, isn’t saying we should stop consuming, it’s saying we should start consuming differently’ ([the Guardian, 28/06/2016]).

‘The choices we make when we are shopping are very important, particularly when it comes to the types of packaging we select with the goods we buy. By consciously favouring packaging that has been manufactured in a sustainable way from materials that can be renewed or recycled, we send an important message back to the manufacturers, a message that will influence their future actions. Packers, in turn, need to provide the information that consumers need to make these informed choices.’ ([Ebro Color: success through packaging)]

Encouraging consumers to choose more sustainable products and making it easier for them to do so has so many positive outcomes.
Surely we can come up with something better than what we have at present. Governments, NGOs, consumer groups and industry need to work together to create something meaningful. Encouraging consumers to choose more sustainable products and making it easier for them to do so has so many positive outcomes. According to a report by PWC, this is good for business profits, the economy and great for combatting climate change; greening production lines and greening the economy can also help to create between 15 and 60 million jobs (report by UNEP).

We need some help to consume differently on a mass scale. We need clear, simple information, we need to be made aware of the threat of increasing climate change and how it effects the planet and our lives. And we need:

“… a verifiable, understandable, and authoritative “nutrition label” for green. Until the appearance of the nutrition label on store shelves, you’d rarely find shoppers poring over the back of that box of cereal trying to figure out if it was good for little Timmy’s tummy. But once the standards were put in place, consumer behavior changed to accommodate the new trustworthy comparative data. The same thing will happen with green.” [viii]

If we combine meaningful nutrition style labels, a government campaign about climate change and use some ‘cultural manipulation’ then maybe eco-labels could make a difference. David Korten argues in his Agenda for a New Economy that,

‘Corporate advertisers and public relations propagandists have mastered and professionalized the arts of such cultural manipulation, particularly through corporate-controlled mass media.’ [ix]

...imagine if governments and industry ensured that ‘doing’ something was as simple as possible? As simple as buying ‘this’ instead of ‘that’ and popping the 100% recyclable packaging in ‘this’ bin instead of ‘that’ one.

Imagine if this mastery was put to telling us all about climate change [x] and what we can do? And imagine if governments and industry ensured that ‘doing’ something was
as simple as possible? As simple as buying ‘this’ instead of ‘that’ and popping the 100% recyclable packaging in ‘this’ bin instead of ‘that’ one. Imagine if consumers knew more about climate change and demanded more sustainable products that support the green economy. Imagine if doing this created a better, healthier environment. Imagine if creating a simple, at a glance, yet meaningful ‘sustainability accreditation system’ meant that more people shopped sustainably. Imagine if this change, combined with many other changes meant we (as in the global ‘we’) could keep a 1.5 degree warming. I can imagine it. I think that collectively the world can reduce the rate of global warming ... if ‘we’ act now. If ‘we’ change our habits now. And if by ‘we’ – we mean everyone, from the North to the South, from the corporate boards to the manufacturing lines, from the producer to the consumer.

[i] The answer to whether or not we can recycle pizza boxes is a resounding ‘no’. Any paper, cardboard or polystyrene that has come into contact with any food (even if it has been cleaned) cannot be recycled as the oil from the food soaks into the paper fibres and cannot be dissolved. This includes frozen food containers where the food has been protected in additional wrapping, e.g. the frozen vs. take-away pizza box. Whilst we may assume the box has been protected from the oil the box itself is coated in a plastic polymer to prevent freezer burn and this means the boxes are not recyclable or compostable.

[ii] Defra describes the green economy as ‘where economic value and growth is maximised while managing all natural assets sustainably. Achieving a green economy means the transformation of the whole economy in terms to what is produced and used, who produces and uses it and how it is disposed of.’ The Economics of Waste and Waste Policy (June 2011, p. 6)


[vi] See, e.g., Packaging-free shopping on the rise in Europe; Germany’s first waste-free supermarket about to open its doors; List of Packaging-Free Shops.


[x] Coincidentally, during researching this piece the BBC and the Guardian have reported more fervently on climate change. However, we know from various studies that overall ‘climate change’ reports in the media are lacking, in particular in developing countries, see John O. Kakonge’s Global Policy Essay, (November 2011) ‘The Role of Media in the Climate Change Debate in Developing Counties’. An excellent resource for considering the media coverage of climate change is provided online by the University of Colorado.
Toxic E-Waste, Oriented Science

Yvan Schulz, Anthropology, University of Neuchâtel

Pick any media, artistic, activist, or academic account of discarded electrical and electronic devices (DEEDs) and there are good chances that toxics, environmental pollution and health risks figure prominently. E-waste, as DEEDs became known, reached the status of public problem in the early 2000s, when a number of non-governmental organizations (NGOs) issued reports denouncing the dangerous conditions people involved in the low-tech recycling of these devices live and work in, and pushing “rich” countries to take responsibility for their scrap instead of exporting it to “poor” ones. This framing progressively transformed into a master narrative: if anything, that is today what laypeople throughout the world know about e-waste. Featured Image: A chunk of printed circuit board lying on the ground in a dump in South China. Photo Credit: Yvan Schulz.

Photo credit: Greenpeace

E-waste flows form a threatening breaking wave. In China, Guiyu, a town located in Guangdong Province, became infamous worldwide as a pollution hotspot thanks in large part to awareness campaigns by NGOs such as the Basel Action Network and Greenpeace. In the mid-2000s Greenpeace produced a toxicology study about electronic waste in-
house and commissioned another. Soon there was a flurry of academic publications featuring China’s e-waste dismantling hubs and making this “waste flow”’s harmfulness visible through figures. This trend persists to this day, as a recent literature review makes clear.

This body of scholarship is the first one I came across in 2013, when I started working on my PhD. In the following years, while conducting ethnographic fieldwork in Guangdong Province and trying to unravel the social construction (Spector & Kitsuse 1977) of e-waste as a public problem, I engaged with people who had produced, or were producing, scientific data on the sanitary and environmental impact of DEEDs, especially in places where so-called “primitive” dismantling and processing takes place.

*What struck me is the confidence with which scientists spoke of pollutants’ presence, origins and effects in and close to “informal” dismantling sites.*

What struck me is the confidence with which scientists spoke of pollutants’ presence, origins and effects in and close to “informal” dismantling sites. Many of them took for granted that DEEDs represent a highly toxic material stock/flow that accounts — if not fully, then at least to a great extent — for the pollution measured in the local ground, air and water, as well as in the tissues of (mainly human) animals and plants living in those areas. They saw it as their task to contribute to a growing body of evidence that illustrates and reinforces what they, in fact, seemed to regard as an established fact, namely e-waste’s extreme noxiousness. I found that their oral narratives and writings provided little room for a discussion on the conclusiveness of their findings, the complex causality that links measurable pollution with concrete health effects, or the relative significance or severity of e-waste as a source of pollution in a country where, and at a time when, unfortunately, such sources abound.

Scientists’ steadfastness contrasted with my experience on the field, in particular with the fuzzy picture that resulted from my attempts to investigate the scale and effects of pollution. In interviews, for instance, local inhabitants gave widely varying accounts of the ways in which pollution impacted their lives (Lora-Wainwright 2013). This discrepancy intrigued me and prompted me to reflect on the conditions in which a science of e-waste toxicity is produced.
A strikingly imaginative photomontage consisting of a fake dam made up of DEEDs and a real river in South China. Photo credit: Royal Society of Chemistry

In this article, I want to challenge the assumption that such a science reproduces reality in a univocal and unproblematic way. Some readers will no doubt regard this argument as a commonplace (see Latour & Woolgar 1979) and contend that it applies to any form of scientific knowledge. Yet I believe it must be reasserted in connection with e-waste, be it only because a number of unsupported or widely exaggerated claims and distorted views on this topic have emerged in recent years (see Lepawsky 2014), some of which carried a clear aura of scientificity.

Before going any further, two things must be made clear. First, I am not making a claim for e-waste’s harmlessness or lack of impact. To observe, as I do, that some people take a given phenomena for granted, focus on it, and all but ignore others is entirely different from claiming that this phenomenon does not exist. Second, I have no academic training in earth or life sciences and therefore lack the skills needed to assess the validity of scientific studies according to these fields of enquiry’s own criteria. On the other hand, I spent a considerable amount of time in places where DEEDs are collected, dismantled and processed, and among people who engage in these activities or experience them in daily life. This, I think, makes me conscious of aspects that most toxicologists remain oblivious to.

A roadside trash heap in which e-waste and household waste mingle with each other. Photo credit: Yvan Schulz
E-Waste: Environmental Risk Par Excellence?

In April 2015, I came across the name of a Chinese expert in geochemistry who had published on e-waste. He held a position at a national research institute and was based close to my home, so I contacted him. On the phone, upon hearing that I was conducting research in the same villages where he and his team had taken samples ten years ago, Prof. Chen (fake name) became very excited. He had not yet been back in that region of Guangdong Province but wished to initiate a follow-up study. He asked whether I could help him organize a workshop for his students in which local recyclers would demonstrate “how they burn e-waste”. I knew that the latter would most likely refuse to participate, because the local environmental protection bureau had recently launched a campaign against pollution that targeted open burning explicitly as well as informal recyclers. In the words of an official, the issue was “sensitive”.

My data also suggested that open burning was not a common practice any more, and therefore arguably not as serious a problem as it had been in previous years. Recyclers used to burn electrical cables, among other parts, because they were interested above all in the (internal) copper wire and wanted to get rid of the (external) plastic sheath. But they later found a technique to separate one from the other and can now valorise both. Moreover, burning had become considerably more risky in the wake of media reports and ramped up controls by state authorities.

I shared this information with Prof. Chen, who understood, but asked me to keep an eye open for “small stoves” anyway. One of his peers at a prestigious Chinese university, he explained, was conducting a laboratory experiment that simulated open burning of e-waste and measured emanations. Prof. Chen wanted to follow suit and therefore needed to know, not so much whether informal recyclers in Guangdong Province were still burning e-waste at present, but how.
A week later, Prof. Chen came back to me with another plan: he had put together two groups of students from well-known universities and decided to send them to the field to collect samples of air and plant tissue. The goal was to measure levels of highly toxic pollutants such as flame retardants. I was invited to attend their preparatory meeting and, at some point during this meeting, Prof. Chen suggested that the students collect samples not only in and around the recycling site but also at intervals of five kilometres all the way back to the centre of a neighbouring metropolis. This came as a surprise to me and I first thought I had misunderstood. Were we not talking about a stretch of land about sixty kilometres long and covered with factories producing just about everything (e.g. furniture, drugs, apparel, toys, electronics)? In the presence of numerous other possible sources of pollutants, how could measurements be ascribed exclusively or even principally to e-waste? A junior researcher visibly shared my doubts and intervened in the discussion, but Prof. Chen eventually managed to impose the initial research design. In case e-waste recycling had any measurable impact on the lives of millions — not just thousands — of people it was clear that he wanted to be the one to prove it.

A few days later, the students and I were sitting in a bus and on our way to the “informal” recycling site. At some point, I caught a few words from a conversation between three girls. Two of them felt uncomfortable at the idea of spending a day in a “super polluted place”, whereas the third one believed it was “alright”, because they would be exposed for only a few hours. While listening, I could not help but think about the long list of pollutants that can be traced in high concentrations in the bodies of urbanites living — as these girls did — in one of China’s largest industrial clusters. They seemed to have forgotten, at least for a while, the serious smog, food insecurity...
and contaminated water that form part of their everyday lives, and were now obsessed instead with pollution arising from e-waste. For the whole group, in fact, e-waste seemed to have transformed into a synonym for pollution. One senior researcher, for instance, declared that he could already smell “burnt plastic” and thought it emanated from e-waste — despite the fact that we were still a good fifteen kilometres away from the recycling site. (In my view, a more plausible explanation was that we had just passed one of the millions of piles of burning household rubbish commonly found in villages in China due to rural collection systems’ limited effectivity.)

Industrial Parks and the Question of Access

After our preparatory meeting, when the group and I were having lunch together, several of the more advanced researchers had enquired about my work. Obviously, they did not expect a foreigner — and an anthropologist — to conduct research on e-waste in China. I commented that my job was not always easy and mentioned, among others, that I was systematically denied access to official, large-scale industrial parks and plants. My interlocutors expressed no surprise at all and acknowledged that they too have trouble getting the necessary authorizations. For this reason, they rarely collect samples in or close to those sites.

Suddenly, it occurred to me that the entire production of scientific knowledge on e-waste’s toxicity in China (pure laboratory tests excluded) relates to “informal” recycling hubs. This is not self-evident, because the country now also possesses a large number of licensed and state-monitored, or “formal”, recycling plants, which number more than 130 and are located throughout the country, close to large urban centres and generally in industrial parks (Tong et al. 2015). The companies who own them portray themselves — and are portrayed by central state authorities, the media and research institutes — as an environmentally friendly alternative to “independent” recyclers (Schulz 2015). In contemporary China, more generally, large, capital-intensive operations and businesses are routinely considered preferable to smaller, more artisanal ones (Schulz & Steuer forthcoming). However, I found out through my research that this is done on the basis of incomplete evidence, unbalanced comparisons and assumptions rather than comprehensive and systematic studies. We are therefore faced with an artificially contrasted picture of the recycling sector, to which Chinese toxicologists’ restrained access to certain types of facilities no doubt contributes.
A few months later, I visited another team of scientists: toxicologists who have been conducting research on one of China’s “informal” e-waste recycling hubs since the mid-2000s. I asked two professors (separately) if they had done any research on the town’s industrial park, which had recently been shored up and expanded, or on any other similar industrial facility. One of them replied that she wanted to measure the body burdens of workers employed in the new park, but her project had been put on hold by the park manager on the pretext that too few businesses had joined the park thus far and there would therefore be a lack of participants for the study. My interlocutor acknowledged that she had not expected to face such a hurdle — after all, the park was supposed to be a safer place for workers, so why not prove it? She considered it likely that the study would not start until 2017 or later. The second professor planned on repeating a series of blood analyses among the non-working local population. In other words, she was not going to try to penetrate the park. She also seemed unsure as to whether she should factor in the advent of the park and, if she did, how.

All Science is Political

*What the above ethnographic fragments make clear is how dominant narratives influence the production of science.*

What the above ethnographic fragments make clear is how dominant narratives influence the production of science. Existing studies on e-waste emphasize contamination in relation to either an artificial and supposedly general setting, i.e. the laboratory, or a concrete and specific one, i.e. “informal” recycling hubs. As a result, e-waste’s toxicity appears as both an intrinsic characteristic or potential, and the consequence of wrongdoing by small businesses. Other socio-economic actors’
responsibility, on the other hand, remains out of sight, which is problematic (Schulz & Steuer forthcoming; see also Lepawsky 2012).

Prejudices and ignorance are part and parcel of the process.

Blaming Chinese scientists, however, serves little purpose. Their actions — like those of scientists elsewhere and humans in general — are guided by the knowledge they possess and the gaps they try to fill. Prejudices and ignorance are part and parcel of the process. My intention in writing this article was not to criticize them or the work they do. Quite to the contrary, I believe scientists make a powerful and valuable contribution. But since their studies have political foundations and implications — whether they like it or not — scientists should strive for more awareness of, and control on, the ways in which they help shape the social and natural world. Only then can they be certain of doing more good than harm.

REFERENCES


**Yvan Schulz** is a PhD candidate in anthropology at the University of Neuchâtel and a visiting researcher at the University of Oxford. His research explores the so-called “afterlife” of discarded electrical and electronic devices in China (Guangdong Province) and is supported by a grant from the Swiss National Science Foundation.
Grapple Slings and Moonshine: Conversations with the men who tested atomic weapons on Christmas Island

Becky Alexis-Martin, Research Fellow, Department of Geography, University of Southampton @CalamityCake

Nuclear testing is often portrayed as a bombastic process, overshadowed by the devastating majesty of mushroom clouds and described in terms of annihilation or dramatic uncertainty. This is understandable, given the inherently destructive nature of nuclear weapons. However, my aim is not to sensationalise the British nuclear test series, but instead to provide a thought-provoking insight into the daily routines and experiences of the soldiers who travelled far from their families and homes to test the bomb.
Here, I share two personal narratives that describe some of the typical experiences of living within a military camp community, during British nuclear testing from 1952 to 1963. These particular communities and timescales are of interest to me due to being prior to the consolidation of the US-UK Mutual Defence Agreement. After 1963, much British nuclear testing was moved to Nevada, USA. However, prior to this, testing occurred on remote South Pacific British colonies. Therefore, some of the men toured Emu Field, across the desert of the Australian outback. Others visited Montebello Island near Australia; or Christmas Island, which is nestled within the Pacific Ocean. I have been told during conversations that “…people didn’t even travel to Spain” at this time, so I can imagine how exciting it must have been for the soldiers to have the opportunity to travel internationally. I personally still remember that precise moment when I stepped off an aeroplane for the first time, my own feet touching the burnished tarmac of Malaga airport. This was also the first chance for some of these men to leave their local communities. They travelled away from the tightly-knit social regulation of family and life-long friends, away from everything familiar, whilst jumbled up into regiments with a random assortment of other British soldiers. This the first time that many of these men would be able to define themselves on their own terms.

This piece explores two different personal accounts of travelling to Christmas Island. Whilst historically a colony, Christmas Island gained independence from the UK on 12th July 1979 and is now known as the Republic of Kiribati. It was the site of the Grapple test series from 1956 to 1958. In total, Operations Grapple X, Grapple Y and Grapple Z included nine nuclear detonations and enabled the UK to be recognised as the third nation to possess thermonuclear weapons. The first account describes the experiences of Ron, a member of the Royal Engineers regiment who had previously toured Germany before travelling by ship to Christmas Island on Boxing Day 1957, whereas the second account explores the experiences of Peter, a RAF Senior Aircraftsman (SAC) who flew for the first time on his first tour to Christmas Island in March 1958.
My first veteran, Ron, decided to join the army immediately after leaving grammar school. He told me “I left home in 1954, when I was sixteen. I’d lived away...on camp for a couple of years anyway”. He had completed his military training by the summer of 1957 and had experienced his first tour of Germany, before returning to his home unit in Rippon, Yorkshire. After travelling home for Christmas, he was redeployed to Christmas Island on Boxing Day in 1957. His experience was shared uniquely by his unit, as only the Royal Engineers travelled en-masse by boat. “The whole unit went on a specially chartered train to Southampton, all thousand of us, then onto the boat and off we went...”. The young soldiers shared facilities in the hull of ship, sleeping in bunks that were three to four beds high. “The ship got out of Southampton and then trundled off into Atlantic. Most people were seasick for the first week, until reaching the Bay of Biscay. I was lucky though, as I was on the top bunk and wasn’t sea sick. The first week there was no queue for breakfast because of the seasickness. It was great until people started to recover, then you can imagine the queues”. I was told “There was tombola to keep us entertained and guard duties to keep us busy...We’d practice shooting on deck, throwing floating things over the side to aim at...”. The ship refuelled at Curacao, then travelled through the Panama Canal, with a stop-off at Panama City. Ron revealed a little about it. “We had a night out in Panama, we hit the bars and then the strip clubs...”. Hangovers must have been nursed as ship left the docks, and began venture across the Pacific Ocean on route to its final destination.

Initially unbeknownst to Ron, this ship also had an additional cargo of veterans’ wives and families. He told me a little more about this, and he said “Much of it was a publicity stunt. The boat went out with us all, and returned with the soldiers who were currently there. They were able to meet up with their families on the ship, and to have a cruise home together which was paid for by the MOD. I didn't see many of them, I think we were kept separately”. Whether it was a generous gesture, or a way to publically humanise the soldiers and separate them from their work, it must have been incredible for these men to...
have had such an unanticipated reunion. The regiment arrived in January 1958 after three weeks of travelling. The boat had to anchor offshore, and soldiers were shipped onto the island by landing craft.

Ron described the soldier’s accommodation on the island in no uncertain terms “The tents were very primitive. We slept on camp beds, with metal legs to clip in, about 6 to 8 inches off the ground. The tents were big, with at least ten people in each tent. We were provided better beds later on...It was the way things worked, occasionally the supplies arrived before the soldiers”. He shared a disconcerting tale about the local wildlife. Large land crabs were abundant on Christmas Island, and “…they crawled into the tent and crawled over you at night”. His solution to this problem was to prop up his bed on jerry cans at night and to hope that he didn’t roll out in his sleep. We talked about day-to-day life on camp, and he said that whilst the main northern camp had washing facilities, the southern camp did not. The soldiers were provided with salt-water lathering soap and instructed to wash in the sea. He said “Think of all those naked young men running into the sea, it was quite a sight!”. I was momentarily lost for words, before bursting into laughter and jokingly asking for photographic evidence.

There was a cinema, a mess and a church. He was proud to tell me that there were two women from the Women’s Royal Voluntary Service (WRVS) who were permanent residents on camp. They had their own accommodation hut and were described by him as “matronly types”. Ron didn’t have much to do with the local population, as the locals lived mainly around the port. We talked leaving the island. He said that he only left twice during his time there, and told me about an unusual example of camp solidarity when he attended a funeral, a burial at sea away from the island. He was required to participate and I asked him if he knew anything about the deceased. He told me “I don’t know why he died, I just had to do the honours”. No questions were asked. The second time Ron left the island was more cheerful, as all the soldiers were provided with a holiday, and those on Christmas Island were sent to Hawaii. He therefore left Christmas Island for a week of relaxation, but ended up staying for an extra week because the plane “conked out”. This plane was also used to pick up supplies, such as fresh fruit and vegetables. When I asked about the food on camp, he described it as “normal” for the time. I told him I was interested in his day-to-day life, but somehow our conversation diverged. Instead, we talked about managing risks to health, and he described the white powdery anti-malaria tablets that were prescribed with each meal. He also told me that the entire camp was “zapped” daily by an aeroplane spraying DDT to kill mosquitoes. He said it was commonplace at the time, but he was concerned about the effects of inhaling biocide.
I wanted to know how Ron spent his free time, and we talked about how the lack of local travel restrictions on the island. “I used to go swimming, go walking, I’d borrow a 4×4 and take off to a lagoon in the middle of the island”. He told me that learnt to drive without a licence, whilst working for a scientist from Aldermaston. He would tow and set up the generators for the scientist’s cameras. There also were no petrol stations, just jerry cans of petrol which were emptied and left on the side of the road, and were later re-filled by another soldier. Unsurprisingly, the soldier’s work and life seem deeply intertwined.

The last thing we spoke about was family. I asked him if he missed his parents whilst he was on tour, but he’d previously left home at sixteen. Letters were written to the soldier’s families by the commanding officer. He said “these letters explained where we were and what we were doing, for instance, constructing buildings or repairing roads. My mother kept mine – I discovered them in her home after she passed away. I still have them”. Ron also wrote letters to his mother himself, and posted some more unusual souvenirs of his experience. “I used to post coconut shells back to England – you’d just write the address on the shell”. I asked for his final thoughts on the experience at the time, and he said to me “You can’t imagine…it was so exciting”. However, in the years that have accumulated since atomic testing, his perspective has changed. He worries about the health of his contemporaries and the impact upon their families. He has requested his own military medical records with little success. Whilst he is healthy, he worries about the availability of information, and wonders whether this material has been intentionally misplaced rather than lost. I thanked Ron for sharing his experiences with me and wished him well.

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My second veteran, Peter, was called up for National Service. His first posting was in 1957, to RAF Stanbridge for a year of training before travelling to Christmas Island. RAF Stanbridge was an attachment of Bletchley Park during the Cold War. He described Stanbridge to me as “…behind a fence, everything (the facilities for the soldiers) was outside, and the RAF police were armed, which was unusual in those days – Even the police didn’t know what we did”. It sounds like an interesting but formidable environment. Peter told me a story about his trip for a medical before travelling to Christmas Island. He was told to report to RAF Wroughton hospital, to have a small scar examined from surgery during 1949. He told me that he had been “on sick” a couple of times previously, due to pain from this scar, so this seemed reasonable. However, he described his surprise at being retained for medical monitoring. “I went, and I was in there for four days – they didn’t let me shave and then four days later they discharged me. I received a medical before leaving. They monitored my blood pressure, pulse, temperature, took a couple of blood samples”. Peter continued to tell me about his first experience of travelling, “I had never flown before I travelled to Christmas Island. I was notified about a week in advance. I was told to go to London airport with my coat and kit bag… we travelled with everything. There were men with overcoats and gloves travelling to a tropical island. Can you imagine!”. He said that he didn’t know anyone when he arrived at the airport, but that he quickly made friends with some of the other servicemen on the flight. He flew with British Overseas Airways Corporation (BOAC), the forerunner of British Airways. The flight was palatial, as BOAC was the “posh airline of the day, proper china and glass and all that – none of the plastic stuff”. Peter flew from London to New York, then from San Francisco and beyond with PanAm (Pan-American Airlines). When he arrived in San Francisco he was given the option of either remaining in the airport, or taking a guided coach tour of the city with the other soldiers. He recalled that it was a hot day and that neither choice sounded appealing –instead, he made the decision to sneak out of the airport with another soldier, after the other men had left for the coach tour. They hadn’t got far before they were stopped by local policemen. They asked to go somewhere nice, and were given a lift to a small town near the airport called San Bruno. Peter told me “We walked into the bar and felt like stars for the day. A couple of expats came up to meet us, and there were some incredible stories. We got quite drunk. When we left, we called a taxi back to the airport, and discovered that our taxi had already been paid for. Everyone else returned from the coach trip looking glum, so we had to be quiet about our adventure”. I asked him how he would describe the travelling experience, and he said “It was an adventure, a luxury holiday across the world”.

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were told to face away from any detonations, and to cover their eyes with the palms of their hands.

Upon arrival on Christmas Island, Peter initially lived in a transit tent, before being moved to the JLC line, which he described as being the nerve centre of the island. He shared a three berth tent, specifying that there were no two berths due to the historical prohibition of homosexuality. His environment was spartan “You were given a camp bed, which was made of springs with material stretched across it. We had to keep them off the ground, otherwise you’d wake up in the night with a land crab on your chest – they sought out the warmth of your body”. It was a military offence to deliberately kill a land crab, primarily because they scavenged rubbish, but also because thousands of bluebottles bred within the shells of the dead ones. I was rapt as Peter continued to describe them as “…big old things. They could open a coconut – they would get their claws into the indents at the top and get them open. People didn’t like them, but they did you no harm unless you annoyed them, and then they would spit at you”. My eyes widened in surprise at the spitting crabs, and he chuckled at my reaction, before continuing to say “There’s a lot you don’t know! The Fijians called them Laro and they ate them – we didn’t though”. Peter attended an induction at the open-air cinema when he arrived on the island. He said that for soldiers, radiation was just another piece of jargon. The health and safety officer said to them that they would receive no more radiation than from an x-ray, during their time on Christmas Island. They were told to face away from any detonations, and to cover their eyes with the palms of their hands. During this briefing, the soldiers were also warned to protect themselves from sunburn and sunstroke by wearing regulation scarves, hats and sunglasses. Sunburn was classified as a “self-inflicted injury” by the forces. However, on return from his briefing, Peter was informed by his own duty officer that wearing his sun glasses would weaken his eyes. Peter felt obliged to listen to him, despite the conflict of available information.

Peter celebrated his twentieth birthday one week after arrival, and his description of this provided an interesting insight into camp social culture. He told me “there were no spirits available for us lads, only the officers had spirits, so we got drunk on warm tinned Guinness and brandy. The Guinness was out-of-date and the refrigeration system had broken”. There was a disparity between the experiences of the soldiers and the officers. The senior ranks relaxed and drunk Tom Collins and Grapple Sling cocktails in the officers’ facilities, delicate combinations of gin or whisky with tonic water, lemon and sugar syrup. Whilst the officers enjoyed civilised socials, the troops were attempting to make their own potent moonshine to supplement their “tinnies”, which was brewed in gallon jars that were covertly buried in the sand beneath their tents.
There was a designated mess tent, where the soldiers ate from utilitarian metal trays with compartments for each type of food. Peter recalled that “if you weren’t careful with your tray, your custard and gravy would escape their respective compartments and combine. The food was fairly normal, but we did have to pick steam flies (cockroaches) from the bread sometimes. It was the first time I ate sweet potatoes, every day was the same, you had breakfast, dinner and lunch”. He told me that whilst the soldiers had one portion per meal, the Fijian community who were working on camp could return multiple times for further helpings of food. I wondered if this was because their work was more arduous, or if it was an attempt to improve local community relations. The Fijian community were general labourers, emptying the Elsans (chemical toilets), which Peter described as “pretty revolting”. Whilst the soldiers enjoyed meeting others at the NAFFI, Peter told me that you “stuck to your own lot” and didn’t fraternise with the locals.

We talked about his journey home on the Captain Cook. He described the ship as a “a rust bucket, I think it was the last trip it ever did…”. He also experienced a night in Christabel, Panama. “It was rough...a Caribbean-type port and all the locals were skint. They latched onto us for anything they could get. We had a few beers, and a few blokes got drunk and ended up in places they shouldn’t have”. Following this, the ships lined up to travel through the Panama Canal. The merchant ships had organised for the nuclear veteran’s ship to travel first and lead the way through the canal, as a mark of respect to the soldiers. The final stop was Curacao. Peter said that “It (the ship) was only for service-people, but we were all from different parts of the island...Whilst travelling, we talked and discovered that different people in different places wore different things”. He pauses to contemplate whether this was because of differences in radiation protection need, or due to experimentation by the British government. A big question, and not one that I felt qualified to try to answer. The ship docked in Southampton on return. Peter said “My old man had a factory there so I could dump my stuff at his place. My officer told me to find myself some lodgings and not to come back in uniform. I had to find civvy digs (civilian housing), it was like working for the
government. Before Peter left, I asked him how he felt about being a nuclear test veteran, and he told me “I felt privileged to see something that no one else had, it was a unique experience”.

*Before Peter left, I asked him how he felt about being a nuclear test veteran, and he told me “I felt privileged to see something that no one else had, it was a unique experience”.*

Both Peter and Ron’s stories of time spent Christmas Island share parallels, but each also has a uniqueness which has been determined by that man’s own personal history and positionality. What is recalled and what is forgotten, what is significant or trivial to each individual. It has been a privilege to talk to both men, and I’m looking forward to approaching their discourse with an academic gaze as my research progresses.

*Becky Alexis-Martin* is a Research Fellow in Human Geography at the University of Southampton. Her research interests are focused around the human experiences of the international nuclear community, from the atomic veterans to the women of Chernobyl. She is the Principal Investigator of Nuclear Families, an Aged Veterans Fund supported project which explores the lives of the British Nuclear test veterans and their families.

[Featured images, credit R.Watson and the BNTVA archive]